Canadian Nuclear Laboratories | Laboratoires Nucléaires Canadiens

Supplier Document

Environmental Impact Statement – NPD Closure Project

64-509200-ENA-004

Revision 4

Accepted by: _____ 2024-10-11

George Dolinar
Director, Corporate Environmental Protection

Date

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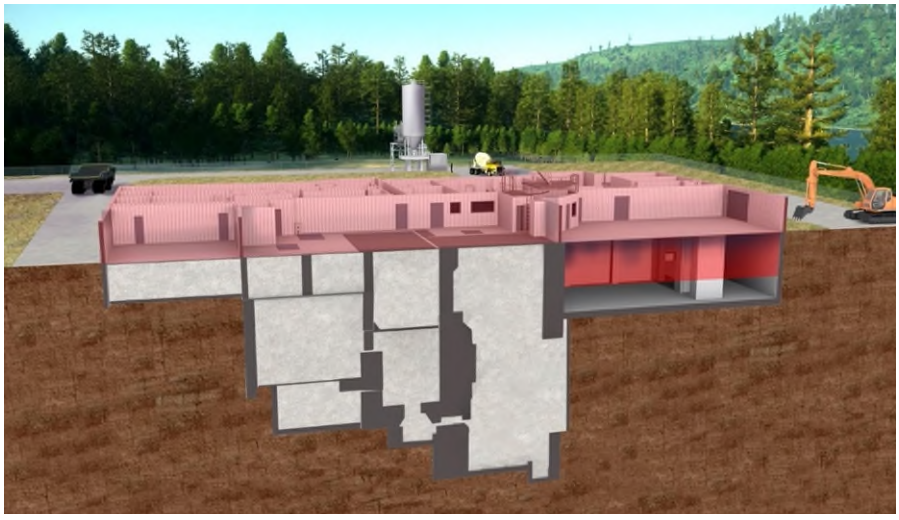
Nuclear Power Demonstration Closure Project

Rolphton, Renfrew County, Ontario

Canadian Nuclear Laboratories

Laboratoires Nucléaires Canadiens

ENVIRONMENTAL IMPACT STATEMENT



Revision 4

Prepared by:

ARCADIS Design & Consultancy for natural and built assets

CEAA Reference No. 80121

Project Number: 351240-000

October 2024

ARCADIS

ENVIRONMENTAL IMPACT STATEMENT

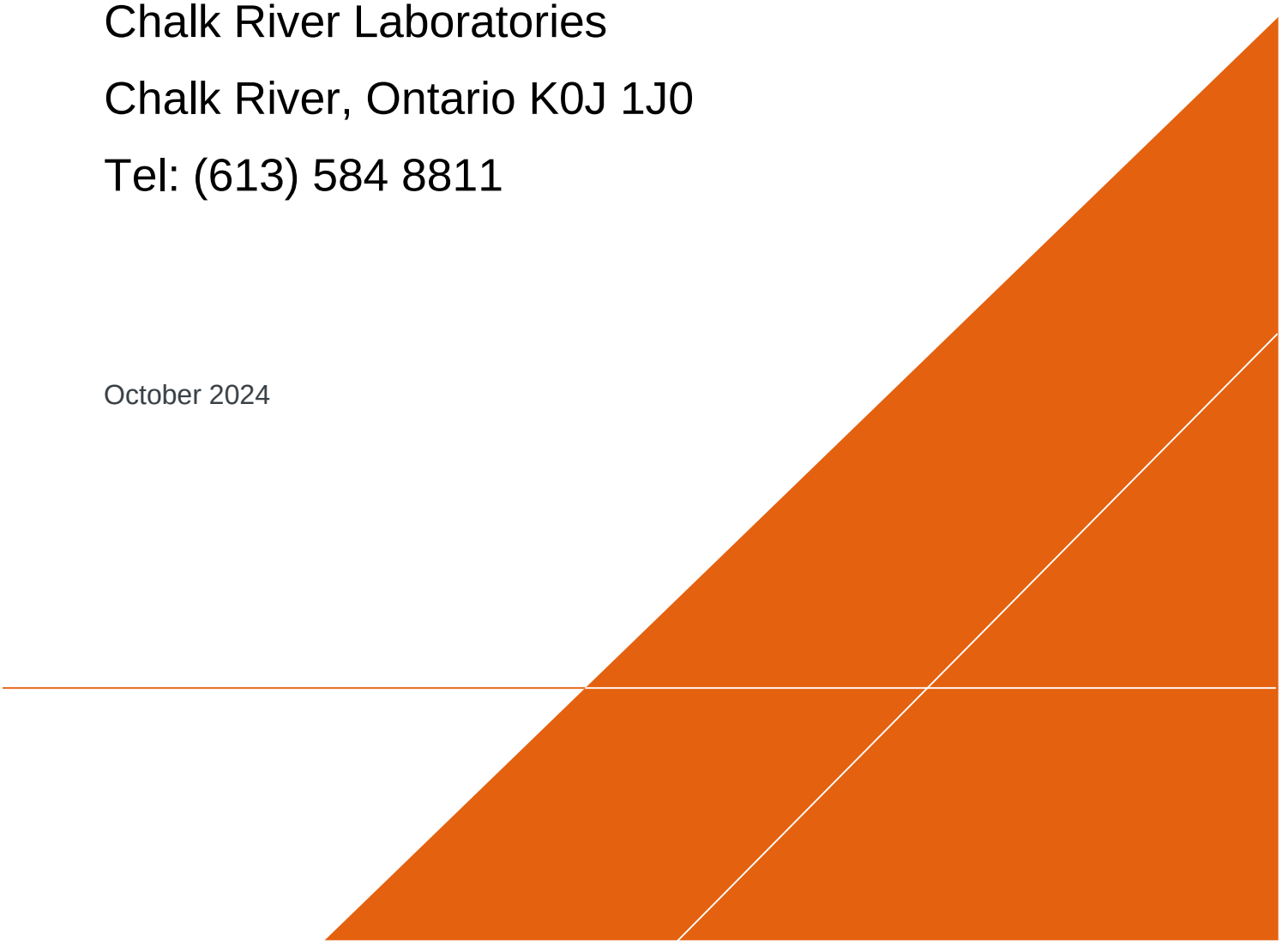
Canadian Nuclear Laboratories

Chalk River Laboratories

Chalk River, Ontario K0J 1J0

Tel: (613) 584 8811

October 2024



CNL Acceptance:

Katie Shorter

Manager, NPD Regulatory Approvals

Arcadis Project Director; Approver:

Nava C. Garisto

Vice President, Radioactive Waste Management & Decommissioning

Reviewer:

Nava C. Garisto

Vice President, Radioactive Waste Management & Decommissioning

Authors:

Sean McKee

Environmental Scientist

Farrah Cooper

Project Engineer

ENVIRONMENTAL IMPACT STATEMENT

NPD Closure Project

Prepared for:

Canadian Nuclear Laboratories Ltd.

Chalk River Laboratories

286 Plant Road, Building 457

Chalk River, ON

K0J 1J0

Prepared by:

Arcadis Canada Inc.

8133 Warden Ave, Unit 300

Markham, ON L6G 1B3

Tel 905.763.2322

Arcadis Report No.:

351240-000

Date:

October 2024

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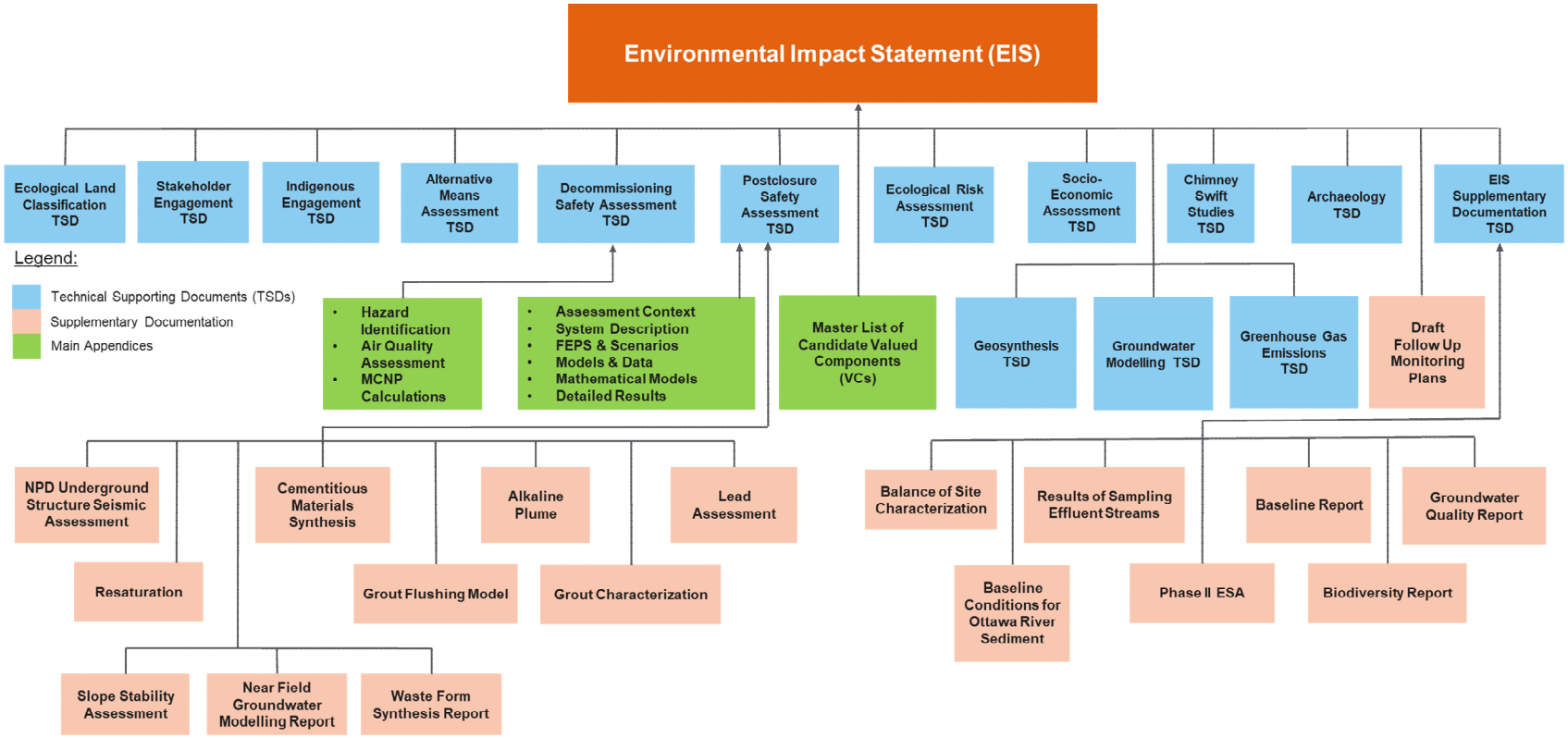
Revision History				
Revision		Details of Revision	Author	Reviewer
No/N°	Date (yyyy/mm/dd)			
0	2017/09/21	Original Report	F. Cooper, S. McKee	L. H. Johnson
1	2020/03/31	Updated to: - address the comments from the Federal and Provincial Review Team - reflect ongoing public and Indigenous engagement - include updated site and facility characterization - based on updated technical supporting documents	S. McKee, F. Cooper	N. Garisto
2	2020/12/11	Updated to: - Address the comments from the public and Indigenous Nations, communities and organizations - Technical feedback on the NSDF project EIS - reflect ongoing public and Indigenous engagement - general improvements	S. McKee, F. Cooper	X. Tong F. Garisto
3	2021/12/15	Updated to: - Address the comments from the public and Indigenous Nations, communities and organizations - reflect ongoing public and Indigenous engagement - general improvements	S. McKee	F. Cooper
4	2024/10/11	Updated to: - Address the comments from the public and Indigenous Nations, communities and organizations - reflect ongoing public and Indigenous engagement - reflect new baseline characterization and updated technical supporting documents - general improvements	S. McKee	S. Kumar R. Kovacs N. Garisto

Environmental Impact Statement - NPD Closure Project

This Environmental Impact Statement (EIS) has been prepared as part of the Environmental Assessment (EA) process, in support of the Nuclear Power Demonstration (NPD) Closure Project.

The following figure shows the various documents associated with the EIS, and their relationships.



Technical Supporting Documents (TSDs) are available upon request by contacting ermstakeholder@cnl.ca.

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1 GLOSSARY

GLOSSARY of Technical Words, Acronyms and Abbreviations

µSv	Microsievert (see Sievert)
AAC	Algonquin Advisory Committee
AANTC	Algonquin Anishinabeg Nation Tribal Council
AAQC	Ambient Air Quality Criteria
Abatement	The ending, reduction, or lessening of something.
ABL	Algonquins of Barriere Lake
Activation product	Materials made radioactive by neutron activation
ACR	Annual Compliance Report
AECB	Atomic Energy Control Board
AECL	Atomic Energy of Canada Limited
AEGL	Acute Exposure Guideline Levels
AFE	Annual frequency of occurrence
Ag-108m	Metastable isotope Silver-108
AKLUS	Algonquin Knowledge and Land Use Study
ALARA	“As Low As Reasonably Achievable” -A principle of radiation protection that holds that exposures to radiation are kept as low as reasonably achievable, social and economic factors taken into account.
Alpha parameter	The alpha parameter is a direct index of how flow relates to recharge (see the Groundwater Modelling TSD)
Albedo	A measure of the reflectivity of the earth’s surface
Alluvial	Made up of or found in the materials that are left by the water of rivers, floods, etc.
Am-241	Isotope Americium-241
Am-242m	Metastable isotope Americium-242
Am-243	Isotope Americium-243
AMA	Alternative Means Assessment
Amphibolite	Amphibolite is a coarse-grained metamorphic rock
Anisotropy ratio (K_h/ K_v)	The ratio of horizontal to vertical permeability (Kv/Kh)
ANR	Algonquin Negotiation Representatives
Anthropogenic	Coming from, or having been caused by humans
AOO	Algonquins of Ontario
AOPFN	Algonquins of Pikwàkanagàn First Nation
asl	Above sea level

Environmental Impact Statement - NPD Closure Project

1 Glossary

ATRIS	Aboriginal and Treaty Rights Information System
Best practice	An industry-accepted approach (for example, toward a design, process or procedure) that is acknowledged as consistently producing superior results.
Biota	All living organisms, including humans
Biotite	A large group of black mica minerals that are commonly found in igneous and metamorphic rocks.
Bowen Ratio	A mathematical method generally used to calculate heat lost (or gained) in a substance.
Bq	Becquerel – The SI (International System) unit of radioactivity, corresponding to one disintegration per second.
BRA	Background Reference Areas
BRW	Background reference wells
BV	Benchmark Value
C-14	Isotope Carbon-14
Ca-41	Isotope Calcium-41
C-A-S-H	Calcium-aluminum-silicate-hydrate
CAAQS	Canadian Ambient Air Quality Standards
CANDU	CANada Deuterium Uranium
CAP	Community Advisory Panel
CCME	Canadian Council of Ministers of the Environment
Cd-113m	Metastable isotope Cadmium-113
CEAA	*Canadian Environmental Assessment Act*
CEQG	Canadian Environmental Quality Guidelines
CEPA	Canadian Environmental Protection Act
CH_4	Methane
CHC	Center for Hearing and Communication
Chemical pickling	A metal treatment process that removes surface impurities and is commonly used to descale or clean steel, and can also be used to add corrosion resistance.
Cl-36	Isotope Chlorine-36
Class I Nuclear Facility	A Class IA nuclear facility and a Class IB nuclear facility. Class IA nuclear facilities are any of the following: (a) a nuclear fission or fusion reactor or subcritical nuclear assembly; and (b) a vehicle that is equipped with a nuclear reactor. Class IB nuclear facilities are any of the following:

	(a) a facility that includes a particle accelerator, other than a particle accelerator described in paragraphs (d) and (e) of the definition “Class II prescribed equipment” in section 1 of the Class II Nuclear Facilities and Prescribed Equipment Regulations; (b) a plant for the processing, reprocessing or separation of an isotope of uranium, thorium or plutonium; (c) a plant for the manufacture of a product from uranium, thorium or plutonium; (d) a plant, other than a Class II nuclear facility as defined in section 1 of the Class II Nuclear Facilities and Prescribed Equipment Regulations, for the processing or use, in a quantity greater than 10^{15} Bq per calendar year, of nuclear substances other than uranium, thorium or plutonium; (e) a facility for the disposal of a nuclear substance generated at another nuclear facility; and (f) a facility prescribed by paragraph 19(a) or (b) of the General Nuclear Safety and Control Regulations.
Clinopyroxene	A subgroup of pyroxenes, a group of important rock-forming inosilicate minerals found in many igneous and metamorphic rocks.
Cm-243	Isotope Curium-243
Cm-244	Isotope Curium-243
CNL	Canadian Nuclear Laboratories
CNS	Canadian Nuclear Society
CNSC	Canadian Nuclear Safety Commission
Co-60	Isotope Cobalt-60
CO_2	Carbon Dioxide
COPC	Contaminant of Potential Concern
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CRL	Chalk River Laboratories
Crown Corporation	A corporation that is established and regulated by a country’s state or government.
Cs-134	Isotope Cesium-134
Cs-135	Isotope Cesium-135
Cs-137	Isotope Cesium-137
CSA	Canadian Standards Association
C-S-H	Calcium-silicate-hydrate
CU	Characterization unit
CWQG	Canadian Water Quality Guidelines
CWS	Canadian Wildlife Service
dBA	A-Weighted Decibels

1 Glossary

DE	Decommissioning Execution – a phase of the NPD Closure Project which includes all activities associated with decommissioning of the NPDWF including setup and operation of the grout batch mixing plant, grouting and demolition activities, installation of the concrete cap and engineered cover, as well as site restoration and demobilization.
DecomSA	Decommissioning Safety Assessment – a Technical Supporting Document prepared for the NPD Closure Project.
Derived Release Limit	The release rate that would cause an individual of the most highly exposed group to receive and be committed to a dose equal to the regulatory annual dose limit due to release of a given radionuclide to air or surface water during normal operation of a nuclear facility over the period of a calendar year.
Design basis	The range of conditions and events taken explicitly into account in the design of a nuclear facility, according to established criteria, such that the facility can withstand this range without exceeding authorized limits.
DFO	Fisheries & Oceans Canada
DOE	U.S. Department of Energy
Dose limit	A maximum allowable radiation dose (effective dose or equivalent dose) which is in place to minimize the risk of adverse health effects due to radiation exposure.
Dosimeter	A device for measuring a dose of radiation that is worn or carried by an individual.
DQO	Data quality objective
DRL	See Derived Release Limit
EA	Environmental Assessment
EcoRA	Ecological Risk Assessment – a Technical Supporting Document prepared for the NPD Closure Project.
Effluent	Fluids discharged into a river, lake or sea (generally refers to fluids discharged into surface waters).
EIS	Environmental Impact Statement
ELC	Ecological Land Classification
EMB	Environmental Monitoring Branch
Entrainment	The incidental uptake of aquatic species small enough to pass through the filter (e.g., screen or grate) of a water intake pipe.
ECCC	Environment and Climate Change Canada
EnvP	Environmental Protection
EPH	Extractable Petroleum Hydrocarbons
ERPGs	Emergency Response Planning Guidelines
ERA	Environmental Risk Assessment

1 Glossary

ERM	Environmental Remediation Management, formerly known as Decommissioning & Waste Management
ESC	Environmental Stewardship Council
Eu-152	Isotope Europium-152
Eu-154	Isotope Europium-154
Eu-155	Isotope Europium-155
Fe-55	Isotope Iron-55
Feldspar	An abundant rock-forming mineral typically occurring as colorless or pale-colored crystals and consisting of aluminosilicates of potassium, sodium, and calcium.
Fission	The division of a heavy nucleus into two or more parts with masses of equal order of magnitude; usually accompanied by the emission of neutrons and gamma radiation.
FN	First Nation
Gamma radiation	A penetrating electromagnetic radiation of a kind arising from the radioactive decay of atomic nuclei.
Garnet	A group of silicate minerals
GCM	General Circulation Models
GHG	Greenhouse Gas
GoCo	Government-owned, Contractor-operated
Gneiss	A high-grade metamorphic rock, meaning that it has been subjected to higher temperatures and pressures than schist. It is formed by the metamorphosis of granite, or sedimentary rock.
Granulite	A class of high-grade metamorphic rocks
Grey water	Relatively clean wastewater (e.g., from sinks and showers)
Grout	A mixture of cementitious materials and water or other binding medium with fine aggregate. For the NPD Closure Project, the grout is a 90/10 mixture of Ground Blast Furnace Slag and Portland Cement with sand, water and admixtures that give the required fresh and cured properties.
GSC	Geological Survey of Canada
H-3	Isotope Hydrogen-3 (see Tritium)
Hazardous waste	Waste that is potentially hazardous to human health and/or the environment due to its nature and quantity and that require special handling and storage techniques.
Ho-166m	Metastable isotope Holmium-166
Hornblende	A complex inosilicate series of minerals
HTO	Tritiated Water
Hydraulic conductivity	A measure of the ease with which a fluid (usually water) can move through pore spaces or fractures.

1 Glossary

I-129	Isotope Iodine-129
IAEA	International Atomic Energy Agency
IC	See Institutional Controls phase
ICP-MS	Inductively coupled plasma mass spectrometry
IDLH	Immediately Dangerous to Life or Health
IEMP	Independent Environmental Monitoring Program
IER	Indigenous Engagement Report
IHSA	Infrastructure Health & Safety Association
ILW	See Intermediate Level Waste
Impingement	The retention of aquatic organisms against the filter (e.g., screen, grate) of a water intake pipe.
In-situ decommissioning	A method of carrying out decommissioning “in place”, the end-state of which is a disposal facility, thus the project now uses the term “in-situ disposal” (see below).
In-situ disposal	A method of carrying out disposal “in place”
Institutional Controls phase	A phase of the NPD Closure Project assumed to extend at least 100 years following the Decommissioning Execution phase. This involves the control of residual risks at a site after it has been decommissioned, as defined in REGDOC-2.11.1 Vol III (CNSC 2021a). The Institutional Controls phase may include active measures (such as surveillance and monitoring) and passive measures (such as access controls).
Intermediate Level Waste	Radioactive solid waste that typically exhibits levels of penetrating radiation sufficient to require shielding during handling and interim storage.
IPCA	Indigenous Protected Conservation Area
IR	Information request
ISAM	Improving Safety Assessment Methodologies
ISQG	Interim Sediment Quality Guidelines
ISRW	Integrated Strategy for Radioactive Waste
IWC	Integrated Work Control
IWS	Integrated Waste Strategy
K	Hydraulic conductivity
KFN	Kebaowek First Nation
KZA	Kitigan Zibi Anishinabeg
L1	Landfill 1
L2	Landfill 2
Lacustrine	Relating to or associated with lakes
L_C	Critical Level

1 Glossary

LCV	Lowest Chronic Value
L_D	Detection Level
Light ballast	A device placed in line with the light to limit the amount of current in an electrical circuit.
Liquefaction	A phenomenon whereby a saturated or partially saturated soil substantially loses strength and stiffness in response to an applied stress, causing it to behave like a liquid.
LLW	See Low Level Waste
LOI	Letter of Intent
Low Level Waste	Radioactive solid waste that contains material with radionuclide content above established clearance levels and exemption quantities, but that generally has limited amounts of long-lived activity.
LTRA	Long-term relationship agreement
M	magnitude
m	Metre
MAC	Maximum Acceptable Concentration
Macrophyte	A plant, especially an aquatic plant, large enough to be seen by the naked eye.
Mafic	An adjective describing silicate mineral or igneous rock that is rich in magnesium and iron.
MAM2-10	Forb-mineral meadow marsh Ecological Land Classification designation.
MAS2-1	Cattail mineral shallow marsh Ecological Land Classification designation.
MAS2-3	Narrow-leaved sedge mineral shallow marsh Ecological Land Classification designation.
MAS2-9	Forb mineral shallow marsh Ecological Land Classification designation.
mASL	Metres above sea level
Masonite	Steam-cooked and pressure molded wood fibers
mBGS	Metres below ground surface
MDA	Minimum Detectable Activity
MECP	Ministry of the Environment, Conservation and Parks
MELCC	Ministere de l'Environnement et de la Lutte contre les changements climatiques (Ministry of the Environment and the Fight Against Climate Change)
MH	Manhole
MNO	Métis Nation of Ontario
MNRF	Ontario Ministry of Natural Resources and Forestry
MOECC	Ontario Ministry of the Environment and Climate Change

MOL	Ontario Ministry of Labour
Monzonite/Monzodiorite	An igneous intrusive rock
MOU	Memorandum of Understanding
MP	Member of Parliament
mSv	Millisievert (see Sievert)
MTO	Ontario Ministry of Transportation
Mwe	Megawatt electric – electric output of a power plant in megawatts
NAAQO	National Ambient Air Quality Objectives
Nb-93m	Metastable isotope Niobium-93
Nb-94	Isotope Niobium-94
NDT	Non-Destructive Testing
NEC	No-effects concentration
NEW	Nuclear Energy Worker
NGO	Non-governmental organization
NGS	Nuclear Generating Station
Ni-59	Isotope Nickel-59
Ni-63	Isotope Nickel-63
NNSA	National Nuclear Security Administration
N_2O	Nitrous Oxide
NO_x	Nitrogen Oxides
Np-237	Isotope Neptunium-237
NPD	Nuclear Power Demonstration
NPDDF	Nuclear Power Demonstration Disposal Facility
NPDNGS	Nuclear Power Demonstration Nuclear Generating Station
NPDWF	Nuclear Power Demonstration Waste Facility
NPRI	National Pollutant Release Inventory
NRCan	Natural Resources Canada
NSCA	Nuclear Safety and Control Act
NSDF	Near Surface Disposal Facility
NWMO	Nuclear Waste Management Organization
OBT	Organically Bound Tritium
Oligotrophic	(Especially of a lake) relatively low in plant nutrients and containing abundant oxygen in the deeper parts.
OPG	Ontario Power Generation
Orthopyroxene	A subgroup of pyroxenes, a group of important rock-forming inosilicate minerals found in many igneous and metamorphic rocks.

1 Glossary

Outfall	The discharge point of a waste stream into a body of water.
Overburden	Rock or soil overlying a mineral deposit, archaeological site, or other underground feature.
OVED	Ottawa Valley Economic Development
OVF	Ottawa Valley Forest
PAC	Protective Action Criteria
PAH	Polyaromatic hydrocarbon
PCB	Polychlorinated Biphenyl
Pd-107	Isotope Palladium-107
PGA	Peak Ground Acceleration
PHAC	Public Health Agency of Canada
PHC	Petroleum Hydrocarbons
PIC	See Post-Institutional Controls phase
Plagioclase	A series of silicate minerals
Pm-147	Isotope Prometheium-147
$PM_{2.5}$	Particulate matter <2.5 µm
PM_{10}	Particulate matter <10 µm
Porosity	A measure of the empty space in a material (as a proportion of the total volume).
Postclosure period	“Postclosure” refers to the period after decommissioning is complete. For this EIS, the postclosure period includes (1) the Institutional Controls phase which may involve the control of residual risks at a site after it has been decommissioned, as defined in REGDOC-2.11.1-Vol III (CNSC 2021a). The Institutional Controls phase may include active measures (such as surveillance and monitoring) and passive measures (such as access controls), and (2) the Post-Institutional Controls phase, which begins after the Institutional Controls phase ceases; it is assumed that no further management and monitoring will take place during the Post-Institutional Controls phase.
Post-Institutional Controls phase	The Post-Institutional Controls phase is the period of time following the Institutional Control period, continuing indefinitely.
PostSA	Postclosure Safety Assessment – a Technical Supporting Document prepared for the NPD Closure Project.
PPE	Personal Protective Equipment
Pu-238	Isotope Plutonium-238
Pu-239	Isotope Plutonium-239
Pu-240	Isotope Plutonium-240
Pu-241	Isotope Plutonium-241
Pu-242	Isotope Plutonium-242

1 Glossary

PWQO	Provincial Water Quality Objectives
R	Roentgen – a unit of measurement for the exposure of X-rays or gamma rays
Radioactive decay	Radioactive decay is the spontaneous breakdown of the nucleus of an unstable atom resulting in the emission of radiation via the release of energy and matter by from the nucleus.
Radioactive waste	For the purposes of waste management, any material (liquid, gaseous, or solid) that contains a radioactive nuclear substance and which the owner has declared to be waste. In addition to containing nuclear substances, radioactive waste may also contain non-radioactive hazardous substances.
RCP	Representative Concentration Pathway
REGDOC	Regulatory Document
ROR	Regulatory Oversight Report
Ru-106	Isotope Ruthenium-106
SAF1-1	Water lily-bullhead lily floating-leaved shallow aquatic Ecological Land Classification designation.
SAM1-7	Water milfoil mixed shallow aquatic Ecological Land Classification designation.
SAM1	Mixed shallow aquatic Ecological Land Classification designation.
SAR	Species at Risk
SARA	Species at Risk Act
Sb-125	Isotope Antimony-125
Screening Index	The ratio (i.e., unitless) of an estimated exposure level (or estimated environmental concentrations) divided by a corresponding toxicity reference value or benchmark value.
Se-79	Isotope Selenium-79
Shape parameter	Shape factors are used for deriving in-situ measurements of hydraulic conductivity
SI	See Screening Index
Sievert	The SI unit of absorbed radiation dose in living organisms modified by radiation type and tissue weighting factors. The Sievert is the unit of dose measuring the “equivalent dose” and “effective dose”. Multiples of Sievert used in practice include millisievert (mSv) and microsievert (µSv).
SME	Subject matter expert
Sm-151	Isotope Samarium-151
Sn-121m	Metastable isotope Tin-121
Sn-126	Isotope Tin-126

1 Glossary

SO_2	Sulphur Dioxide
Sr-90	Isotope Strontium
Stage 1 Archaeological Assessment	A study to identify areas where potential archaeological resources may exist. A Stage 1 Archaeological Assessment for the NPD site is included in the Archaeology Technical Supporting Document.
Subsidence	The settling or sinking of a surface due to sub-surface movement.
Substrate	The earthy material that exists in the bottom of an aquatic habitat, like dirt, rocks, sand, or gravel.
Sv	See Sievert
SwS	Storage with Surveillance
Ta-182	Isotope Tantalum-182
Tc-99	Isotope Technetium-99
Te-125m	Metastable isotope Tellurium-125
TEEL	Temporary Emergency Exposure Limits
TEQ	Toxic Equivalence Factors
TFN	Timiskaming First Nation
THC	Total Hydrocarbons
TKLUS	Traditional Knowledge and Land Use Study
TLD	Thermoluminescent Dosimeter – A type of dosimeter used to monitor exposure to radiation. A TLD measures ionizing radiation exposure by measuring the intensity of visible light emitted from a crystal in the detector when the crystal is heated. The intensity of light emitted is dependent on the radiation exposure.
Transite	Fireproof composite material, historically composed of asbestos-cement.
Tritium	An isotope that occurs both naturally and as a by-product in nuclear reactors. Tritium is a radioactive isotope of hydrogen having two neutrons and one proton in its nucleus; hydrogen, by comparison, has only one proton. Tritium has a half-life of 12.33 years.
TSD	Technical Supporting Document
TSP	Total Suspended Particulate
U-232	Isotope Uranium-232
U-234	Isotope Uranium-234
U-235	Isotope Uranium-235
U-236	Isotope Uranium-236
U-238	Isotope Uranium-238
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples.
UTL	Upper Tolerance Limit
VC	Valued Component (used instead of VEC)

1 Glossary

VEC	Valued Ecosystem Component (not used in this EIS; VC is used instead)
VOC	Volatile Organic Compound
VOH	virtual open house
VVC	Virtual Visitors Centre
WAS	Wells Area Sump
WBS	Work Breakdown Structure – a hierarchical break-down of project scope into increasing levels of definition.
WHO	World Health Organization
WLFN	Wolf Lake First Nation
WR-1	Whiteshell Reactor 1
WTFN	Williams Treaties First Nations
ZEC	A controlled harvesting zone (Zone d'exploitation controlée)
Zr-93	Isotope Zirconium-93

2 EXECUTIVE SUMMARY

2.1 Introduction

The Nuclear Power Demonstration (NPD) site is located on the unceded and unsurrendered territory of the Algonquin Anishnaabe Nation. CNL recognizes and appreciates their historical connection to this land and their role as customary keepers and defenders of the Ottawa River and its tributaries.

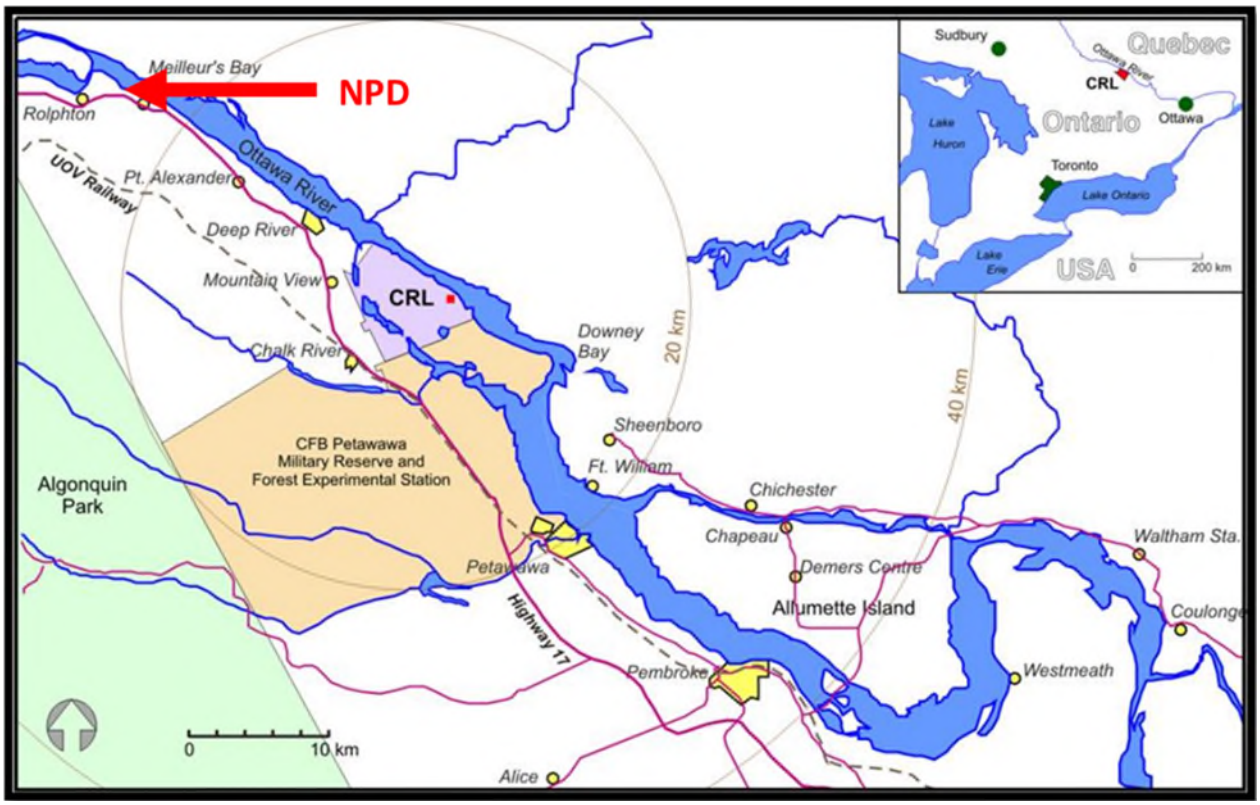
The NPDWF as it appears today

The NPD site is located on the south bank of the Kichi-Sìbì (Ottawa River), about 2.5 km southeast of Rolphton, about 25 km upstream of the Chalk River Laboratories (CRL) site (Figure 2.1-1), and approximately 200 km northwest of Ottawa. The NPD Nuclear Generating Station (NGS) was operated by Ontario Hydro from 1962 until being permanently shut down in 1987, when responsibility for the station was transferred to Atomic Energy of Canada Limited (AECL), a federal Crown corporation. It is now referred to as the Nuclear Power Demonstration Waste Facility (NPDWF). Under the federal *Nuclear Safety and Control Act*, the NPDWF is a Class I nuclear facility presently in interim storage with surveillance and has a Waste Facility Decommissioning Licence that was issued in February 2019 by the Canadian Nuclear Safety Commission (CNSC). Canadian Nuclear Laboratories (CNL), a private sector company contractually responsible for nuclear sites, facilities and assets owned by AECL, is the licensee for the NPDWF.

The NPD Closure Project is consistent with the Government of Canada's Radioactive Waste Policy Framework, which establishes the roles and responsibilities of the Government of Canada, as well as the waste producers and owners. The project proposes to decommission the NPDWF to a final end state that is a permanent passive disposal facility; the NPD Disposal Facility (NPDDF) in a manner that protects the public and the environment. The purpose of the proposed project is to safely decommission the NPDWF, ensuring a timely reduction of Canada's nuclear historic liabilities and eliminating interim waste storage, while reducing worker risk and transport/waste handling risk. CNL is the proponent for the NPD Closure Project.

Under Section 15 of the *Canadian Environmental Assessment Act* (*CEAA*), 2012, the CNSC is the Responsible Authority for the proposed project.

Figure 2.1-1 NPD Site Location



The Environmental Assessment (EA) is being carried out based on the *Canadian Environmental Assessment Act* (2012) and the CNSC (2020a) Regulatory Document REGDOC-2.9.1 on *Environmental Protection: Environmental Principles, Assessments and Protection Measures*. This Environmental Impact Statement (EIS), a required component of the EA process, has been prepared to document the findings of the EA process. This assessment was initiated prior to the establishment of the *Impact Assessment Act* (2019). Decommissioning execution activities will commence, dependent on the regulatory decision-making process, and will take approximately two years to complete, with final site restoration expected to be complete by the end of 2030, and long-term care and maintenance activities proceeding from that point through the period of institutional control. The proposed project phases and schedule are presented in Table 2.1-1.

Table 2.1-1 Project Phases and Anticipated Schedule (dates to be confirmed based on the regulatory decision-making process)

Decommissioning Phase	Associated Activities	Duration
Decommissioning Execution	Assembly and operation of grout batch mixing plant	2028
	Grouting of below-grade structures	2028-2029
	Removal of above-grade structures and use as backfill	2029
	Installation of concrete cap and engineered cover	2029
	Final site restoration	2030
Institutional Controls	Long-term care and maintenance activities	2030-2130
Post-Institutional Controls	Facility performance during the Post-Institutional Controls phase	>2130

Source: Detailed Decommissioning Plan NPD Closure Project (Johnson 2022a).

Note: Institutional Controls will be a period of at least 100 years, but lasting as long as necessary, as determined by regulatory agencies.

CNL has also initiated communications with ECCC regarding the submittal of a request for a permit under the *Species at Risk Act (SARA)* to undertake project activities which may affect chimney swifts that use the ventilation stack at the NPD site as a roosting site. CNL proposes to leave the ventilation stack on-site so that it can continue to function as chimney swift habitat and contribute to the species' recovery.

In January 2020, it was confirmed that a small number of bats (including SAR bats) were using the NPDWF during the summer months as a roosting area and during the winter months as an overwintering site. In 2021, CNL completed work to seal the crawl space under a *Species At Risk Act* permit issued by ECCC. This work involved the installation of a one-way door and was successful at evicting the bats from the crawl space and preventing re-entry.

The Ontario Ministry of Transportation (MTO) reviewed the potential traffic implications of the project and expressed no concerns.

2.2 Description of the Project

2.2.1 Purpose

The purpose of the proposed project is to safely decommission the NPDWF, ensuring a timely reduction of Canada's nuclear historic liabilities and eliminating interim waste storage, while reducing worker risk and transport/waste handling risk.

The proposed method to accomplish this task is in-situ disposal, previously referred to as in-situ decommissioning, of the NPDWF, which isolates the contaminated systems and components inside the below-grade structure thus creating a waste disposal facility on the NPD site. All below grade areas will be filled with grout from an on-site grout batch mixing plant. The grout is a flowable concrete, and will be placed by pumping to fill gaps and crevices in the NPDWF to as reasonable an extent as possible. The grout is intended to fill voids to prevent future subsidence of the NPDDF, and stabilize the existing structure and equipment to slow degradation. The grout contributes to a high pH environment, which slows corrosion of the steel components in the NPDDF. It also reduces groundwater flow and potential contaminant migration within the NPDDF. All above-grade structures will be demolished, size reduced and placed into the below-grade structure as backfill prior to final grouting. The footprint above key parts of the nuclear area will be capped with reinforced concrete and the entire NPDDF covered with an engineered cover. The ventilation stack will be isolated from the NPDWF, and retained to continue to function as chimney swift habitat. The NPD site will then be restored and prepared for long-term care and maintenance activities, carried out under an amendment of the current decommissioning licence.

Chimney swifts (*Chaetura pelagica*) entering the NPD ventilation stack at sunset

2.2.2 Alternatives

The in-situ disposal described above is the preferred approach proposed by CNL to carry out the decommissioning of the NPDWF. Three additional alternative means for decommissioning the NPDWF were considered for the project:

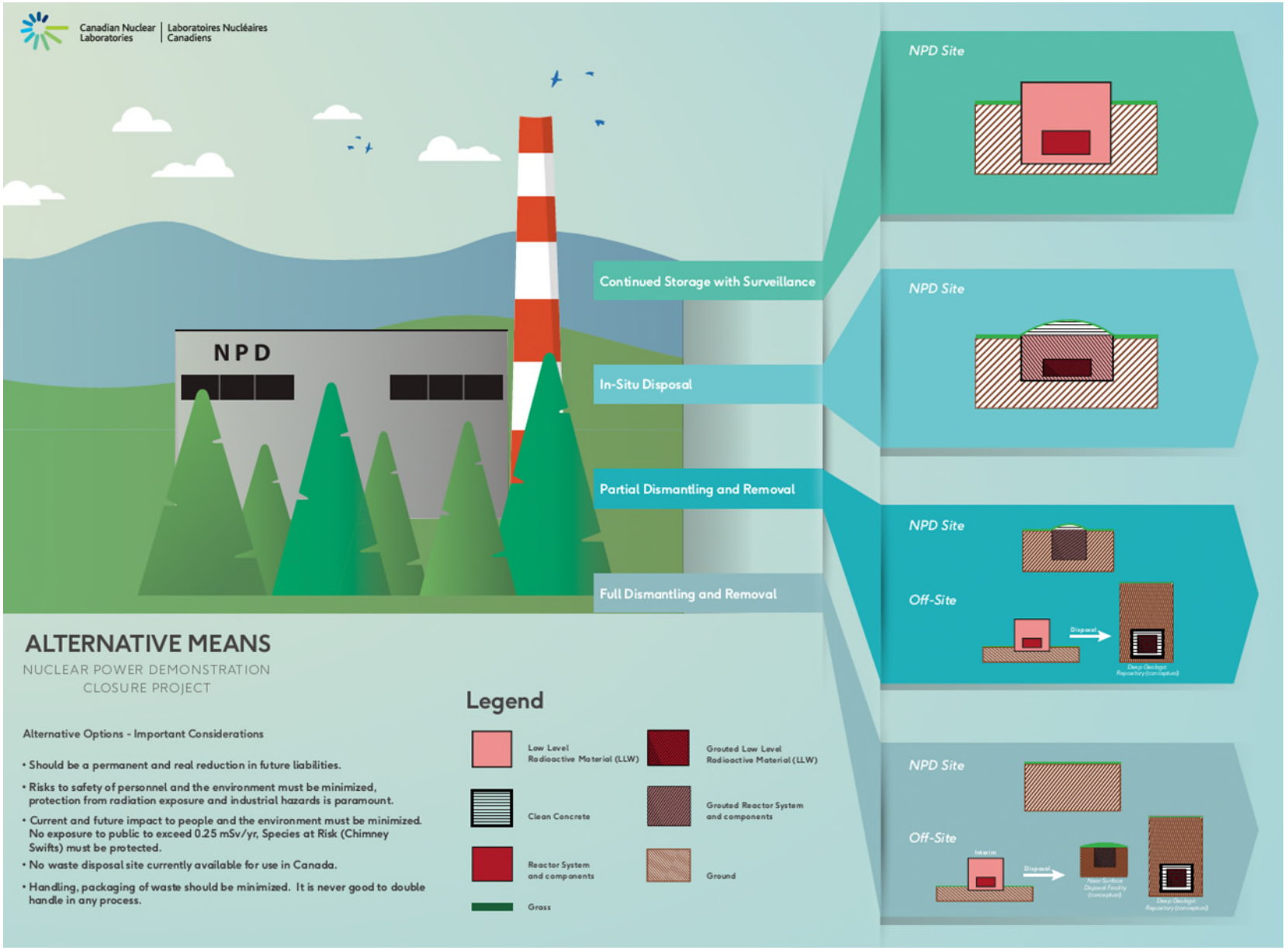
- Continued storage with surveillance – this alternative involves deferral of decommissioning by maintaining the current state, allowing for further radioactive decay and involving continued maintenance and monitoring at the site.
- Partial dismantling and removal – this alternative involves the removal of the reactor system and components to be transported off the NPD site and placed in interim waste storage at CRL, until eventually undergoing final disposal. The remaining above-ground structures would be demolished, emplaced in the below grade structures before grouting, as in in-situ disposal.
- Full dismantling and removal – this alternative involves removal of all radioactive material to be transported off the NPD site and placed in interim waste storage at CRL, until eventually undergoing final disposal. The NPDWF structures would be demolished and removed from the site.

These alternatives are shown in Figure 2.2-1.

Environmental Impact Statement - NPD Closure Project

2 Executive Summary

Figure 2.2-1 Alternative means for the NPD Closure Project



CNL conducted an Alternative Means Assessment (AMA), analyzing the relative risk of each of the alternative means, to each environmental component. Although each of the four alternative means were determined to be technically and economically feasible based on the use of reliable technology, regulatory compliance, and cost, the in-situ disposal alternative offers a lower risk option than all other alternatives. The most pronounced difference occurs in the short-term, with increased risks to worker health from the additional effort, handling, and transportation associated with partial and full dismantling and removal. These alternative options have greater risks of effects since they involve interim storage of waste above ground, and additional disposal activities that are not currently available. Once disposed, all alternatives offer lower risk in the long-term than continued storage with surveillance. In-situ disposal is the preferred means for undertaking this project.

During their review of the AMA, the Algonquins of Pikwàkanagàn First Nation (AOPFN) provided the most extensive feedback of all the Indigenous Nations, communities and organizations; the AOPFN would have preferred a different approach for the conduct of the AMA. To help address ongoing concerns on this topic, CNL provided funding for AOPFN to conduct an independent AMA. In April 2022, AOPFN issued the final AOPFN Alternative Means Report. The AOPFN AMA results reflect AOPFN's priority values and associated criteria and weighting for assessing alternatives. The study results found that in-situ disposal was the least favored alternative means to decommission the NPD facility using AOPFN's assessment criteria and weighting. AOPFN's preferred strategy for the project is to fully dismantle the NPD reactor for interim storage. The AOPFN AMA will not replace or supersede CNL's AMA, but instead will be complementary and form part of the final EIS submission.

CNL will continue to listen, and consider all feedback and perspectives on the project, and work together with AOPFN to address all interests and concerns through the Working Group meetings. This approach ensures the contribution of valued Algonquin knowledge, and that AOPFN's desire for meaningful engagement on the NPD Closure Project, is met.

2.2.3 Wastes and Emissions

The forms of waste associated with the project can be divided into existing waste (i.e., waste generated during the operation of the NPDNGS, for example, materials such as concrete and stainless steel in the reactor vault, containing radiological and non-radiological contamination) and small amounts of generated waste (e.g., worker protective equipment and discharge water from equipment washout).

Radionuclides will be present in these materials in two forms:

- radionuclides embedded within metals and other materials, present due to the interaction of neutrons from the reactor operation with the structures; and
- as contamination on surfaces, mainly resulting from the handling of fuel elements which had suffered failure of their protective cladding, enabling the release of some radionuclides.

The radionuclide inventory of the reactor was estimated using mathematical models representing the reactor materials and geometry. CNL has also taken samples of reactor components to verify the estimated inventory. Contamination in other areas of the NPDWF has been determined based on sampling

campaigns. These data have been combined with estimates of the amount of material that is contaminated in each room to derive an inventory for the main system, components or stored waste in NPDWF.

In addition to the waste that is already present at NPDWF, further waste will be generated during the project. Some of these generated decommissioning wastes will be LLW and consist of common industrial items that have become contaminated with low levels of radioactivity during the grouting and demolition activities. The radiological inventory of generated waste will be negligible and bounded by the reference radiological inventory.

The inventory of non-radiological contaminants is dominated by those typically associated with 50-year-old industrial facilities, including:

- Lead: from lead paint, lead bricks, and encased lead, such as poured or lead shot, previously used as shielding;
- Mercury: from instruments, such as residual contamination;
- Asbestos: from pipe insulation, floor tiles and building cladding; and
- Polychlorinated biphenyl (PCBs): only negligible amounts of PCBs remain in the NPDWF from residual contamination, and all PCB-containing light ballasts will be removed from the NPDWF prior to decommissioning.

The project will also generate emissions, including:

- dust (from demolition, equipment, demolition debris size reduction, and on-site trucking);
- noise (from machinery, demolition and vehicles);
- diesel emissions (from machinery and vehicles);
- water (from runoff, washout pit discharges and equipment decontamination); an
- contaminated air (displaced from the NPDWF during grouting and emplacement).

The main liquids that could be associated with normal decommissioning operations are:

- wash water (produced from washing cement vehicles and sluices); and,
- any water potentially accumulated inside the NPDWF during grouting (from groundwater ingress or precipitation) or at the base of the ventilation stack (produced by precipitation) or by activities such as misting.

Any liquids generated by the NPD Closure Project will be handled as a non-routine discharge following approved CNL Environmental Protection processes. Any non-routine discharge will be reviewed against acceptability criteria to determine the appropriate disposition routes based on the analysis results.

2.2.4 Scope Changes

Scope changes are those changes that have made to the project since it was originally proposed.

A major change that has been made to the original project scope (i.e., since submission of the project description), is to retain the existing ventilation stack. After reactor shutdown, the NPD ventilation stack became home to a large number of chimney swifts who roost annually in the chimney-like structure. The ventilation stack is a significant roost during the spring migration and the number of chimney swifts can reach more than 2,000 birds. CNL considered the construction of an alternative roost structure but based on the recommendation of an expert Working Group, decided to retain the existing ventilation stack. The ventilation stack has been deemed structurally sound and capable of continuing to function as a chimney swift habitat into the 2060s. This is expected to complement the timeline for recovery of the species.

Other changes to the project scope include: an increase in the footprint of the engineered cover to cover the main building footprint of the disposal facility, and not just the grouted reactor system and components, operational flexibility for the water supply, which could be trucked in, or drawn from the dry hydrant at the NPD site, operational flexibility for concrete supply, which could be trucked-in or prepared using the on-site grout batch mixing plant.

2.3 Scope of the Environmental Assessment

In accordance with *CEAA,* 2012 and the CNSC 2016 EIS Guidelines, this EIS takes into account:

a) *the environmental effects of the designated project, including the environmental effects of malfunctions or accidents that may occur in connection with the designated project, and any cumulative environmental effects likely to result from the designated project in combination with other physical activities that have been or will be carried out;*

b) *the significance of the effects referred to in paragraph (a);*

c) *comments from the public — or, with respect to a designated project that requires that a certificate be issued in accordance with an order made under section 54 of the National Energy Board Act, any interested party — that are received in accordance with this Act [CEAA];*

d) *mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;*

e) *the requirements of the follow-up program in respect to the designated project;*

f) *the purpose of the designated project;*

g) *alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such alternative means;*

h) *any changes to the designated project that may be caused by the environment;*

i) *the results of any relevant study conducted by a committee established under section 73 or 74 [of CEAA]; and,*

j) any other matter relevant to the environmental assessment that the responsible authority [CNSC], or — if the environmental assessment is referred to a review panel — the Minister, requires to be taken into account.

The EIS considers these factors for three spatial boundaries: the Site, Local and Regional Study Areas. The Site Study Area (Figure 2.3-1) extends 50 m into the Ottawa River and includes areas within the NPDWF fenceline and the surrounding paved areas, the building foundations and non-essential roadways, the two landfills on the NPD site and also includes areas that will not necessarily be affected during decommissioning activities but will require work during the site restoration (e.g., due to prior contamination). CNL conducted a systematic characterization of the NPD site, consisting of Phase I and Phase II Environmental Site Assessments, for the purposes of documenting areas of prior contamination. CNL has undertaken localized remediation of these contaminated areas, including appropriate management of waste.

The Local Study Area (Figure 2.3-1) goes beyond the Site Study Area and includes the entire NPD property, and also extends 50 m into the Ottawa River. The Local Study Area is defined to encompass any measurable effects of the project.

The larger Regional Study Area varies between environmental components to capture the interaction of effects from the project with the effects of other projects within each component.

The EIS also considers three different project phases:

- **Decommissioning Execution**, or the first one to two years during which all activities associated with decommissioning of the NPDWF occur, including setup and operation of the grout batch mixing plant, grouting and demolition activities, installation of the concrete cap and engineered cover, as well as site restoration and demobilization.
- **Institutional Controls**, or a period of at least 100 years, but lasting as long as necessary (as determined by regulatory agencies), following the Decommissioning Execution phase. During this phase, long-term care and maintenance, oversight, and environmental monitoring would be performed by CNL in order to ensure that the disposal system performs as expected, that human safety is ensured until the short lived nuclear wastes decay to below the acceptance criteria and that problems that may impact the long-term stability of the NPDDF can be rectified.
- **Post-Institutional Controls**, or the period of time following the Institutional Control period, occurring after year ~2128, and continuing indefinitely.

It is important to note that although the planning phase is considered a part of decommissioning, that it is not part of the EA scope.

Figure 2.3-1 Site and Local Study Areas

Reference: ESRI ArcGIS Online Base Layer and NPD Closure Project Description

2.4 Indigenous Engagement

As part of CNL's engagement activities, CNL seeks to understand the interests and concerns of Indigenous Nations, communities and organizations while also building awareness and understanding of NPD Closure Project activities. CNL seeks to reach a mutual understanding of the potential effects of NPD Closure Project activities on the environment and any potential adverse impacts on Aboriginal[1] and/or treaty rights including, but not limited to, rights to trap, hunt, fish, gather, or harvest as well as the access to lands for performing cultural and spiritual activities.

CNL's engagement approach strives for collaboration with Indigenous Nations, communities and organizations to share information; identify opportunities to collaborate; understand concerns, issues, and potential impacts of a project on Aboriginal and/or treaty rights and opportunities for participation; and work together to address these through incorporating Indigenous Knowledge Systems, values and perspectives when considering avoidance and mitigations strategies.

CNL acknowledges that it is at the beginning of its reconciliation journey. As part of our corporate, environmental and social responsibility, we understand the importance of establishing our Reconciliation Action Plan (RAP) which will anchor CNL's corporate decision making. A preliminary draft has been developed, bolstered and enriched through ongoing engagement efforts. The draft is expected to be shared with Indigenous Nations, communities and organizations for comment in 2025. CNL is committed to establishing and maintaining relationships and meaningfully engaging with Indigenous peoples on the NPD Closure Project, today and in the longer term.

Engagement with Indigenous Nations, communities and organizations on the NPD Closure Project started in October 2015. CNL has developed specific strategies to increase the effectiveness of the engagement program. These strategies include:

- presenting information in an easily-understood format using plain language (e.g., webinars, infographics, one-pager summary documents);
- engaging technical experts to communicate information in various formats;
- accomplishing all required activities in a timely manner;
- providing various means for Indigenous Nations, communities and organizations to access information (i.e., presentations, infographics, site tours, website information, community visits, etc.);
- providing support and capacity funding for meaningful and timely engagement and the development of longer-term relationship agreements with Indigenous Nations, communities and organizations; and

[1] Throughout the EIS, the terms Aboriginal, Indigenous, First Nations, and Métis have been used, consistent with the source from which the term is drawn.

- supporting Indigenous Nations, communities and organizations' review of the revised draft EIS documentation to verify that CNL had documented their interests and concerns accurately.

In addition, CNL applied CNSC's guidance on engaging with Indigenous Nations, communities and organizations, and appropriate methodologies for assessing effects and impacts on Indigenous peoples and their rights. CNL recognizes that the determination of impacts on Indigenous rights is the responsibility of the Crown, which will be carried out by CNSC staff in respect of the project. CNL also recognizes that as the proponent of the project, CNL plays an important role in providing information to Indigenous Nations, communities and organizations regarding the project through its engagement activities.

CNL, with assistance of the CNSC, developed a list of Indigenous Nations, communities and organizations to engage based on the proximity of their communities, treaty areas or unceded traditional territories to the NPD Closure Project also taking into account, those that expressed interest in the NPD Closure Project and other CNL activities. Those Indigenous Nations and communities that have established or asserted treaty and/or Aboriginal Rights include: AOPFN, Barriere Lake First Nation, Timiskaming First Nation (TFN), Wolf Lake First Nation, Métis Nation of Ontario (MNO), Kitigan Zibi Anishinabeg (KZA), Kebaowek First Nation (KFN), Williams Treaties First Nations (WTFN), including: Alderville First Nation, Beausoleil First Nation, Chippewas of Georgina Island First Nation, Chippewas of Rama First Nation, Curve Lake First Nation, Hiawatha First Nation, and Mississaugas of Scugog Island First Nation. The list also includes Indigenous organizations that have interests, including Algonquins of Ontario (AOO), Algonquin Anishinabeg Nation Tribal Council (AANTC), Anishinabek Nation, and Algonquin Nation Secretariat.

CNL has conducted and continues to conduct activities to support meaningful engagement with Indigenous peoples (Table 2.4-1).

Table 2.4-1 Project-specific Activities to Support Engagement

Engagement Method	Example Activities
Project Specific Agreements and Long-Term Relationship Meetings and Negotiations:	• Project-specific agreements (i.e., separate Memoranda of Understanding (MOUs) entered into with the AOO and the MNO as well as AOPFN) to facilitate engagement in the project and to foster longer-term relationship discussions: o Provision of funding to assist in resource capacity development; o Capacity assistance and building; • Broader Long-Term Relationship Agreements with CNL (e.g., AECL, CNL and AOPFN have signed a Long-Term Relationship Agreement).
Technical Assistance and Contribution Agreements:	• Contribution Agreements entered into with the AOPFN, Curve Lake First Nation, Hiawatha First Nation, Kebaowek First Nation and Wolf Lake First Nation; • Provision of funding to assist in technical reviews of project documents; • Provision of funding for Indigenous led studies; • Peer review studies and engagements with consultants and staff; • Work plan development to formalize engagement processes with communities and/or organization representatives.
Project Specific Meetings and Workshops	• Virtual and/or in-person monthly meetings and Working Groups with Indigenous Nation, community or organization representatives to discuss the project and potential effects;

Engagement Method	Example Activities
	• Community meetings/open houses; • Presentations to Indigenous Nation, community and/or organization representatives upon request; • Targeted community initiatives; • Workshop attendance and cultural awareness training; • Technical meetings, upon request, to provide interested Nations, communities and/or organization representatives an opportunity to discuss more detailed technical information concerning the NPD Closure Project.
Specific Communications Activities	• Letters to Indigenous Nations, communities or organization representatives (accompanied by follow up calls); • Email correspondence and/or phone calls with Indigenous Nations, communities and/or organization representatives; • Distributing the Indigenous Engagement Report (IER) to Indigenous Nations, communities and/or organization representatives; • Distributing copies of maps, technical studies or reports upon request; • Providing written response to comments, questions and concerns on the draft EIS; • Webinars and online meetings with Indigenous Nations, communities and organizations.
General Communications Activities	• Project notifications and newspaper advertisements; • Environmental Stewardship Council (ESC) meetings and meeting information (for ESC member communities); • Chimney swift viewing nights; • Community Advisory Panel (CAP) meetings; • Virtual and in-person open houses; • Public information sessions, including display materials and handouts; • Media notifications/releases; • Webpage content; • Site visits and participation in National Indigenous Peoples Day; • Participation and presentation at Indigenous Youth Summit; • NPD site visits and facility tours.

Methods employed to date have helped to establish productive project discussions aimed at sharing information with Indigenous Nations, communities and organizations, enabling valuable feedback into the project.

The themes of concerns raised by the Indigenous Nations, communities and organizations are summarized in Table 2.4-2 below.

Table 2.4-2 Themes of Engagement with Indigenous Nations, Communities and Organizations

Engagement Themes	Topics
Protection of the environment	• Environmental effects and mitigation measures • Accidents and malfunctions • Monitoring • Protection of the Kichi-Sìbì (Ottawa River) • Protection of flora and fauna • Aquatic environment • Atmospheric environment
Technical	• Technical • Alternatives
Engagement, communication and the EA process	• Engagement • EA methodology and process • EIS official languages • Valued components (VCs) • Baseline characterization
Radioactivity and long-term safety	• End state, site restoration and future use of the land • Long-term safety • Radiological risk • National Policy
Traditional knowledge, land and resource use, culture, heritage and rights	• Impacts on Rights • Traditional Knowledge, Land and Resource Use and Cultural Impacts • Unceded Algonquin traditional territory • Free, Prior and Informed Consent (FPIC) • Archaeology and cultural heritage
Health and socio-economic interests	• Socio-economic • Indigenous health

CNL is committed to working with Indigenous Nations, communities and organizations to address their interests and concerns including development of project specific commitments and agreements related to participation in environmental monitoring activities related to the project.

In engagements with Indigenous Nations, communities and organizations, it is clear that Indigenous peoples do not want to look at the NPD Closure Project in isolation from other CNL issues and matters pertaining to the AECL properties in the Ottawa Valley (i.e., the NPD and Chalk River Laboratories (CRL) sites). Issues raised by Indigenous Nations, communities and organizations engaged on the NPD Closure Project have included issues associated with the lands used in the historical establishment of the NPD site, future land use, and long-term operations with respect to environmental protection. CNL respects and understands these opinions and has approached its Indigenous engagement in such a way as to answer and address some of these broader questions as well as engaging directly on the NPD Closure Project. Although the issues raised by Indigenous Nations, communities and organizations may require reconciliation with respect to historical actions taken by the Federal and provincial governments, this licensing decision is not the appropriate forum to do so.

2.5 Public and Stakeholder Engagement

Since October 2015, CNL has conducted and continues to conduct EA-related public and stakeholder engagement activities, including:

- presentations, information sessions and site visits;
- project information (e.g., web content, fact sheets);
- participation in public events; and
- advertising campaigns and distribution of fact sheets and comment cards.

These activities have helped inform stakeholders and have enabled the public to provide valuable feedback into the project, which helps CNL understand areas of public concern and improve the project design and EIS. Key concerns voiced from the outreach activities along with how this feedback was incorporated into the final EIS, include the following:

- Alternative Means & Approaches
- Grout and Concrete Degradation
- Impacts from Earthquakes
- Proximity to the Ottawa River
- IAEA Guidance for In-situ Decommissioning
- Radiological Inventory
- Design and Engineering Details

CNL staff member answering questions at a public information session

Through the wide range of communications strategies undertaken, the NPD Closure Project has continued to collect valuable input from the public and stakeholders on current project information, alternative means, valued components (VCs), spatial and temporal boundaries, EA Follow-up Program and has incorporated informal and formal feedback into the EIS. The project is continually developing and CNL strives to maintain transparency and open communication with the general public as well as Indigenous Nations, communities and organizations. Feedback will continue to be tracked, collected and incorporated (when possible) as a part of the engagement activities into the future.

While most of the key issues that the public and stakeholders have brought forth have been resolved or incorporated into the design of the project, one outlier is with regards to land use of the unaffected areas of the NPD site. To address this issue, CNL has clarified through consistent messaging and communications with the public and stakeholders that the NPD property belongs to AECL, a federal corporation. Once CNL completes the decommissioning of the NPDWF, AECL will evaluate the future of the lands considering all Indigenous and stakeholder input. CNL will incorporate Indigenous Knowledge systems and undertake stakeholder engagement in site restoration activities.

CNL will continue to engage the public and stakeholders, including local elected officials, industry and Non-governmental Organizations (NGOs), through a variety of mechanisms, demonstrating transparency and access to information.

2.6 Baseline Environment (Description of the Existing Environment)

This description of baseline conditions characterizes the existing environment and processes that may be affected by the project, and trends within the study areas. It serves as the basis for determining changes and potential environmental effects associated with the project.

2.6.1 Atmospheric Environment

The climate in the region surrounding the NPD site is classified as humid continental, with warm summers, cold winters, and no distinct dry season. The average daily temperature ranges from a high of 20.2°C in July to a low of -12.0°C in January, with an average annual temperature of 5.6°C. The wind conditions at the NPD site are considered to travel predominantly along the Ottawa River valley. From 2011-2015, the region received an average of 779 mm of precipitation annually, with average monthly precipitation ranging from 24.7 mm to 96.9 mm per month.

Current releases to air at the NPD site are via operation of the ventilation system, generally only for short periods of time such as during the entry of personnel into the facility which requires purging the nuclear area for inspection and maintenance. These releases are monitored, and are below applicable guidelines. Current emissions of greenhouse gases as well as emissions from unpaved road dust, diesel combustion products, and solvent use, are minimal.

2.6.2 Surface Water Environment

The facility currently samples and analyses water from subsurface drains located around the NPD site semi-annually for radiological and non-radiological contaminants. The facility has also characterized surface water and sediment quality in the Ottawa River. Radiological and non-radiological sediment sampling was undertaken as part of Phase II Environmental Site Assessment (ESA) in 2016/2017, and as part of an aquatic sampling study in 2020. Based on the results of these studies, it is considered unlikely that the NPD site has impacted sediment quality in the Ottawa River.

In 2018, in response to public and Indigenous feedback, CNL revised the methodology for managing the water collected in the Wells Area Sump (WAS). Instead of discharge to the Ottawa River following a clearance process for non-routine discharges per the site licence, the contents are now sampled, pumped into double-walled containers, and transported to the CRL site for processing, thereby eliminating direct effluent discharge from the NPDWF.

Past practices of water discharges have been safe, and Ottawa River water quality has not been adversely affected. Ongoing water monitoring confirms that the maximum concentrations in the Ottawa River are well within the federal environment-based guidelines which ensure protection of aquatic life and drinking water. Radiological monitoring indicates that observed concentrations are at natural background levels and far below drinking water criteria. The CNSC leads an independent environmental monitoring program, which found that some non-radiological parameters exceeded provincial criteria, specifically cadmium and lead. In the case of cadmium, all samples were below the detection limit, however the detection limit was above the Quebec surface water criterion. One exceedance of the Quebec surface water quality criterion for lead

was observed roughly two km downstream from the NPDWF. The CNSC concluded that the monitoring results confirm that the public and the environment around NPD are protected.

The large wetland complex on the NPD property, west of the Site Study Area

All surface drainage on the NPD site ultimately drains to the Ottawa River. The NPD property contains some wetlands (visible in Figure 2.3-1 above) which are upgradient of the facility, and there are no major tributaries on the site. A network of ditches and drains on-site directs water flow away from the facility and into the river. The Ottawa River adjacent to NPD is about 0.5 km wide and deep with a mean flow rate of 807 m^3/s. The banks of the Ottawa River generally have low to moderate slopes, although there are steep granite cliffs in sections of the Quebec shoreline. There are numerous lakes in the region and due to regional topography, these lakes eventually drain into the Ottawa River. The EIS summarizes radionuclide and chemical content of sediment in the Ottawa River near the NPD site.

2.6.3 Aquatic Environment

There are wetlands within the Local Study Area; however, they are at a higher elevation than the NPDWF and are not the focus of the characterization of the aquatic environment. In the Regional Study Area, the Ottawa River near the NPD site provides habitat for a number of fish species. The stretch of the Ottawa River between the Des Joachims Dam and La Passe contains several lake-like sections separated by short rapids. Some sections of the Ottawa River near NPD reach depths of over 60 m, and the water can become thermally stratified. There are a number of important fish habitat features in the Ottawa River near NPD, including riffle zones, smaller tributaries and rivers feeding into the Ottawa River, Meilleurs Bay (a shallow, warmer bay which provides important spawning, nursery, rearing and feeding habitat), and the tailrace of the Des Joachims dam. In this area, the Ottawa River supports diverse warmwater and coolwater fish communities, consisting of at least 55 documented species. The provincially-rare fish species includes the river redhorse. The hickorynut, a type of mollusc, is a species potentially present in the Site Study Area, is listed provincially as endangered.

2.6.4 Geological and Hydrogeological Environment

The base rock in the Site Study Area is quartz and granite gneiss with some overburden (1.5 to 7.5 m) of alluvial sand and gravel. The small amount of overburden and relatively steep incline of the base rocks makes ground and subsurface water run off very quickly to the river. The water table position is near the top of the bedrock, and flow directions are expected to reflect topography. The Site Study Area is at an elevation of approximately 125 m above sea level (asl). The NPD site at Highway 17 has an approximate elevation of 160 mASL and continues down to the Ottawa River which has an average elevation of 111 mASL.

Several groundwater monitoring campaigns were undertaken on the NPD site using existing monitoring wells. Analyses were conducted for tritium, alpha and beta activity concentrations. All samples were well below the applicable benchmarks. Exceedances of applicable guidelines (>50 µg/L) were reported for manganese at two wells. The elevated manganese is not due to contamination; rather manganese is a naturally occurring metal and is abundant in groundwater. For context, wells in background areas of the Chalk River Laboratories Site (i.e., areas unaffected by site operations) have natural manganese concentrations up to 800 µg/L.

Additional radiological and non-radiological soil and groundwater sampling was undertaken as part of the Phase II ESA. It was found that concentrations of contaminants in soils around the NPDWF were not elevated above reference areas except for a few areas of discrete contamination within the licensed area.

A few discrete areas of soil contaminated with hydrocarbons and/or metals were also identified on the NPD site beyond the licensed area. These impacted soils were removed in Spring 2018. No radiological contamination has been identified outside of the decommissioning area. For groundwater, it was found that a number of samples were elevated above background; however, all radionuclides were well below maximum acceptable concentrations.

CNL also monitors tritium levels of water content in soil and vegetation around the NPD site. The data confirm that there are no significant environmental effects, as the tritium concentrations are well below the Maximum Acceptable Concentration (MAC) for tritium in drinking water.

2.6.5 Terrestrial Environment

The Site Study Area consists primarily of areas previously disturbed by human activity and contains various cultural vegetation communities. These cultural communities provide little suitable habitat to support resident terrestrial species. The Local Study Area supports diverse mixed upland areas with some wetland areas scattered throughout.

A number of Species at Risk (SARs) are known to be present at the NPD site including chimney swift, eastern milksnake, common nighthawk, eastern wood pewee, eastern small-footed bat, little brown myotis, northern myotis and monarch butterfly.

Forest on the NPD Property

The ventilation stack at NPD is a significant roost during the spring migration and the number of chimney swifts has reached more than 2,000 birds. In January 2020, it was confirmed that a small number of bats (including SAR bats) were using the NPDWF during the summer months as a roosting area and during the winter months as an overwintering site. In 2021, CNL completed work to seal the crawl space under a *Species At Risk Act* permit issued by ECCC. This work, involving the installation of a one-way door, was successful at evicting the bats from the crawl space and preventing re-entry.

2.6.6 Ambient Radioactivity

Since the NPDNGS was permanently shut down in 1987, ambient radiation fields in the Site and Local Study Areas have been characteristic of those observed in regions with similar terrestrial and cosmic conditions that are unaffected by nuclear facilities.

2.6.7 Human Health

Within the Site and Local Study Areas, CNL monitors doses to employees and visitors at the NPD site. Data on baseline human health in the Regional Study Area (i.e., the Renfrew County and District and Région de l'Outaouais Health Units) were compiled from 2013 Statistics Canada health profiles, which provide statistics on indicators such as well-being, health conditions and health behaviours. Some differences were noted between the Regional Study Area and the larger population (i.e., the entire province) that were determined to be statistically significant. For example, although more physically active, the residents in the Renfrew County and District Health Unit are less likely to use a bike helmet, and they consume less fruit and vegetables than the average residents in Ontario. A higher percentage in perceived well-being (health) was observed in the Région de l'Outaouais Health Unit when compared to percentages for the province of Quebec.

2.6.8 Traditional Land and Resource Use

A significant effort has been made to better understand traditional land and resource use near the site. Information on traditional land use activities has been drawn from: existing studies and reports; Indigenous organization websites; the MNO Traditional Knowledge and Land Use Study; the AOO Algonquin Knowledge and Land Use Study; the AOPFN Algonquin Knowledge and Land Use Study; the AOPFN Diet and Harvest Study; the AOPFN Culture and Rights Study; the AOPFN AMA; formal and informal engagement activities; and general knowledge of the region. Access to the current NPD site is restricted, so traditional use does not occur on the NPD site. Traditional land and resource use (trapping, hunting, fishing and gathering) has and likely does occur adjacent to and near the site. CNL has assumed that those activities will continue to occur in the future.

2.6.9 Indigenous Health and Socio-economic

Census data are presented for AOPFN, the only specific physical Indigenous community within 100 km of the NPD site for which data are available. Situated on the southeast shore of Golden Lake where it flows in to the Bonnechere River in Renfrew County, Ontario, the AOPFN reserve covers an area of 688.8 ha. AOPFN has a total registered population of 2,882 (INAC 2020). Roughly 84 per cent of the registered population resides off reserve lands (2,427).

Census data are also presented for the Indigenous population in the surrounding census divisions in Ontario and Quebec. Approximately 11.3% of the population of surrounding census divisions self-identify as Indigenous peoples. Of that 11.3%, 6.0% identified as First Nations individuals and 4.7% as Métis. Also, 4.4% of the population identified themselves as a Registered or Treaty Indian (under the *Indian Act*).

The description of the existing environment with respect to Indigenous health is the same as for human health (described above). There is no Indigenous-specific health information available for the project study areas, however, the diets of Indigenous peoples can be different than the general population through the consumption of a higher proportion of country foods (e.g., through hunting and fishing activities).

2.6.10 Socio-economic Environment

The nearest population centre to the Site Study Area is Rapides-des-Joachims in Aberdeen Township, Pontiac County, Quebec. The village occupies an island in the Ottawa River just upstream from Rapides-des-Joachims. The NPD property is in Renfrew County at the northern end of County boundaries. Renfrew County had an estimated population of 106,365 in 2023. Key employers include Garrison Petawawa, CNL, Renfrew County District School Board and the County itself. Hunting, trapping and angling are important activities in the Regional Study Area. Economic activities generally include forestry, resource mining, agriculture, retail, service, manufacturing and government activities, with some high-tech industry expanding into the area more recently as well. Highway 17 is the primary transportation route in the vicinity of the NPD site.

2.7 Assessment and Mitigation of Environmental Effects

The assessment of effects presents an evaluation of how the project may impact the environment, how potential effects can be mitigated and how monitoring can be used to verify the EA predictions.

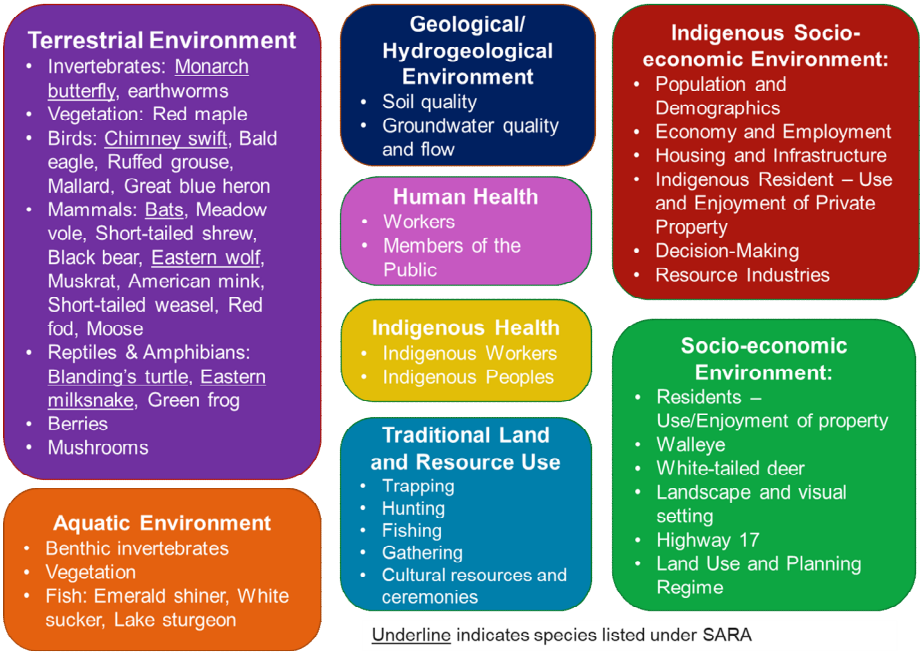
2.7.1 Effects Assessment Approach

Valued components (VCs) are environmental, biophysical, or human features that may be affected by the project and were identified to be of importance by the proponent, government agencies, Indigenous peoples, and/or members of the public. VCs selected for the project are listed in Figure 2.7-1 below.

Lady's Slipper (*Cypripedium acaule*)

Chimney Swift (*Chaetura pelagica*)

Figure 2.7-1 VCs Selected for the EIS



For the selection of VCs, some environmental components (e.g., the atmospheric environment and surface water environment, e.g., the Ottawa River) were identified as pathways, meaning that changes in those environmental components could result in effects to VCs in other environmental components. No VCs were included in these 'pathway' environmental components (and therefore these 'pathway' environmental components are not shown in Figure 2.7-1), but impacts to VCs in other environmental components from these pathways are evaluated. For example, although "drinking water" is not presented as a VC, drinking water quality is assessed through the evaluation of surface water quality impacts on human health (represented by the "human health" compartment in Figure 2.7-1). Similarly, the impact to non-human biota from surface water is assessed in the aquatic environment, traditional land and resource use and socio-economic environmental components.

For project-related effects, potential project-environment interactions were identified for each environmental component and evaluated to identify the likely effect of the change on a VC or on a pathway to VCs in other environmental components. Effects that have the potential to occur after mitigation measures have been applied are referred to as residual effects. Monitoring and follow-up activities were also identified to confirm the accuracy of the EA predictions, ensure that the planned mitigation measures are being carried out, and to ensure that those measures are effective.

Any adverse residual effects identified would be subjected to an analysis of significance based on a series of criteria, as follows:

- magnitude;
- spatial (geographic) extent;
- duration/timing;
- frequency/probability;
- reversibility;
- effect on human health; and
- ecological importance of VC.

Then, depending on the rating (low, moderate, high) assigned to each of those criteria, an adverse residual effect would be classified as either a minor or significant adverse residual effect.

2.7.2 Atmospheric Environment

Project activities will result in vehicle and equipment exhaust and greenhouse gas emissions, as well as noise and dust generation, and air displacement from within the facility. These activities have the potential to affect air quality and produce noise and are expected to be most prominent during the Decommissioning Execution phase. Example mitigation measures include dust suppression techniques to minimize dust generation, regular vehicle and equipment maintenance and idling restrictions to reduce emissions.

Changes in the atmospheric environment were considered in the assessment of effects on VCs in the aquatic, terrestrial, and socio-economic environments as well as human health and traditional land and

resource use. No adverse residual effects on VCs are expected with the implementation of mitigation measures.

Monitoring for parameters of concern in air, as well as air emissions and greenhouse gas estimates will be carried out to verify the accuracy of EA predictions, the effectiveness of mitigation measures and to support annual estimation of greenhouse gas emissions. Monitoring will occur primarily in the Decommissioning Execution phase, since this is when the most air emissions and noise are expected to occur.

2.7.3 Surface Water Environment

During the Decommissioning Execution phase, project activities such as equipment washout, levelling areas and establishing the project footprint, have the potential to affect site drainage and surface water quality through potential contamination of runoff. Example mitigation measures include runoff diversion and containment, proper washout pit design and operation, and the use of control measures for stockpiles for grout materials, and material laydown to reduce infiltration.

Environmental monitoring of the Ottawa River

Any washout water that is produced will be re-used in the grout batch mixing plant, as much as possible. Any excess washout water that is not used in the grout batch mixing plant will be regarded as a non-routine liquid and will be reviewed against criteria in CNL's Environmental Protection process, which outlines appropriate disposition routes depending on the results of analyses. The key aspect is that no un-assessed liquid effluent releases will occur as part of the decommissioning work.

In the Institutional Controls and Post-Institutional Controls phases, groundwater that comes into contact with the grouted facility may contain low levels of soluble contaminants that can potentially reach the surface water environment. In-design mitigation measures (i.e., containment and isolation of contaminants) will reduce the potential for the release of soluble contaminants to groundwater and eventually surface water.

Changes in the surface water environment were considered in the assessment of effects on VCs in the aquatic, terrestrial, and socio-economic environments as well as human health and traditional land and resource use. No adverse residual effects on VCs are expected with the implementation of mitigation measures.

Monitoring for significant changes to surface drainage and/or water quality will be carried out to verify the accuracy of EA predictions and the effectiveness of mitigation measures. CNL will continue to monitor surface water quality in the Ottawa River during the Decommissioning Execution and Institutional Controls phase.

2.7.4 Aquatic Environment

In the Decommissioning Execution phase, project activities such as equipment washout and demolition have the potential to affect aquatic biota through potential contamination of runoff. Example mitigation measures include dust suppression and runoff diversion.

Any washout water that is produced will be re-used in the grout batch mixing plant, as much as possible. Any excess washout water that is not used in the grout batch mixing plant will be regarded as a non-routine liquid and will be reviewed against criteria in CNL's Environmental Protection process, which outlines appropriate disposition routes depending on the results of analyses. The key aspect is that no un-assessed liquid effluent releases will occur as part of the decommissioning work, and all non-routine discharge will be reviewed against acceptability criteria.

In the Institutional Controls and Post-Institutional Controls phases, groundwater that comes into contact with the grouted facility may contain low levels of soluble contaminants, and, interactions in other environmental components also have the potential to result in changes to the aquatic environment. In-design mitigation measures (i.e., containment and isolation of contaminants) will reduce the potential for the release of soluble contaminants to groundwater and eventually to the aquatic environment.

The potential changes were assessed and no adverse residual effects were identified for VCs (e.g., lake sturgeon, emerald shiner) in the aquatic environment with the implementation of mitigation measures.

Monitoring and follow-up activities in other environmental components that could potentially affect the aquatic environment will verify the accuracy of EA predictions and the effectiveness of mitigation measures, and may trigger the need for monitoring in the aquatic environment.

2.7.5 Geological and Hydrogeological Environment

In the Decommissioning Execution phase, project activities, such as demolition and material sizing, could affect soil quality through the potential release of contaminated particulate matter. Example mitigation measures include dust suppression.

In the Institutional Controls and Post-Institutional Controls phases, groundwater that comes into contact with the grouted facility may contain low levels of soluble contaminants. In-design mitigation measures (i.e., containment and isolation of contaminants) will reduce the potential for the release of soluble contaminants to groundwater.

The potential changes were assessed and no adverse residual effects were identified for VCs in the geological and hydrogeological environment (e.g., soil quality, groundwater quality and groundwater flow). In addition, changes in the geological and hydrogeological environment were considered in the assessment of effects on VCs in the aquatic, terrestrial, and socio-economic environments as well as human health and traditional land and resource use. No adverse residual effects on VCs are expected with the implementation of mitigation measures.

Monitoring activities such as the measurement of groundwater quality, flow and direction will be carried out during the Decommissioning Execution and Institutional Controls phases to verify the accuracy of the EA predictions and the effectiveness of mitigation measures.

2.7.6 Terrestrial Environment

Project activities, such as demolition and operation of machinery and vehicles, have the potential to affect terrestrial biota, through creation of dust, noise, vibration and encroachment and potentially mortality from transportation (i.e., roadkill). Emissions from machinery and vehicles, and displacement of contamination in air displaced from the facility has the potential to result in exposure effects to terrestrial biota. These interactions are expected to be most prominent during the Decommissioning Execution phase. Interactions in other environmental components also have the potential to result in changes to the terrestrial environment. Example mitigation measures include dust and noise suppression, delineation of work areas and site sweeps for the presence of SARs.

The potential changes were assessed and no adverse residual effects were identified for VCs in the terrestrial environment (e.g., bats, chimney swift).

Specific monitoring activities have been developed to verify the effectiveness of mitigation measures on chimney swifts and bats.

2.7.7 Ambient Radioactivity

Project activities, such as grouting the below grade structure and demolition, have the potential to have a localized effect on ambient radioactivity, through the release of radionuclides in air displaced from the facility and from surface contamination. These are expected to occur primarily during the Decommissioning Execution phase. Example mitigation measures include dust suppression.

Potential changes in ambient radioactivity were considered in the assessment of effects on VCs in the aquatic, terrestrial, and socio-economic environments as well as human health and traditional land and resource use (described below). No adverse residual effects on VCs are expected with the implementation of mitigation measures.

Monitoring activities such as routine radiation protection surveys and passive ambient air sampling, as well as monitoring of radiological contaminants in atmospheric and surface water environments will be carried out to verify the accuracy of the EA predictions and the effectiveness of mitigation measures.

2.7.8 Human Health

Project activities have the potential to increase radiation dose to workers, e.g., from the release of dust and contamination in air displaced from the facility. Procedures are in place to satisfy CNL's policies on health, safety, security and environment; to ensure conformance with the Radiation Protection Program; to manage radiological hazards; and, to establish a safe working environment that ensures the protection of environment and personnel. In addition, mitigation measures in other environmental components, as well

as work control documents and personal protective equipment will be used to reduce potential effects on worker health.

In the Institutional Controls and Post-Institutional Controls phases, groundwater that comes into contact with the grouted facility may contain low levels of soluble contaminants that can potentially reach members of the public and Indigenous Nations, communities and organizations. The assessment of human health effects incorporates local food consumption and water use characteristics. Interactions in other environmental components also have the potential to result in changes to human health. In-design mitigation measures (i.e., containment and isolation of contaminants) will reduce the potential for release of soluble contaminants to groundwater and eventually to human health.

The potential changes were assessed and no adverse residual effects were identified for public or worker health with the implementation of mitigation measures.

Monitoring and follow-up activities such as radiation dose monitoring and indoor air quality monitoring, as well as activities in other environmental components will be carried out to verify the accuracy of EA predictions and the effectiveness of mitigation measures in human health.

2.7.9 Traditional Land and Resource Use

Decommissioning Execution activities could produce nuisance effects (i.e., noise and dust) for nearby hunting, trapping, fishing and gathering activities. Mitigation measures in other environmental components, such as dust suppression, timing decommissioning activities and communication updates will be carried out to reduce potential effects on traditional land and resource use.

In the Institutional Controls and Post-Institutional Controls phases, groundwater that comes into contact with the grouted facility may contain low levels of soluble contaminants that can potentially reach the surface environment and thus affect traditional land and resource use VCs. Any potential effects on non-human biota could also impact these VCs. Interactions in other environmental components also have the potential to result in changes to traditional land and resource use. In-design mitigation measures (i.e., containment and isolation of contaminants) will reduce the potential for release of soluble contaminants to groundwater and eventually to traditional land and resource use VCs via surface water.

The potential changes were assessed and no adverse residual effects were identified for traditional land and resource use VCs (e.g., hunting, gathering) with the implementation of mitigation measures.

Ongoing Indigenous engagement activities will be used to identify any changing concerns or perceptions related to the project, develop a greater understanding of Indigenous knowledge systems and verify the accuracy of EA predictions related to traditional land and resource use. CNL acknowledges that the AOPFN have identified the key role of the country foods monitoring program in mitigating the concerns of the AOPFN.

2.7.10 Indigenous Health and Socioeconomic

Indigenous Socioeconomic

Project activities have the potential to effect Indigenous demographics, economy, use and enjoyment of the area and resource industries. Engaging with the project takes time, and may place undue demands on Indigenous leadership and impact the administrative capacity of Indigenous Nations, communities and organizations. CNL has provided funding for Indigenous Peoples participation in the project, including for engagement sessions, participating in third-party reviews, and preparing traditional knowledge and land use studies. Decommissioning Execution activities could produce nuisance effects (i.e., noise, dust and traffic) for nearby Indigenous residents and land users. The project footprint could affect landscape and visual setting from the Kichi-Sìbì (Ottawa River). Mitigation measures in other environmental components, such as dust suppression, timing of decommissioning activities and periodic communication updates will be carried out to reduce potential effects on the socio-economic environment.

The potential changes were assessed and no residual effects were identified for Indigenous socio-economic VCs with the implementation of mitigation measures.

Ongoing Indigenous engagement activities will be used to identify any changing concerns or perceptions related to the project and will verify the accuracy of EA predictions in the Indigenous socio-economic environment.

Indigenous Health

Project activities have the potential to increase radiation dose to Indigenous workers, e.g., from the release of dust and contamination in air displaced from the facility. Mitigation measures in other environmental components, as well as work control documents and personal protective equipment will be used to reduce potential effects on worker health. In the Institutional Controls and Post-Institutional Controls phases, groundwater that comes into contact with the grouted facility may contain low levels of soluble contaminants that can potentially reach the surface environment and thus interact with sportfish and game species (i.e., walleye and white-tailed deer) as well as the health of Indigenous peoples. In-design mitigation measures (i.e., containment and isolation of contaminants) will reduce the potential for release of soluble contaminants to groundwater and eventually surface water to impact Indigenous health VCs via surface water.

The EIS assesses specific long-term effects of the in-situ disposal on individuals living a traditional Indigenous lifestyle around the site post-closure (e.g., Indigenous receptor). The potential changes were assessed and no residual effects were identified for Indigenous health VCs with the implementation of mitigation measures.

Monitoring and follow-up activities such as radiation dose monitoring and indoor air quality monitoring, as well as activities in other environmental components will be carried out to verify the accuracy of EA predictions and the effectiveness of mitigation measures in human health. Ongoing Indigenous engagement activities will be used to identify any changing concerns or perceptions related to the project and will verify the accuracy of EA predictions related to Indigenous health.

2.7.11 Socio-economic Environment

Decommissioning Execution activities could produce nuisance effects (i.e., noise, dust and traffic) for nearby residents and land users. The project footprint could affect landscape and visual setting from the Ottawa River. Mitigation measures in other environmental components, such as dust suppression, timing of decommissioning activities and periodic communication updates will be carried out to reduce potential effects on the socio-economic environment.

In the Institutional Controls and Post-Institutional Controls phases, groundwater that comes into contact with the grouted facility may contain low levels of soluble contaminants that can potentially reach the surface environment and interact with sportfish and game species (i.e., walleye and white-tailed deer). Interactions in other environmental components also have the potential to result in changes to the socio-economic environment. In-design mitigation measures (i.e., containment and isolation of contaminants) will reduce the potential for release of soluble contaminants to groundwater and eventually to socio-economic VCs via surface water.

The potential changes were assessed and no residual effects were identified for VCs (e.g., walleye) in the socio-economic environment with the implementation of mitigation measures.

Ongoing public and stakeholder engagement activities will be used to identify any changing concerns or perceptions related to the project and will verify the accuracy of EA predictions in the socio-economic environment.

2.7.12 Accidents and Malfunctions

To identify potential accident and malfunction scenarios, decommissioning activities were reviewed to identify hazards, which were assigned frequency, severity and risk ratings. Credible scenarios were grouped based on similar consequence types. Within these groups, the scenario with the greatest potential (a bounding scenario) was identified, and these were used to encompass or bound the effects of other scenarios within the group. A total of ten bounding scenarios were identified (as listed below). Of these, only scenarios 1, 2, 6, 7, 8, 9 and 10 are considered to be accidents and malfunctions. Bounding scenarios 1, 2, 3, 4, 5 are discussed as part of effects of the environment on the project.

1. Forest fire – potential release of radiological contaminants;
2. Forest fire – potential release of non-radiological contaminants;
3. Tornado – potential release of radiological contaminants (considered in Effects of the Environment on the project below);
4. Tornado – potential release of non-radiological contaminants (considered in Effects of the Environment on the project below);
5. Flood – potential release of radiological contaminants (considered in Effects of the Environment on the project below);
6. Accidental exposure to radioactivity – worker;

7. Accidental exposure to chemicals – worker;
8. Underground fire (including equipment fire) – potential release of radiological contaminants;
9. Underground fire (including equipment fire) – potential release of non-radiological contaminants; and
10. Collapse of ventilation stack.

Each of these bounding scenarios underwent an analysis to determine the dose estimates for receptors. Based on the severity of the consequence, and the probability of occurrence, all bounding scenarios were determined to have negligible risk.

2.7.13 Cumulative Effects

Since the NPD Closure Project has no adverse residual effects, a cumulative effects assessment is not required. The following reasonably foreseeable projects are provided for context:

- Chalk River Laboratories Site:
  - Near-Surface Disposal Facility (NSDF)
  - Small Modular Reactor
  - New/upgraded research and development facilities
  - New support infrastructure
  - Infrastructure decommissioning
  - Environmental remediation
- Ontario Power Generation dam repair at Des Joachims and McConnell dams

2.7.14 Effects of the Environment on the Project

The EIS includes an evaluation of how climate change, severe weather conditions and other environmental events may interact with and potentially alter the condition and function of the project, such that there would be resultant effects on the environment or human health and safety. The events considered include:

- climate change;
- forest fires;
- tornados;
- flood;
- earthquake;
- lightning strike;
- ice storm; and,

- changes to the Ottawa River.

No exceedances of relevant criteria were noted for any potential effects of the environment on the project.

2.7.15 Natural Analogues

The EA for the NPD Closure Project is a challenging undertaking because of the very long time periods involved. Natural analogues can be used to provide understanding and enhance confidence in the behaviour of the NPDDF over time. Natural analogues are natural or anthropogenic features that are similar to the features being assessed (e.g., isolation and containment). For the NPDDF, some of the examples of natural analogues include:

- Iron-based materials: It is assumed (in the Postclosure Safety Assessment) that the inventory embedded in iron-based materials is released gradually. Reports of corrosion of iron-based archaeological artefacts, native metals and meteorites from various locations under a wide range of environmental conditions were consistent with the assumed range of corrosion rates in the Postclosure Safety Assessment.
- Concrete/grout/cement: The Postclosure Safety Assessment assumes that the grout will gradually degrade as the cementitious constituents are slowly leached out upon contact with groundwater. The binder being considered for the NPDDF contains blast furnace slag, a pozzolanic material with chemistry similar to the volcanic ash used in Roman concretes. The key chemical similarity is that both Roman cements and modern slag cements form crystalline calcium-aluminum-silicate-hydrate (C-A-S-H) compounds that have improved longevity and strength compared with ordinary Portland cement. The Roman concretes from the 3rd century and approximately 1,000 years earlier show little degradation over approximately 2,000 years.
- The concrete cap: It is assumed that the concrete cap starts to degrade 100 years after its emplacement and is assumed to have fully degraded (in terms of hydraulic performance) by 1,000 years after decommissioning is complete. Ancient tombs with wooden coffins have stayed dry when covered by such layers for approximately 1300 to 1500 years and are generally well preserved.

These examples illustrate similar long-term behavior of natural systems and support the concepts of the long-term containment provided by the NPDDF.

2.8 Follow-Up Program

A proposed follow-up monitoring program was developed for the NPD Closure Project to meet the requirements for the EA Follow-up Program (EIS Generic Guidelines and REGDOC-2.9.1), CNL procedural documents, as well as relevant Canadian Standards Association (CSA) standards. In addition, CNL currently conducts monitoring at the NPD site under its Environmental Protection Program. The proposed follow-up monitoring program includes details on the monitoring in the environment, in effluent, and for physical stressors and VCs. The EA Follow-up Program was developed for the Decommissioning Execution

and Institutional Controls phases of the project. These follow a systematic informed planning process based on CSA guidance.

At a minimum, the proposed follow-up monitoring program follows the EA Follow-Up Program objectives, specifically to:

- verify the accuracy of EA predictions;
- determine the effectiveness of any measures implemented to mitigate potential adverse environmental effects.

The proposed monitoring and follow-up activities may be modified, and activities may be added pending the actions needed to satisfy regulatory, Indigenous and/or stakeholder concerns identified during engagement activities prior to finalizing the EA Follow-Up Program.

In addition to developing the monitoring details including environmental media, monitoring locations and frequency, parameters, the EIS includes details on the implementation of monitoring, including sampling and analysis protocols, management of data and records, quality assurance, information management and reporting.

2.9 Conclusion

2.9.1 Summary of Findings

This EIS discusses project-environment interactions, proposed mitigation measures, potential adverse residual effects after mitigation, determination of significance of adverse residual effects, and recommended monitoring and follow-up activities.

The NPD Closure Project will not result in any adverse residual environmental effects, including effects from accidents and malfunctions, cumulative effects, and effects of the environment on the project. The absence of adverse residual effects during the Institutional Controls and Post-Institutional Controls phases demonstrates the effectiveness of in-design mitigation measures and viability of the project. During any phase of the project, including the years following closure, doses to members of the public are lower than the regulatory limit. The assessment shows that doses are lower than regulatory limits by a factor of at least 1,000.

CNL's Indigenous and stakeholder engagement identified interest in a number of topics, including water quality in the Kichi-Sìbì (Ottawa River), the chimney swifts and other species at risk, and land use planning. No adverse residual effects on the Ottawa River or biota, including species at risk, are predicted and CNL has initiated discussions to gather feedback on desired future land uses. Engagements will continue through the EA process, Decommissioning Execution phase and into the Institutional Controls phase.

2.9.2 Features of In-Situ Disposal that Ensure Protection of the Environment

In-situ disposal provides containment and isolation of the NPDWF inventory for a sufficiently long time to ensure that the long-term environmental concentrations do not cause adverse effects to human health or the environment. The engineered barriers restricting contaminant releases from the NPDDF are:

- the majority of the existing radioactivity is embedded within metals that will corrode very slowly in the chemical environment of the NPDDF;
- the thick concrete walls of the reactor vault and structure provide barriers that slow the movement of contamination; and
- the use of grout backfill will slow groundwater movement and create an alkaline environment that limits the solubility of key contaminants.

The isolation of contaminants is achieved by:

- historic siting of the facility in bedrock;
- active controls in the short term (e.g., limiting access to site);
- filling much of the NPDWF with grout; and
- placing a concrete cap over key parts of the nuclear area lowers the probability of future inadvertent intrusion.

On a short time scale, the facility has been in storage with surveillance for over 30 years, with no adverse impact on the environment. All of the proposed operations are known and proven technologies. In-situ disposal has been in use for at least 50 years.

Conceptual depiction of the NPDDF after decommissioning is complete. The ventilation stack is retained as a habitat for chimney swifts.

In the long-term, following the defence-in-depth principle, the assessment has demonstrated that the failure of any of the physical engineered barriers will not compromise the performance of the disposal facility. For the purposes of this EIS, the defence-in-depth principle is defined as the use of multiple barriers to prevent the escalation of anticipated operational occurrences and to maintain the effectiveness of physical barriers in place between a radiation source or radioactive material and workers, members of the public and the environment, under normal evolution and disruptive events.

It should be noted that while time is elapsing and eventually leading to the degradation of the engineered barriers (which is taken into account in the assessment), the radioactivity is progressively decaying. The assessment has shown that the effectiveness of the engineered barriers over time and as they

progressively degrade is adequate to protect the ever-decreasing radiological hazard at any given point in time.

The EIS highlights areas of uncertainty (e.g., contaminant concentrations, contaminant transport characteristics, land use near NPD, etc.) that could affect the EIS findings. Therefore, consistent with regulatory and international best practices, these uncertainties are addressed for the NPDDF as follows:

- Process: it uses a systematic, transparent and auditable process for developing and analysing safety in all phases of the project;
- Comparison with regulatory safety criteria: The safety assessment results are generally orders of magnitude below these criteria; and
- Range of performance indicators: a wide range of indicators (e.g., releases, environmental concentrations, doses, etc.) has been used.

In addition, a range of scenarios has been assessed to encompass uncertainty during all project phases, as well as hypothetical extreme cases to understand the limits of the NPD disposal facility. This range of scenarios is a very valuable confidence-building measure, as it demonstrates that even under a range of different assumptions and conditions, the safety criteria are met. This illustrates the intrinsic robustness of the system, and is further supported by observations of these engineered barriers' durability under natural conditions.

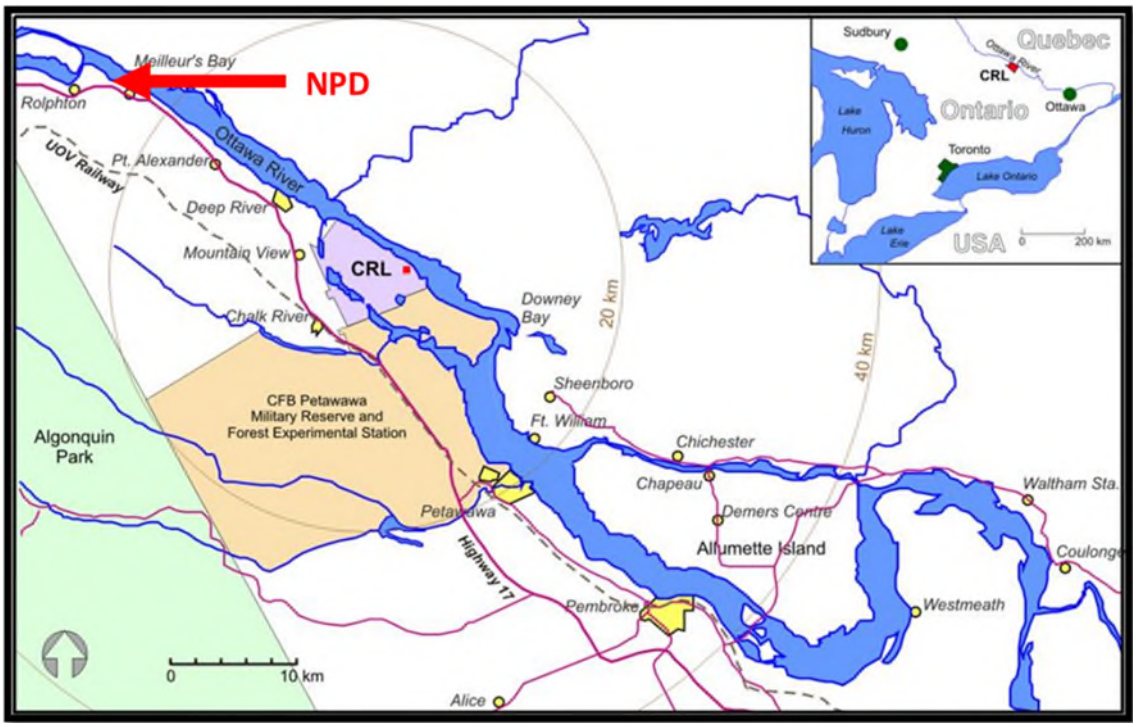
3 INTRODUCTION

3.1 Location of the Project

Aerial view of the NPDWF and the Ottawa River, looking east

The Nuclear Power Demonstration (NPD) site is located in the unceded and unsurrendered territories of the Algonquin Anishinaabe people. We recognize and appreciate their historical connection to this land, and as the customary keepers and defenders of the Ottawa River Watershed and its tributaries. The NPD site is located on the south bank of the Kichi-Sìbì (Ottawa River), about 2.5 km southeast of Rolphton, about 3 km downstream of the Des Joachims Dam, approximately 25 km upstream of the Chalk River Laboratories (CRL) site, and approximately 200 km northwest of Ottawa. The NPD Nuclear Generating Station (NGS) was operated by Ontario Hydro from 1962 until being permanently shut down in 1987, when the responsibilities were transferred to Atomic Energy of Canada Limited (AECL), a federal corporation. It is now referred to as the Nuclear Power Demonstration Waste Facility (NPDWF). Canadian Nuclear Laboratories (CNL) is a private-sector company that is contractually responsible for the management and operation of nuclear sites, facilities and assets owned by AECL. CNL proposes to decommission the NPDWF to a final end state that is a permanent, passive disposal facility. The name of the disposal facility will be the NPD Disposal Facility (NPDDF). The NPDWF is located (on average) 94 m from the south shore of the Ottawa River. This has been confirmed using GIS information taken from the County of Renfrew, Ontario. The other side of the river is the province of Quebec. The centre of the site is located at approximately latitude 46°11’12” N, and longitude 77°39’28” W (Figure 3.1-1). The activities of the project occur on federally-owned lands. Other nearby federal lands include Chalk River Laboratories (CRL) and Garrison Petawawa, which are located approximately 25 and 32 km from the NPD site respectively.

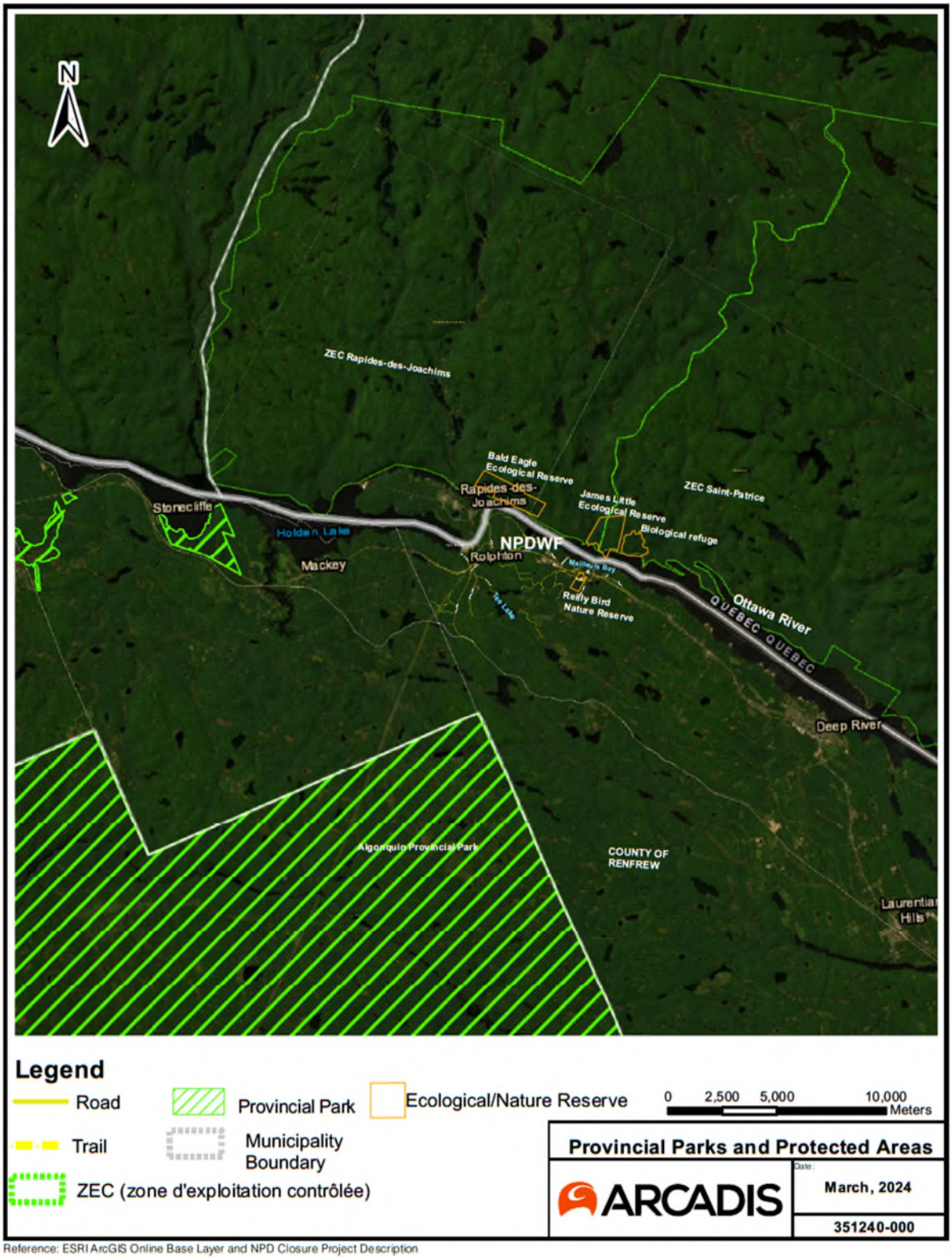
Figure 3.1-1 NPD Site Location



The site is in a rural area, with relatively low population density. The Town of Laurentian Hills has a population of approximately 2,800 distributed over an area of 640 km^2 and contains the former village of Chalk River and the former hamlets of Point Alexander and Rolphton. The nearest population centres are Rapides-des-Joachims, QC (population roughly 170, 3 km northwest) and Deep River, ON (population roughly 4,200, 17 km southeast) (Wills 2013). The nearest individual residents of Laurentian Hills live approximately 1 km from the facility boundary (Wills 2013). The surrounding land is primarily forested. The NPD site is within the unceded Algonquin traditional territory. More information on Indigenous Nations, communities and organizations and traditional Indigenous territories, treaty and reserve lands, and Métis harvesting regions are discussed in greater detail in Section 6 of this EIS.

The presence of large areas of provincial and federal land within the area present numerous opportunities for activities such as forestry, hunting, fishing recreation and tourism. Nearly half of the land area of Renfrew County is provincial and federal land. The provincial land is dominated by resource uses such as forestry, mineral exploration, fishing and hunting, etc. and is open to the public. The federal land is reserved for the specific uses such as Garrison Petawawa and CNL which are Restricted Access Crown Land. Numerous lakes, river systems and other natural features provide opportunities for recreational and tourist activities. As well, a large stretch of the County's border abuts Algonquin Provincial Park in the west and northwest and the Ottawa River along its full northeast extent providing further access to extensive tracts of recreational opportunity beyond County limits (Renfrew County 2016a). Nearby provincial parks and other protected areas are shown in Figure 3.1-2. The NPD site contains habitat for a number of federal and provincial Species at Risk (SARs), including chimney swifts which roost in the NPD ventilation stack, bats, and monarch butterflies.

Figure 3.1-2 Provincial Parks and Protected Areas



Reference: ESRI ArcGIS Online Base Layer and NPD Closure Project Description

Areas in the immediate vicinity of the facility were originally cleared during construction. Some of these areas remain as disturbed cultural communities. Other areas were revegetated with native trees and shrubs, resulting in mixed vegetation communities. The property outside the immediate vicinity of the NPDWF consists largely of natural areas, such as forest and different wetland types and these areas have remained largely untouched. (Ecological Land Classification (ELC) Technical Supporting Document (TSD)).

3.1.1 Description of Site and Vicinity

As described in Section 8.9.3.1, Indigenous peoples, including the ancestors of the modern-day Algonquins living in the Ottawa Valley undertook traditional activities throughout the lands and waters of the Ottawa Valley, including the NPD site and the adjacent Kichi-Sìbì (Ottawa River) for fishing, trade and transportation. The NPD site is in Algonquin territory, and traditional use of land and waters by Indigenous peoples continues to take place in the vicinity of the NPD site (see Section 8.9.2).

The NPD site location and vicinity are shown in Figure 3.1-1 and Figure 3.1-3 respectively. The location of the NPDWF within the NPD site is outlined in Figure 3.1-3 and shown in more detail in Figure 3.1-4 and Figure 3.1-5. As seen in Figure 3.1-3, the facility occupies a small percentage, i.e., less than 1 percent, of the total NPD site area.

The NPDNGS, consisting of a 20 Mwe CANDU® (short for CANada Deuterium Uranium) reactor, was placed in service in 1962 and operated by Ontario Hydro. The reactor was heavy water moderated, cooled by pressurized heavy water and fueled with natural uranium. The main systems of the NPDNGS were the reactor, primary heat transport and moderator systems, turbine, and electrical power generator equipment (Seto 2015). The NPDNGS was shut down in 1987 and placed into a safe interim storage condition. Ontario Hydro then turned over ownership of the facility and compliance responsibilities to AECL, a federal corporation in September 1988 (Wills 2013), and it is now referred to as the NPDWF. Under the *Nuclear Safety and Control Act*, the NPDWF is currently a Class I nuclear facility and has a federal Waste Facility Decommissioning Licence authorized for storage with surveillance activities by the Canadian Nuclear Safety Commission (CNSC). CNL, a private sector company contractually responsible for nuclear sites, facilities and assets owned by AECL, is the licensee for the NPDWF. The licensed boundary of NPDWF is outlined in Figure 3.1-5 and represents the area within which activities authorized by the CNSC may occur.

Following permanent shutdown of the NPDNGS, all process systems not required during safe storage were drained and shut down, including the heavy water moderator and heat transport system. All fuel was transferred to fuel storage facilities at the CRL site. Any mobile material such as demineralizer equipment was removed for re-use and the entire turbine system, control room and support facilities were cleared out and demolished where possible. Some hazardous materials have been removed such as asbestos insulation and floor tiles. Any redundant buildings and non-nuclear systems were removed (i.e., power house components). The NPDWF currently consists of a limited number of structures including the main building storing the reactor and its associated systems, a diesel-generator, the ventilation stack and the guardhouse.

Outside of the NPDWF, but within the NPD site, there are also two closed landfills, as shown in Figure 3.1-4. Both landfills will remain on-site during the postclosure period. In addition, three underground storage tanks, used for diesel, heating furnace oil, and radiological liquid waste, were located on the NPD site, but have since been removed and the surrounding soil remediated (ORAU 2017).

The Site, Local and Regional Study Areas for the project are described in Section 5.2.1 of this document.

Figure 3.1-3 NPD Site Vicinity (Source: Seto 2015)

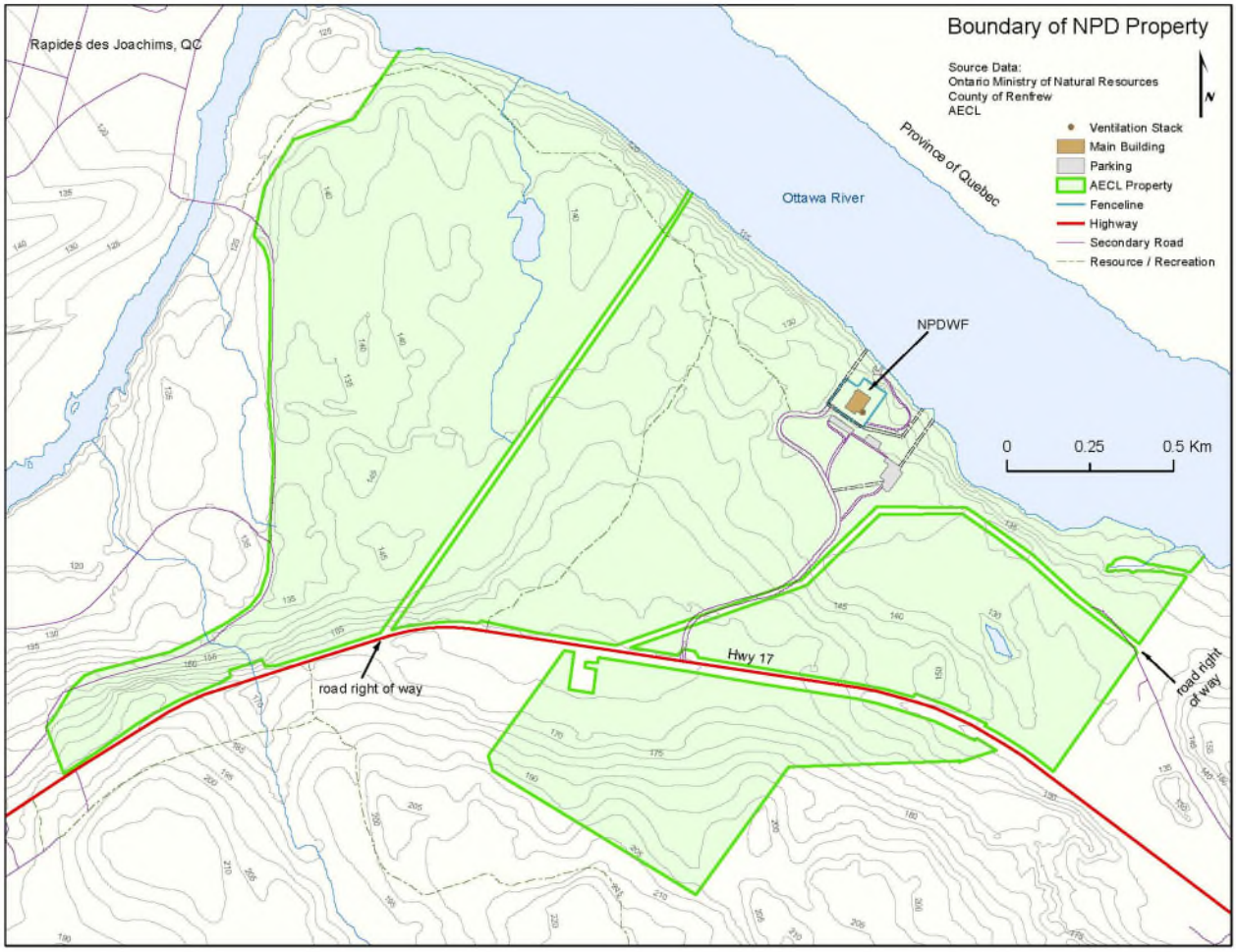


Figure 3.1-4 NPDWF and Surrounding Area (Source: ORAU 2017)

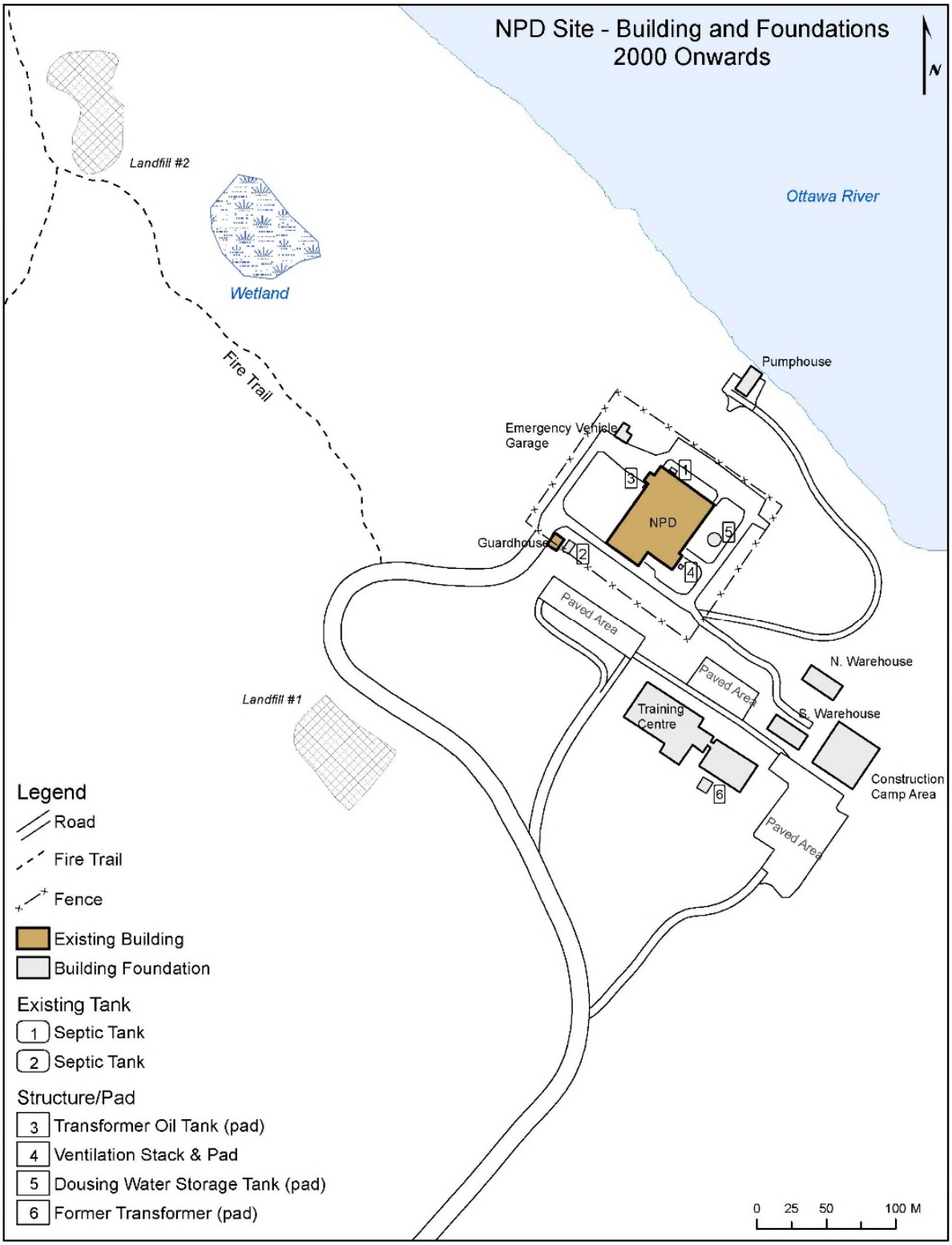
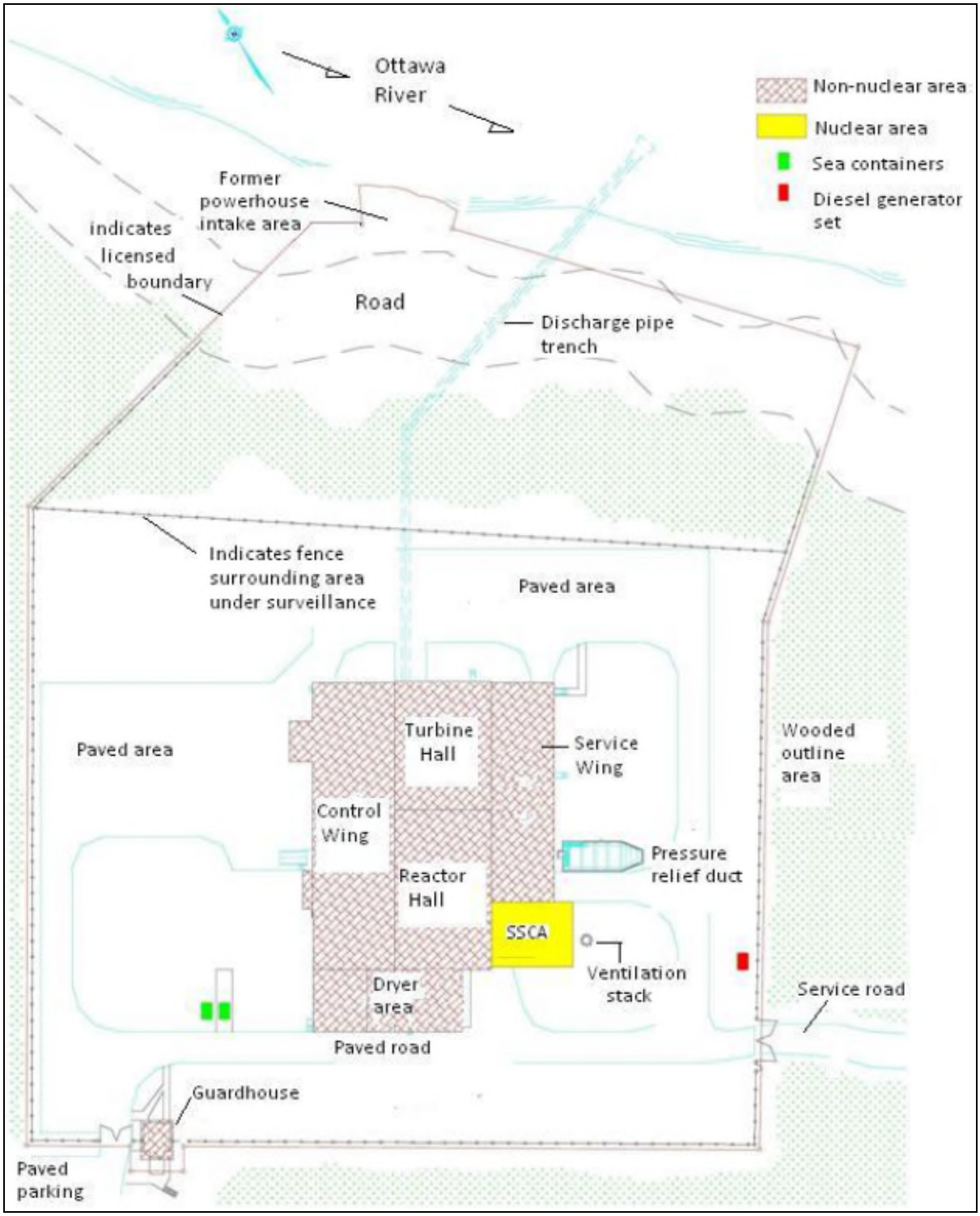


Figure 3.1-5 NPDWF Licensed Boundary (Seto 2015)



Note: SSCA is the Static State Control Area.

3.2 Project Overview

The proposed project is titled the "*Nuclear Power Demonstration Closure Project*" and is hereafter referred to as "the project" or "the NPD Closure Project". The purpose of the project is to safely decommission the NPDWF, ensuring a timely reduction of Canada's nuclear historic liabilities and eliminating interim waste storage, while reducing worker risk and transport/waste handling risk.

The NPD ventilation stack has become a significant migratory roost for chimney swifts (*Chaetura pelagica*), a listed Species at Risk

At the time of the NPDNGS permanent shutdown, the preferred decommissioning strategy for the reactor was one of deferred decommissioning. A deferral period allowed the significant reduction of radiation fields emanating from the reactor and associated process systems as a result of radioactive isotopes decay. In 1988, after the facility was shut down, total residual radioactivity in the NPD reactor system was estimated to be 2×10^{15} Bq. Since shut down, 34 years of radioactive decay have reduced radioactivity considerably as the majority of the short-lived radionuclides have decayed. In 2020, the residual radioactivity in the reactor vault system was approximately 7.5 $x10^{13}$ Bq (dominated primarily by beta radionuclides), and the total residual radioactivity of the whole NPDWF is approximately 7.9 $x10^{13}$ Bq.

The Government of Canada is interested in an approach to completing the decommissioning of the NPDWF that protects the public and the environment; however, disposal capabilities for the reactor systems and components present at NPDWF are limited.

The project proposes in-situ disposal, previously referred to as in-situ decommissioning, of the NPDWF, which isolates the contaminated systems and components inside the below-grade structure thus creating a waste disposal facility on the NPD site. All below-grade areas will be filled with grout. A grout batch mixing plant will be assembled on site, to produce the required grout. The above-grade structures will be demolished, size reduced and placed into the below-grade structure as backfill prior to final grouting. The ventilation stack, a current roosting structure for chimney swifts, will be isolated from the facility (i.e., will no longer serve a ventilation function), and retained to continue to function as chimney swift habitat. The grouted reactor system and components will then be capped with a concrete cap and covered with an

engineered cover. The NPDWF area will be restored and prepared for long-term care and maintenance activities. These activities are to be carried out under an amendment of the current decommissioning licence to allow for disposal of nuclear wastes.

The proponent of the project, CNL, is proposing to carry out a designated project on federal land. Proponent contact information is provided in Section 3.4 of this document. CNL prepared a Project Description (Titterington 2016), which provides general information on the site and location of the project. In addition, Section 3.1 above provides details on the NPD site and vicinity, and the NPDWF within the NPD site.

The Decommissioning Execution phase of the project is proposed to begin late in 20217, subject to the regulatory decision-making process, with final site restoration expected to be complete by the end of 2030, and long-term care and maintenance activities proceeding from that point onwards. The project phases and schedule are presented in Table 3.2-1.

Table 3.2-1 Project Phases and Schedule (dates to be confirmed based on the regulatory decision-making process)

Decommissioning Phase	Associated Activities	Duration
Decommissioning Execution	Assembly and operation of grout batch mixing plant	2028
	Grouting of below-grade structures	2028-2029
	Removal of above-grade structures and use as backfill	2029
	Installation of concrete cap and engineered cover	2029
	Final site restoration	2030
Institutional Controls	Long-term care and maintenance activities	2030-2130
Post-Institutional Controls	Facility performance during the Post-Institutional Controls phase	>2130

Source: Detailed Decommissioning Plan NPD Closure Project (Johnson 2022a).

Note: the Institutional Controls phase is assumed to last for 100 years.

3.3 NPD Site and Facility Description

3.3.1 Structures at the NPD Site

The current layout of buildings and foundations at NPDWF is illustrated in Figure 3.1-4 and Figure 3.1-5 above (Seto 2015). The remaining permanent structures at the NPD site are:

- Main Building – The purpose of the Main Building substructure is to house the reactor, its associated equipment, and to provide shielding and containment. It has a one-storey above ground structure with five levels below grade and has a building footprint of approximately 3,000 m^2.
- Ventilation stack – The purpose of the ventilation stack is to discharge airborne effluent from the Main Building. The ventilation stack is a reinforced concrete structure 45.7 m high.
- Guardhouse – The purpose of the guardhouse is to serve as an access control point into the NPDWF. It is a standalone building at the entrance to the fenced area. It is a one-storey above ground structure with a building area of 80 m^2.
- Pressure Relief Duct – The former purpose of the pressure relief duct was to provide an emergency relief for steam from the boiler package. It is a reinforced poured concrete construction that is 14.6 m in length and 2.7 m in width and 3.6 m in height. The pressure relief duct is one part of a two-part structure, with the second component being the pressure relief pit. The dimensions for the pressure relief pit are 15.2m in length x 4.5m in width x 12.1m in height (AECL 1961). The pressure relief duct, which is physically sealed from the facility, leads from the east wall of the facility to the pressure relief pit. The pressure relief pit is open directly to the atmosphere.
- Diesel Generator Enclosure – The enclosure houses a diesel-generator set which provides emergency power to mitigate power interruptions at the facility.

There are also temporary facilities onsite such as sea containers, office trailers and portable washrooms. A monitored security fence surrounds the NPDWF Main Building, and access into this area is controlled by CNL (Johnson 2022a).

The NPDWF main building and ventilation stack

Foundations from the previously removed pump house, emergency vehicle garage, training centre, construction camps, warehouses, dousing tank, transformer and an administration wing remain onsite. There are also two landfills on site which are currently closed. Landfill #1 was used for conventional purposes (e.g., office and cafeteria waste) during the operation of the facility while Landfill #2 was used as a laydown area during construction of the site. Landfill #1 has a certificate of approval (A413107) from the Ontario MOECC acknowledging closure of the landfill. During operation, the domestic sanitary services consisted of two

septic tanks which remain onsite but are not in use. There are also buried utilities and drainage systems onsite, some of which are still in use. The NPDNGS also had two underground storage tanks, for diesel fuel and furnace oil, as well as a tank which contained the radiological liquid waste, all of which were previously removed and soils around them remediated (ORAU 2017).

3.3.2 NPDWF Description

The main building has one story above ground and five levels below ground. The above-ground building consists of the reactor and turbine halls, flanked on the east by the service wing, and on the west by the control wing. Figure 3.3-1 shows a section view of the NPDWF; however, it does not show the two outer wings. As outlined in the decommissioning plans (Johnson 2022a), the above-ground structures will be demolished, and the debris will be placed into the lower levels such as the Condenser Room/Pit as backfill and covered with grout before the concrete cap and engineered cover is placed over the grouted facility.

Historical Photograph of the NPD Control Room

Figure 3.3-1 Section View of the NPDWF (Source: Killey 2014)

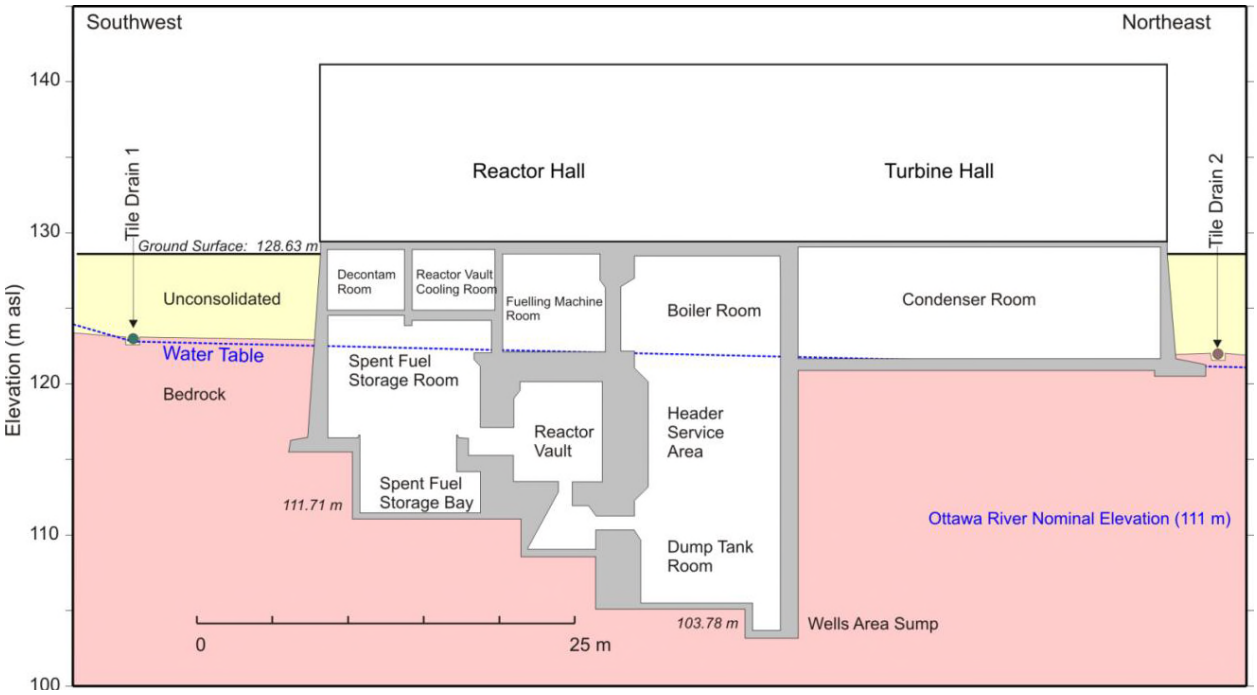
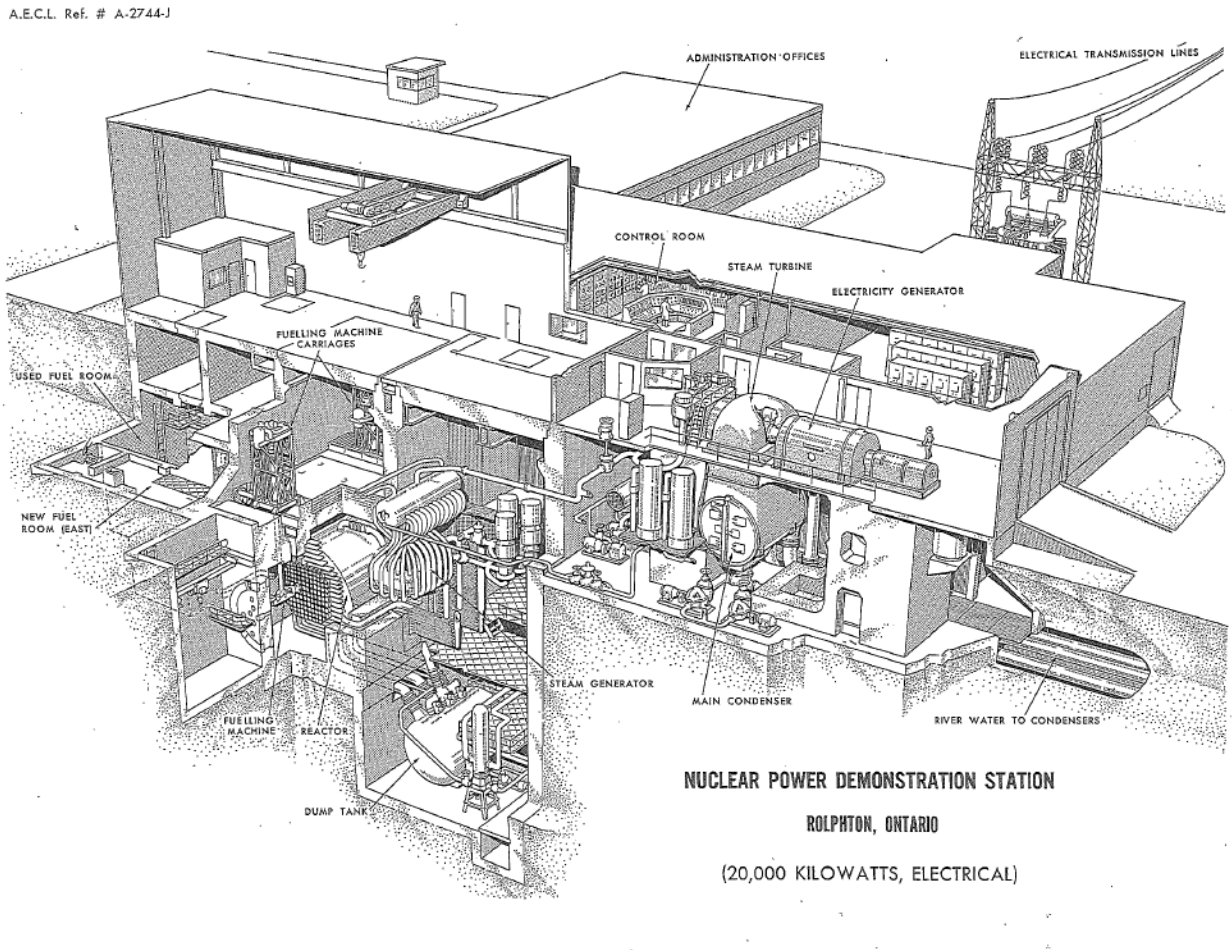


Figure 3.3-2 below provides a cross-section view of the Main Building and these structures during operation. The reactor was heavy water moderated, cooled by pressurized heavy water and fueled with natural uranium. The reactor core, or calandria, contained 132 horizontal fuel-containing pressure tubes and was surrounded by the heavy water moderator. The heat transport system pumps circulated the hot pressurized heavy water through the reactor coolant tubes to a heat exchanger/boiler unit where the heat was transferred to the boiler steam and water system. The reactor, boiler and auxiliary systems were installed below ground and were surrounded by concrete as shielding to protect the surrounding accessible areas from radiation during operation. Steam generated in the boilers was transferred to the turbine/generator for electrical power generation.

Figure 3.3-2 Cross-Sectional View of the Main Building



As noted above, during shutdown operations the heat transport and moderator systems heavy water was drained and shipped off site. The reactor was de-fueled and the used/spent fuel bundles were transferred to the CRL site. Demineralizer system equipment was removed from the various nuclear process systems and dispositioned (Seto 2015).

3.3.3 Topography

NPD and surrounding landscape

The area surrounding the NPD site, with the exception of the Laurentian Hills directly north and east across the river in Quebec, consists of gently rolling hills, interspaced with many small lakes. The NPD site is situated adjacent to the Ottawa River, which runs northwest to southeast. The ground surface at the NPD site at the Ottawa River has an average elevation of 111 metres above sea level (mASL) and rises to about 128 mASL at the current NPDWF building (Figure 3.1-3). Southwest of the current NPD building the ground surface rises to an elevation of about 164 mASL at Highway 17 reflecting the rising bedrock surface elevations. Southwest of Highway 17 the ground surface rises to elevations of 215 to 220 mASL north of Tee Lake (shown in Figure 3.1-2) to elevations of 230 to 245 mASL southwest of Tee Lake. Ground surface elevation on the Quebec side of the Ottawa River rises rapidly to about 345 to 370 mASL (Geofirma 2019).

During the construction of the generating station, numerous man-made terraces and steep interconnecting benches were created for construction and security purposes. This activity has resulted in a highly modified landscape around the NPDWF (Wills 2013).

3.4 Applicant Organization

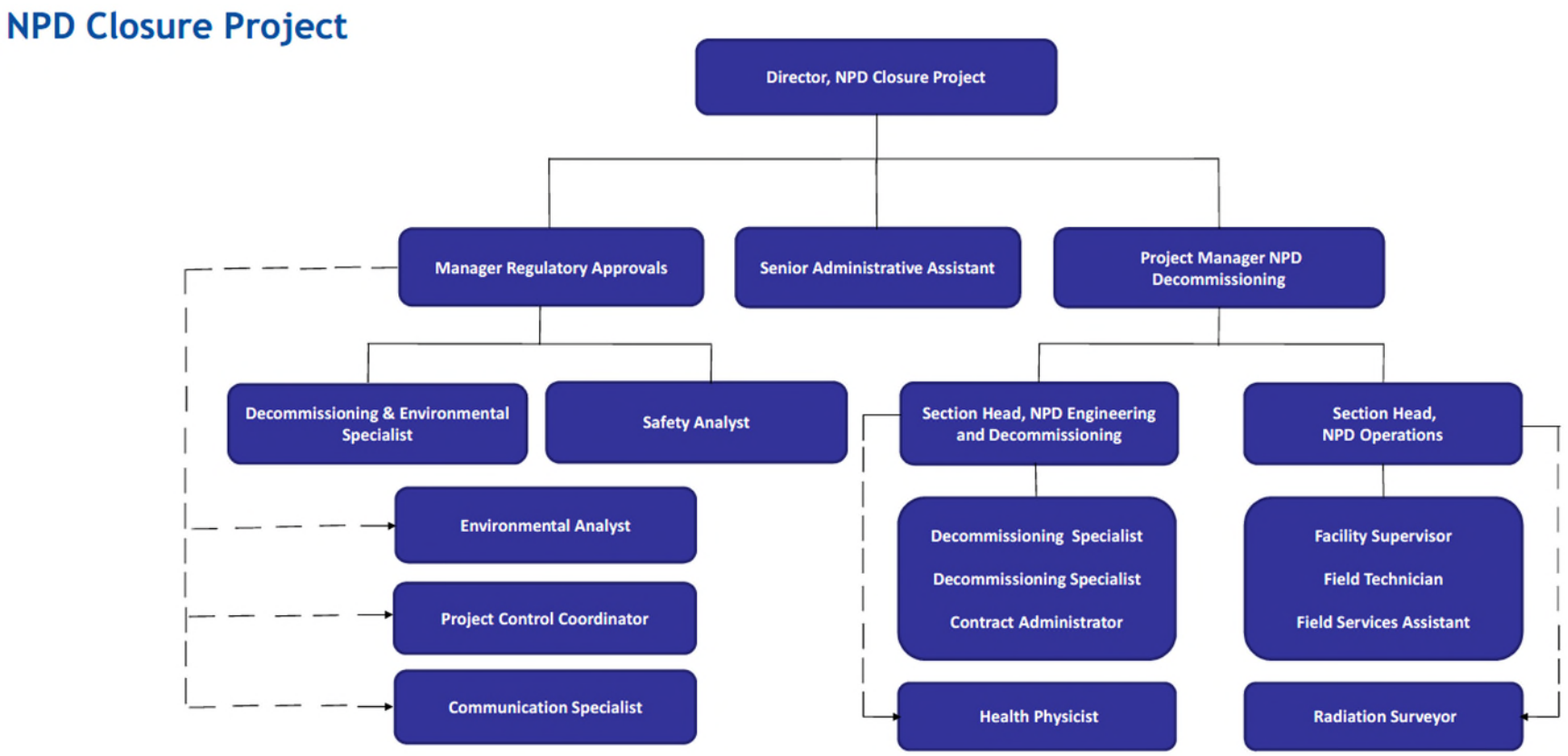
As discussed in Section 3.1 above, CNL is the licensee for the NPDWF, and is the proponent for this project. CNL is a private sector company that is contractually responsible for the management and operation of AECL's nuclear sites, facilities and assets, including the NPD site, and for the performance of AECL's waste and decommissioning responsibilities, under a Government-owned, Contractor-operated (GoCo) model.

The primary contact representative for the project is:

Mr. Mitch MacKay
Director, Communications and Engagement
Canadian Nuclear Laboratories
Chalk River Laboratories
286 Plant Road, Building 700
Chalk River, Ontario, K0J 1J0
Email: ERMstakeholder@cnl.ca

Figure 3.4-1 presents the organizational structure for the NPD Closure Project.

Figure 3.4-1 Project Team Roles and Organization



3.5 Regulatory Framework and the Role of the Government

Environmental Assessment (EA) is a process for reviewing alternative means of carrying out the project, identifying valued components (VCs), project and environment interactions, predicting environmental effects, identifying mitigation measures, assessing accidents, malfunctions, and cumulative effects, evaluating significance, public and stakeholder engagement, Indigenous engagement, reporting and following-up to verify accuracy and effectiveness. On August 28, 2019, the *Impact Assessment Act* (*IAA*) came into force, repealing the *Canadian Environmental Assessment Act* (*CEAA),* 2012.

The IAA contains transitional provisions for environmental assessments (EAs) of designated projects commenced under *CEAA,* 2012 and for which the CNSC is the Responsible Authority. The CNSC has informed CNL that the EA for the NPD Closure Project will continue under *CEAA,* 2012 (CNSC 2019). CNSC notes that as per the transition provision described in subsection 182 of the IAA: "Any environmental assessment of a designated project by the Canadian Nuclear Safety Commission or the National Energy Board commenced under the 2012 Act, in respect of which a decision statement has not been issued under section 54 of the 2012 Act before the day on which this act comes into force, is continued under the 2012 Act as if that Act had not been repealed." As outlined in subsection 182, given that the NPD Closure Project was commenced under *CEAA,* 2012 and a decision statement has not yet been issued, it therefore will continue to be completed under its current process.

This EIS, a required component of the EA process, has been prepared to document the findings of the EA process that meets the requirements of the *Generic Guidelines for the Preparation of an Environmental Impact Statement pursuant to the Canadian Environmental Assessment Act, 2012*, and the Canadian Nuclear Safety Commission (CNSC) Regulatory Document REGDOC-2.9.1 on *Environmental Principles, Assessments and Protection Measures* (CNSC 2020a). The specific requirements for the EIS are discussed further in Section 5.1.

3.5.1 Regulatory Basis: Canadian Environmental Assessment Act

CEAA, 2012 is the legal basis for the federal EA process. The Impact Assessment Agency of Canada (formerly the Canadian Environmental Assessment Agency) sets out the responsibilities and procedures for carrying out EAs that involve federal government decision-making. In addition, the EIS considers Operational Policy Statements issued under *CEAA*, 2012, including:

- Operational Policy Statement: Assessing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act*, 2012. (CEAA 2018).
- Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" Under the *Canadian Environmental Assessment Act*, 2012. (CEAA 2015).

Under *CEAA,* 2012 and the *Regulations Designating Physical Activities* (*CEAA,* 2012), the proposed project qualifies as a Designated Project, as it results in an end state that includes the disposal of nuclear waste. The CNSC is the Responsible Authority for projects of this type. This EIS also follows the CNSC (2016a) Generic Guidelines for Preparation of an Environmental Impact Statement.

The CNSC is responsible for the conduct of this EA under *CEAA,* 2012; this is further discussed in Section 3.5.2 below.

3.5.2 Regulatory Authority: Canadian Nuclear Safety Commission

The CNSC is the main responsible authority for this project. The CNSC's Regulatory Document REGDOC-2.9.1 on *Environmental Principles, Assessments and Protection Measures* (CNSC 2020a), describes how the CNSC requires EAs to be undertaken for designated projects under *CEAA,* 2012. The CNSC requires EAs to be carried out under either *CEAA,* 2012 or the *Nuclear Safety and Control Act* (2000). Because this project qualifies as a Designated Project, the EA will be carried out under *CEAA,* 2012 rather than the *NSCA*. This is an important distinction that affects the process by which the project obtains the necessary licence amendment.

As noted in the previous section, the CNSC is the Responsible Authority for this project, and also regulates the current NPDWF, by way of the existing site licence. CNL currently holds a Class I Nuclear Facility Licence for the NPDWF (*Waste Facility Decommissioning Licence, Prototype Waste Facilities)*, issued by the CNSC under the *NSCA*.

The primary legislation of the CNSC is the *NSCA*, and the regulations made under it. These regulations are identified below; however, as discussed in the Licensing Plan (Walker 2016), these regulations vary in their level of direct applicability to the project, and as drivers of the overall licensing framework:

- General Nuclear Safety and Control Regulations (SOR/2000-202);
- Radiation Protection Regulations (SOR/2000-203);
- Class I Nuclear Facility Regulations (SOR/2000-204);
- Nuclear Substances and Radiation Devices Regulations (SOR/2000-207);
- Packaging and Transport of Nuclear Substances Regulations, 2015 (SOR/2015-145);
- Nuclear Security Regulations (SOR/2000-209);
- Nuclear Non-Proliferation Import and Export Control Regulations (SOR/2000-210);
- Administrative Monetary Penalties Regulations (SOR/2013-139); and
- Canadian Nuclear Safety Commission Cost Recovery Fees Regulations (SOR/2003-212).

In addition to the above regulations, several CNSC technical guidance documents are applicable to the project, including:

- CNSC (2021c) REGDOC-2.11.2*, Decommissioning*;
- CNSC (2021a) REGDOC-2.11.1*, Waste Management, Volume III: Assessing the Long-Term Safety of Radioactive Waste Management;*
- CNSC (2021b) REGDOC-3.3.1*, Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*;

- CNSC (2014) REGDOC-2.4.1, *Deterministic Safety Analysis [May 2014 version]*;
- CNSC (2018c) REGDOC-3.2.1, *Public Information and Disclosure [May 2018 version]*;
- CNSC (2022) REGDOC-3.2.2, *Indigenous Engagement; and*
- CNSC (2020a) REGDOC-2.9.1 *Environmental Principles, Assessments and Protection Measures*.

Regulating nuclear safety in Canada is the responsibility of the CNSC. Canada's regulatory framework for decommissioning, according to CNSC REGDOC-2.11.2 (CNSC 2021c), includes in-situ disposal as a viable decommissioning strategy option under specific circumstances or legacy sites. The NPD Closure Project meets all the requirements for a legacy site, as defined in REGDOC-2.11.2:

- NPD was a research and a demonstration facility constructed at a time in history when decommissioning was not part of the design;
- All reactor fuel has been removed from the NPD site;
- Use of in-situ disposal will protect the workers, the public and the environment; and
- The NPD site will remain under Institutional Controls (IC) for a period defined in the safety case.

3.5.3 Additional Regulatory Authorities & Legislation

In addition to the CNSC, the project is subject to other regulatory authorities and legislation, and may require a number of permits and authorizations, including the following:

3.5.3.1 Environment Canada

Canadian Environmental Protection Act, 1999

The *Canadian Environmental Protection Act* of 1999 (*CEPA*) is broadly relevant to the project, in that it defines the nature of toxic substances (including heat), risk assessment, and defines unreasonable risk for certain scheduled substances. Risk is a key concept in both the *CEPA* and the *NSCA* for environmental protection.

Regulations under *CEPA* which may be relevant to the project include:

- the *PCB Regulations:* fluorescent light ballasts in the NPDWF are suspected to contain Polychlorinated Biphenyl (PCBs). All PCB-containing light ballasts will be removed prior to decommissioning; and
- the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations:* a petroleum storage tank registration may be required, depending on the size of the diesel tanks installed on the NPD site to support decommissioning activities, if required (Johnson 2022a).

Migratory Birds Convention Act, 1994

The *Migratory Birds Convention Act* (1994) protects migratory birds, including nests and eggs. According to the decommissioning plans (Johnson 2022a), no tree clearing is expected during the decommissioning. Should this change, mitigation measures will be applied (discussed in Section 9.6.3.2).

Species at Risk Act, 2002

The purposes of the *Species at Risk Act* (*SARA* 2002) are to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened. Although *SARA* was originally legislated in 2002, the species list is updated frequently based on recommendations from the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

A permit under *SARA* (2002) is being sought to undertake decommissioning activities which may disturb chimney swifts (a SAR) which use the ventilation stack as a roost during migration (Dolinar and Vickerd 2017). Potential sources of disturbance to the birds during decommissioning activities are noise, vibration, dust, encroachment and light.

For any SARA permits related to the NPD Closure Project, terms and conditions would be finalized in parallel with the completion of the EIS. While this EIS does include mitigation measures for the protection of Species at Risk, the terms and conditions of the finalized SARA permit(s) will be the overarching requirements.

Federal Halocarbon Regulations, 2022

The purpose of the *Federal Halocarbon Regulations*, 2022 is to protect the ozone layer and the climate by reducing and preventing emissions of ozone-depleting substances and of their halocarbon alternatives to the environment from air-conditioning, refrigeration, fire-extinguishing and solvent systems; and containers that are:

- located on federal or indigenous lands; or
- owned by federal departments, boards and agencies, Crown corporations, or federal works and undertakings.

There are two possible scenarios under which the release of a halocarbon needs to be reported to ECCC: a bi-annual report is required for any releases between 10 kg and 100 kg, and an immediate (within 24 hours) report is required for releases greater than 100 kg.

Greenhouse Gas Reporting Program (GHGRP)

Although not a regulation, the Greenhouse Gas Reporting Program (GHGRP) is a program that is potentially applicable to aspects (or to the overall approach) of the project. If the NPD Closure Project emits 10 kilotons per year (or more) of greenhouse gases (GHGs) in CO_2 equivalent units in any year that the project is being undertaken, then the emissions must be reported to the ECCC.

National Pollutant Release Inventory

The NPD Closure Project may be subject to NPRI reporting requirements. If over 20,000 hours worked during a calendar year, the project will be required to consider activities and emissions against NPRI reporting thresholds.

3.5.3.2 Fisheries and Oceans Canada

Fisheries Act, 1985

The purpose of the *Fisheries Act*, under Fisheries and Oceans Canada (DFO), is to protect the productivity of recreational, commercial, and Aboriginal[2] fisheries. The project must comply with specific subsections of the *Fisheries Act* including, but not limited to: subsection 35(1) which prohibits serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery, and subsection 36(3) which prohibits the deposit of deleterious substances in water frequented by fish. The *Fisheries Act* focuses on managing threats to the sustainability and ongoing productivity of these fisheries, providing compliance and protection tools, clarifying regulatory requirements, and, enabling partnerships to allow appropriate agencies and organizations to provide fisheries protection services.

At present, based on the decommissioning plans (Johnson 2022a), no in-water work will be completed as part of the decommissioning process. Should this change, the Request for Project Review available on the DFO website will be filed.

3.5.3.3 Natural Resources Canada and the CNSC

Nuclear Liability and Compensation Act, 2015

The *Nuclear Liability and Compensation Act* (*NLCA*) strengthens the compensation and civil liability regime for damages that result from a nuclear accident. It substantially increases a nuclear operator's liability for damage and sets out clear designations for 'nuclear installations' and their respective liability amounts. It also upholds the principle that the operator is held responsible and accountable. The *NLCA's* designated nuclear installations list includes facilities used to manage radioactive waste, and therefore CNL has a Nuclear Liability Insurance policy for the NPD site. However, the *NLCA* focuses on compensation after-the-fact, and therefore is not a primary regulatory driver for the EA.

Nuclear Liability and Compensation Act (*NLCA*) strengthens the compensation and civil liability regime for damages that result from a nuclear accident.

3.5.3.4 National Research Council of Canada

National Building Code of Canada, 2020

The National Building Code of Canada 2020 is relevant to the NPD Closure Project, as it sets out technical requirements for the design and construction of new buildings, as well as the alteration, change of use and demolition of existing buildings.

[2] Throughout the EIS, the terms Aboriginal, Indigenous, First Nations, and Métis have been used, consistent with the source from which the term is drawn.

National Fire Code of Canada, 2020

The National Fire Code of Canada 2020 is relevant to the NPD Closure Project, as it sets out technical requirements for:

- activities related to the construction, use or demolition of buildings and facilities;
- the condition of specific elements of buildings and facilities;
- the design or construction of specific elements of facilities related to certain hazards;
- protection measures for the current or intended use of buildings.

3.5.3.5 Canadian Standards Association

In addition, though not necessarily a regulatory authority (i.e., a legislated government agency), the Canadian Standards Association (CSA) produces several standards and guidance documents that are potentially applicable to aspects (or to the overall approach) of the project. The following CSA standards/guidance documents are also specifically identified on the CNSC's website or in guidance documents that are applicable to the project. These include:

- CSA (2000) *Phase II Environmental Site Assessment.* (Z769-00) [Reaffirmed: 2018].
- CSA (2001) *Phase I Environmental Site Assessment.* (Z768-01) [Reaffirmed: 2022].
- CSA (2019) *Environmental Monitoring Programs at Nuclear Facilities and Uranium Mines and Mills.* (N288.4-19).
- CSA (2019) *General Principles for the Management of Radioactive Waste and Irradiated Fuel* (N292.0-19).
- CSA (2022) *Effluent and Emissions Monitoring Programs at Nuclear Facilities*. (N288.5-22).
- CSA (R2022) *Establishing and Implementation Action Levels for Releases to the Environment from Nuclear Facilities* (N288.8-17).
- CSA (2022) *Environmental Management of Nuclear Facilities: Common Requirements of the CSA N288 Series of Standards* (N288.0:22).
- CSA (2020) *Guidelines for Modelling Radionuclide Environmental Transport, Fate, and Exposure Associated with the Normal Operation of Nuclear Facilities*. (N288.1:20).
- CSA (2019) *Guidelines for Calculating the Radiological Consequences to the Public of a Release of Airborne Radioactive Material for Nuclear Reactor Accidents*. (N288.2:19).
- CSA (R2023) *Guideline for Design of Fish Impingement and Entrainment Programs at Nuclear Facilities*. (N288.9:18).
- CSA (2011) *Guidance for the Exemption or Clearance from Regulatory Control of Materials that Contain, or Potentially Contain, Nuclear Substances.* (N292.5-11) [Reaffirmed: 2021].
- CSA (2012) *Management System Requirements for Nuclear Power Plants* (N286-12) [Reaffirmed: 2022].

- CSA (2022) *Environmental Risk Assessments at Nuclear Facilities and Uranium Mines and Mills*. (N288.6-22).
- CSA (2022) *Fire Protection for Facilities that Process, Handle, or Store Nuclear Substances.* (N393-22).
- CSA (2019) *Decommissioning of Facilities Containing Nuclear Substances.* (N294-19).
- CSA (2023) *Groundwater Protection Programs at Nuclear Facilities and Uranium Mines and Mills.* (N288.7-23).
- CSA (2018) *Long-term Management and Disposal of Radioactive Waste and Irradiated Fuel.* (N292.6-18).
- CSA (2021). *Characterization of Radioactive Waste and Irradiated Fuel*. (N292.8:21).
- CSA (2021). *General Requirements for Nuclear Emergency Management Programs*. (N1600:21).
- CSA (2008) *Management of Low- and Intermediate-level Radioactive Waste.* (N292.3-14) [Reaffirmed: 2024].

3.5.3.6 Ontario Provincial-Level Permits/Authorizations

As discussed in the Licensing Plan (Walker 2016), federal authorities and agencies typically are not subject to provincial permitting. However, federal agencies must ensure that their activities (those which would otherwise require provincial permits) are carried out in a manner that meets the intent of the corresponding provincial permitting.

The water source, volume of water and intake rate required for grout production (and other activities requiring water) have not been finalized. The NPD Closure Project will evaluate if a Permit to Take Water (as per Section 34 of the *Ontario Water Resources Act*) is required.

The *Ontario Heritage Act*, R.S.O. 1990, c.018; O.Reg. 8/06 is the provincial legislation addressing the conservation, protection and preservation of heritage in Ontario, including archaeology. Standards and guidelines that are issued by the Ministry of Heritage, Sport, Tourism and Culture Industries are relevant for the Stage 1 Archaeological Assessment (which supports the Description of the Existing Environment in Section 8 of the EIS).

The project is being undertaken on federal lands thus it is not anticipated that any other provincial permits will be required.

3.5.3.7 Guidelines and Standards for Effects Assessment

Various federal and provincial guidelines and standards have been used to assess potential environmental effects from the project. These are discussed in detail in Section 9, and include Canadian Council for Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines (CEQG) and MOECC Soil, Groundwater and Sediment Standards, Health Canada (2009) Drinking Water Quality Guidelines, Provincial Water Quality Objectives (PWQO), and surface water quality criteria set by the Quebec Ministry of the Environment and the Fight Against Climate Change (MELCC).

3.6 Report Organization

This EIS report responds to the needs outlined in Section 3.5, as well as the requirements of the EIS Generic Guidelines Document (CNSC 2016a).

3.6.1 Report Organization

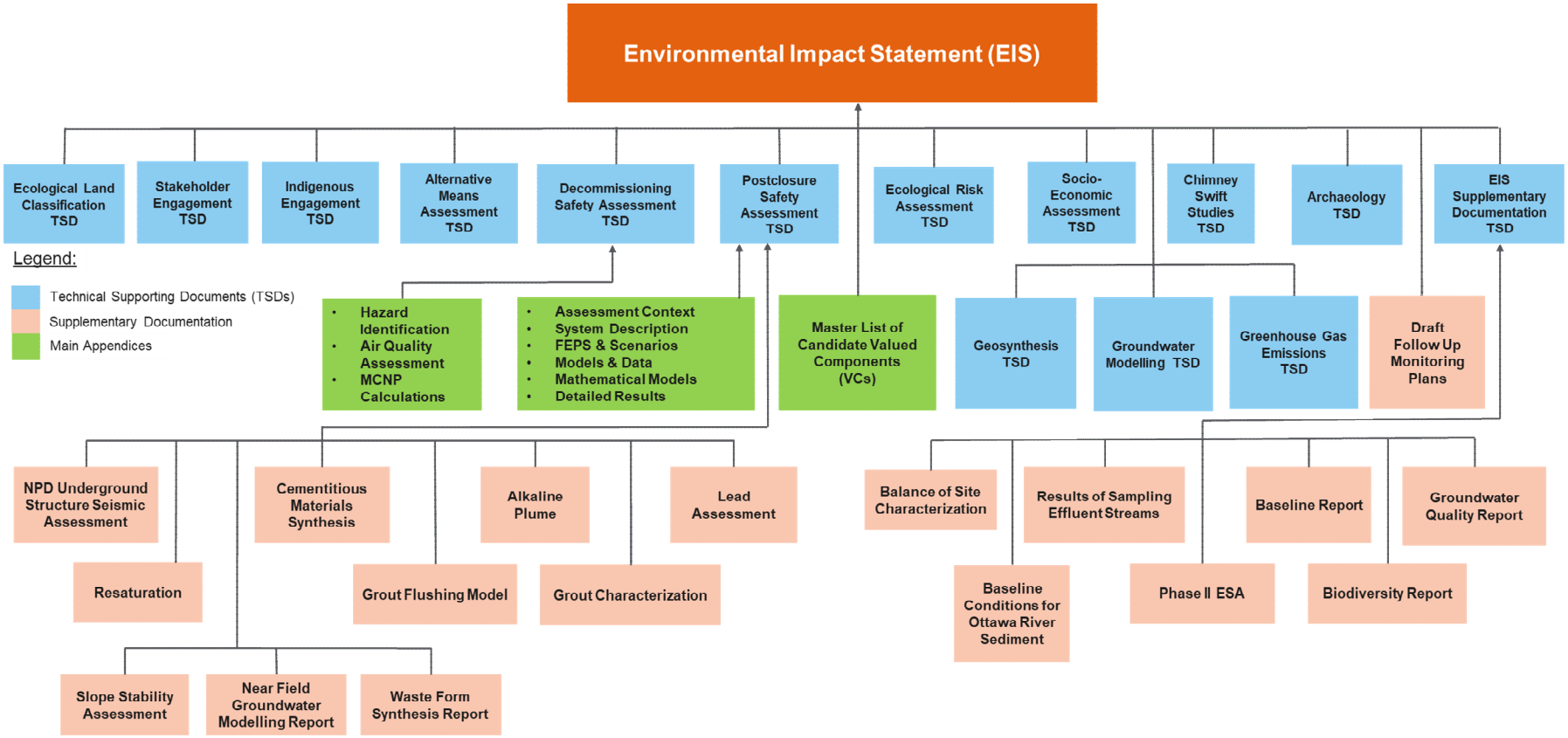
The basic structure of this EIS is as follows:

1. **GLOSSARY:** Above.
2. **EXECUTIVE SUMMARY:** Above.
3. **INTRODUCTION:** This section.
4. **PROJECT DESCRIPTION:** Describes the purpose and alternative means of carrying out the project, the scope of the project, waste and releases, project schedule, and project-related employment.
5. **SCOPE OF THE ENVIRONMENTAL ASSESSMENT:** Describes the factors to be considered, scope of factors including spatial and temporal boundaries, project-environment interactions, constituents of potential concern (COPCs), and VCs.
6. **INDIGENOUS ENGAGEMENT:** Describes the Indigenous engagement undertaken, and summarizes the findings of the outreach activities. Discusses how the concerns expressed by Indigenous Nations, communities and organizations are addressed in the EIS.
7. **PUBLIC AND STAKEHOLDER ENGAGEMENT:** Describes the public and stakeholder engagement program and summarizes the findings of the engagement activities. Discusses how public and stakeholder concerns are addressed in the EIS.
8. **DESCRIPTION OF THE EXISTING ENVIRONMENT:** describes the existing environment (i.e., baseline conditions) and its most important features.
9. **ASSESSMENT & MITIGATION OF ENVIRONMENTAL EFFECTS:** focuses on the potential interactions between the project and the environment, determines any adverse effects, and indicates ways in which such effects would be mitigated. It also includes the identification and assessment of any residual effects, potential accidents and malfunctions, cumulative effects, and effects of the environment on the project.
10. **MITIGATION MEASURES:** summarizes the mitigation measures to be undertaken.
11. **CONCLUSION ON SIGNIFICANCE:** summarizes the significance or importance of any adverse residual effects on the environment from the project, potential accidents and malfunctions, cumulative effects, and effects of the environment on the project.
12. **FOLLOW-UP PROGRAM:** summarizes the plan for and preliminary scope of the monitoring and follow-up program, including locations for monitoring and the duration and/or frequency of monitoring activities.
13. **REFERENCES.**

Figure 3.6-1 shows the various documents associated with the EIS, and their relationships. As seen in Figure 3.6-1, much of the information in this EIS has been extracted from TSDs. The TSDs present

information on the existing environment, as well as assessments of the potential effects related to the NPD Closure Project for the various environmental components and phases of the project. The present document has been prepared based on the information available in the TSDs at the time of preparation of this document (i.e., as of October 2023). The information provided by these documents is summarized in Appendix A.

Figure 3.6-1 EIS Documents and Relationship



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1. Ecological Land Classification TSD: Garisto, N., McKee, S., and Hard, B. 2016. *Ecological Land Classification*. 64-509200-REPT-005. Revision 0. Prepared by Arcadis for CNL.
2. Stakeholder Engagement TSD: Chennette, R. 2023. *Nuclear Power Demonstration (NPD) Stakeholder Engagement Report.* 64-513440-REPT-002. Revision 2.
3. Indigenous Engagement Report (IER) TSD: Chennette, R. 2024. *Nuclear Power Demonstration (NPD) Indigenous Engagement Report*. 64-513130-REPT-001. Revision 6.
4. Alternative Means Assessment TSD: Garisto, N. and McKee, S. 2019. *Alternative Means Assessment Revision 1*. 64-509200-ASD-002. Revision 1. Prepared by Arcadis for CNL.
5. Decommissioning Safety Assessment TSD: Garisto, N., Kovacs, R., Music, S., Gilbert, J., and Tong, X. 2021. *Decommissioning Safety Assessment.* 64-508760-ASD-002. Revision 2. Prepared by Arcadis for CNL.
6. Postclosure Safety Assessment TSD: Garisto, N., Penfold, J., Zagorščak, R., Bruffell, L and R. Kovacs. 2023. *Postclosure Safety Assessment of the In-situ Disposal of the NPD*. 4th Iteration. 64-508760-ASD-003894. Revision 0. Prepared by Arcadis and Quintessa for CNL.
7. Ecological Risk Assessment TSD: Garisto, N., Manolopoulos, H., Arbaban-Esfahani, E., and Tong, X. 2020. *Ecological Risk Assessment*. 64-509200-ASD-004. Revision 2. Prepared by Arcadis for CNL.
8. Socio-economic Assessment TSD: Dryden-Cripton, S. 2017. *Socio-economic Assessment Technical Supporting Document*. 64-509200-REPT-007. Revision 0. Prepared by Arcadis for CNL.
9. Chimney Swift Studies TSD: Nocera, J. 2017. *Chimney Swift Studies Technical Supporting Document*. 64-509200-041-000-0010. April.
10. Archaeology TSD: Swayze, K. 2016. *Stage 1 Archaeological Assessment of the Nuclear Power Demonstration (NPD) Property Part of Lots 41-45, 48 & Town plot, Range A&B Rolph Twp. (Geo), Township of Laurentian Hills, Renfrew County*. 64-509200-ASD-003. Revision 0. Prepared for CNL.
11. Geosynthesis TSD: Raven, K., Sterling, S. and Calder, N. 2021. *2021 Update to Geosynthesis Nuclear Power Demonstration Closure Project Rolphton, Ontario.* 64-509410-REPT-010. Revision 2. Prepared by Arcadis and Geofirma for CNL.
12. Groundwater Modelling TSD: Calder, N. 2023. *2023 Update to Groundwater Modelling at the Site of the Proposed Decommissioned Rolphton Nuclear Power Demonstration (NPD) Reactor.* 64-508760-REPT-012. Revision 1. Prepared by Arcadis and Geofirma for CNL.
13. Greenhouse Gas Emission TSD: Garisto, N., Kirkaldy, J. and Dodsworth, L. 2020. *Greenhouse Gas Emissions Associated with the NPD Closure Project*. 64-509200-ASD-001. Revision 1. Prepared by Arcadis for CNL.
14. EIS Supplementary Documentation TSD: Multiple Authors. 2017. *EIS Supplementary Documentation – NPD Closure Project*. 64-509200-041-000-0011. Revision 0. 2017 September 21.

Postclosure Safety Assessment TSD Supplementary Documentation

15. NPD Underground Structure Seismic Assessment: Arjmand, H. 2018. *NPD Underground Structure Seismic Assessment.* 64-20000-ASD-001. Revision 0. Prepared by I&C Engineering for CNL.
16. Resaturation: Sgro, N. 2023. *2023 Resaturation Modelling for the Proposed Decommissioned Rolphton Nuclear Power Demonstration (NPD) Reactor.* 64-508760-REPT-005 Revision 2. Prepared by Arcadis and Geofirma for CNL.
17. Cementitious Materials Synthesis: Wilson, J. 2018. *Postclosure Safety Analysis of the NPD Closure Project: Cementitious Materials Synthesis.* 64-508760-REPT-008. Revision 0. Prepared by Arcadis and Quintessa for CNL.
18. Grout Flushing Modelling: Wilson, J. 2020. *Grout Flushing Models.* 64-508760-REPT-009. Revision 1. Prepared by Arcadis and Quintessa for CNL.
19. Alkaline Plume: Wilson, J. 2019. *Alkaline Plume Modelling – Grout Leaching.* 64-508760-REPT-015. Revision 0. Prepared by Arcadis and Quintessa for CNL.
20. NPD Facility Characterization:
    a) Porter, G. 2024. *Nuclear Power Demonstration Waste Facility (NPDWF) Waste Inventory Report*. 64-508600-REPT-001. Revision 1.1.
21. Lead Assessment: Wilson, J. 2019. *Scoping Calculations for Lead Solubility Limits.* 64-508760-REPT-016. Revision 0. Prepared by Arcadis and Quintessa for CNL.
22. Near Field Modelling Report: Calder, N. *Draft 2023 Near-Field Groundwater Model at the Site of the Proposed Decommissioned Rolphton Nuclear Power Demonstration (NPD) Reactor.* CNL No. 64-508760-REPT-013 Rev 1. Prepared by Arcadis and Geofirma for CNL.
23. Slope Stability Assessment: Raven, K. 2021. *Slope Stability Assessment – Nuclear Power Demonstration Closure Project – Rolphton, Ontario*. Revision 0 (Final). Prepared by Arcadis and Geofirma for CNL.
24. Waste Form Synthesis Report: Garisto, N., and King, F. 2021. *Waste Form Synthesis Report*. 64-508760-REPT-017. Revision 1. Prepared by Arcadis for CNL.

EIS Supplementary Documentation

25. Balance of Site Characterization: McVeigh, A. 2018b. *NPD Balance of Site Characterization Report.* NPD Decommissioning. 64-509410-REPT-009. Revision 0.
26. Results of Sampling Effluent Streams: Audet, M. 2016. *Results of Sampling Effluent Streams from CNL's Prototype Reactor Decommissioning Sites.* 3640-509000-021-000. Revision 0. 2016 March 28.

27. Phase II ESA: Golder Associates Ltd. 2017b. *Phase Two Environmental Site Assessment Nuclear Power Demonstration Site Canadian Nuclear Laboratories.* 64-509410-REPT-006. Revision 0. Prepared by Golder for CNL.
28. Baseline Report: Wills, A. 2013. *Nuclear Power Demonstration Site: A Description of the Environmental Baseline for Decommissioning.* NPD Decommissioning. 64-509200-ENA-001. Revision 1.
29. Biodiversity Report: Morin, A. and Carr, J. 2015. *NPD Biodiversity Report. NPD Decommissioning.* 64-509200-REPT-002. Revision 0.
30. Groundwater Quality Report: Killey, R.W.D. 2014. *Current Groundwater Quality at NPD*. NPD Decommissioning. 64-509247-REPT-001. Revision 0.
31. Baseline Conditions for Ottawa River Sediment: Bond, M and Carr. J. 2021. *Baseline Conditions for Ottawa River Sediment, Benthic Invertebrates and Fish Habitat Features near NPD*. 64-509246-ENA-001 Rev. 0.

Draft Follow Up Monitoring Plans

32. Draft Follow Up Monitoring Plans – Effluent Monitoring Plan: Garisto, N., Gilbert, G. and Kovacs, R. 2018. *Draft Effluent Follow-Up Monitoring Plan.* 64-509200-PLA-003. Revision 1. Prepared by Arcadis for CNL.
33. Draft Follow Up Monitoring Plans – Environmental Monitoring Plan: Garisto, N., McKee, S. and Kovacs, R. 2018. *Draft Environmental Follow-Up Monitoring Plan NPD Closure Project.* 64-509200-PLA-005. Revision 1. Prepared by Arcadis for CNL.
34. Draft Follow Up Monitoring Plans – Groundwater Monitoring Plan: Garisto, N., Kovacs, R. 2018. *Draft Groundwater Follow-Up Monitoring Plan.* 64-509200-PLA-004. Revision 0. Prepared by Arcadis for CNL.

3.6.2 Concordance with EIS Guidelines

Table 3.6-1 below presents the project's concordance with the CNSC (2016a) EIS Guidelines and REGDOC-2.9.1 (2020a).

Table 3.6-1 Table of Concordance

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
Generic Guidelines for the Preparation of an Environmental Impact Statement pursuant to the *Canadian Environmental Assessment Act, 2012* (CNSC 2016a)		
1. Presentation and Organization of the EIS	To facilitate the identification of the documents submitted, the title page of the EIS and its related documents will contain the following information: • project name and location; • title of the document, including the term "environmental impact statement"; • subtitle of the document; • proponent name and contact information; • date. The EIS will be written in clear, precise language. A glossary of technical words, acronyms and abbreviations will be included. It will include charts, diagrams, tables, maps and photographs, where appropriate, to clarify the text. Perspective drawings that clearly convey the various components of the project will also be provided. Wherever possible, maps will be presented in common scales and datum to allow for comparison and overlay of mapped features. For purposes of brevity and to avoid repetition, cross-referencing within the EIS is preferred. The EIS may make reference to the information that has already been presented in other sections of the document, rather than repeating it. Detailed studies (including all relevant and supporting data and methodologies) will be provided in separate appendices and will be referenced by appendix, section and page in the text of the main document. The EIS will explain how information is organized in the document. This will include a list of all tables, figures, and photographs referenced in the text. A complete list of supporting literature and references will also be provided. A table of concordance, which cross references the information presented in the EIS with the information requirements identified in the EIS guidelines, will be provided. The proponent will provide copies of the EIS and its summary for distribution, as directed by the CNSC, including paper and electronic version in an unlocked, searchable PDF format.	Cover page EA Documents, Contents, List of Figures, List of Tables Section 1 – Glossary Section 3.4 – Applicant Organization Section 3.6.2 Concordance with EIS Guidelines
2. Executive Summary	Executive Summary to be a stand-alone document, which includes: • a concise description of all key components of the project and related activities; • a summary of the consultation conducted with Aboriginal groups, the public, and government agencies, including a summary of the issues raised and the proponent's responses;	Section 2 – Executive Summary

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	• an overview of the key environmental effects of the project and proposed technically and economically feasible mitigation measures; and • the proponent's conclusions on the residual environmental effects of the project after taking mitigation measures into account and the significance of those effects.	
3. Introduction and Overview	3.1 Project Overview The EIS will describe the project, key project components and associated activities, scheduling details, the timing of each phase of the project and other key features. If the project is a part of a larger sequence of projects, the EIS will outline the larger context. The overview is to identify the project's key components, rather than providing a detailed description, which will follow in section 4 (part 2) of [the EIS Guidelines].	Section 3.2 – Project Overview
	3.2 Project Location: The EIS will contain a description of the geographical setting where the project will take place. This description should include those aspects of the project and its setting that are key to understanding the project's potential adverse environmental effects, including: • geographical maps of the project location (at an appropriate scale) including project components, project boundaries of the proposed site with the Universal Transverse Mercator (UTM) coordinates – the lease boundary, site study area, local study area, regional study area, the major existing infrastructure, adjacent land uses and any important environmental features; • current land use in the area; • distance of the project facilities and components to any federal lands; • the environmental significance and value of the geographical setting in which the project will take place and the surrounding area; • environmentally sensitive areas, such as national, provincial and regional parks, ecological reserves, wetlands, estuaries, and habitats of federally (Schedule 1 of *Species at Risk Act*) or provincially listed species at risk and other sensitive areas; • description of local and Aboriginal communities; traditional Aboriginal territories, treaty lands, and Indian reserve lands and Métis harvesting regions and/or settlements.	• Section 3.1 – Location of the project; Section 3.3 – NPD Site and Facility Description • Section 5.2.1 – Spatial & Temporal Boundaries of the Assessment; Section 8 (specific to Environmental Components). • Section 3.1 – Location of the project; Section 8.9 – Traditional Land and Resource Use • Section 8.4 – Aquatic Environment; Section 8.6– Terrestrial Environment. • Section 8.4 – Aquatic Environment; Section 8.6 – Terrestrial Environment. • Section 6 – Indigenous Engagement., Section 8.9 Traditional Land and Resource

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
		Use; Section 0 Indigenous Socio-economic and Health
	3.3 Regulatory Framework and the Role of Government: The EIS should identify: • the environmental and other regulatory approvals and legislation, including *CEAA,* 2012, that are applicable to the project at the federal, provincial, regional and municipal levels; • government policies, resource management plans, planning or study initiatives pertinent to the project and/or EA and their implications; • any treaty or self-government agreements with Aboriginal groups that are pertinent to the project and/or EA; • any relevant land use plans, land zoning, or community plans; • regional, provincial and/or national objectives, standards or guidelines that have been used by the proponent to assist in the evaluation of any predicted environmental effects.	• Section 3.5 – Regulatory Framework and the Role of Government. • Section 0 – Socio-economic and Socio-economic Assessment TSD. • Section 6 – Indigenous Engagement. • Section 0 – Socio-economic. • Section 3.5 – Regulatory Framework and the Role of Government; Section 9 – Assessment of Effects.
4. Project Description	4.1 Purpose of the project: The EIS will describe the purpose of the project by providing the rationale for the project, explaining the background, the problems or opportunities that the project is intended to satisfy and the stated objectives from the perspective of the proponent. If the objectives of the project are related to broader private or public sector policies, plans or programs, this information should also be included.	Section 4.1 – Purpose of the project
	4.2 Alternative Means of Carrying out the project: The EIS will identify and consider the effects of alternative means of carrying out the project that are technically and economically feasible as described in appendix B, section A.3.2 Alternative means for carrying out the project, of the CNSC's draft REGDOC-2.9.1, *Environmental Protection: Environmental Protection: Environmental Policy, Assessments and Protection Measures*. The proponent will complete the following procedural steps for addressing alternative means: • Identify and describe in sufficient detail the alternative means to carry out the project: o develop criteria to determine the technical and economic feasibility of the alternative means; o identify those alternative means that are technically and economically feasible; o Identify the effects of each technically and economically feasible alternative means; o identify those elements of each alternative means that could produce effects in sufficient detail to allow a comparison with the effects of the project;	Section 4.2 – Alternative Means of Carrying out the project

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	o the effects referred to above include both environmental effects and potential adverse impacts on potential or established Aboriginal and Treaty rights and related interests. • Describe the methodology used for the analysis of alternative means and the conclusion reached (i.e., preferred means). For further information regarding the "purpose of" and "alternative means", please consult the Agency's operational policy statement, titled Addressing "Purpose of" and "Alternative Means" under the *Canadian Environmental Assessment Act*, 2012". The CNSC recognizes that projects may be in the early planning stages when the EIS is being prepared. Proponents are strongly encouraged to conduct an environmental effects analysis where they have not made final decisions about the placement of project infrastructure, the technologies to be used, or if several options exist for various project components.	
	4.3 Scope of the project: The scope of project for the purposes of the EA includes all the phases, components, activities and federal decisions proposed by the proponent as described in the project description that has been determined to meet the requirements of the Prescribed Information for the Description of a Designated Project Regulations. The CNSC's Commission may also determine that other components and/or activities in relation to the project are to be included in the project scope. The proponent will consider all phases, components, activities and federal decisions identified in the scope of project as part of the effects assessment.	Section 4.3 – Scope of the project: a. Section 4.3.1 Project Components and Activities. b. Section 4.3.1 Project Components and Activities. c. Section 4.3.3 Scope Changes. d. Section 4.3.2 Project Schedule.
	4.3.1 Project Components: The EIS will describe the project by presenting the project components, associated and ancillary works, and other characteristics that will assist in understanding the environmental effects.	
	4.3.2 Project Activities: The EIS will include descriptions of each phase associated with the proposed project. This will include descriptions of the activities to be carried out during each phase, the location of each activity, expected outputs and an indication of the activity's magnitude and scale. Although a complete list of project activities should be provided, the emphasis will be on activities with the greatest potential to have environmental effects. Sufficient information will be included to predict environmental effects and address concerns identified by the public and Aboriginal groups. Highlight	

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	activities that involve periods of increased environmental disturbance or the release of materials into the environment. The EIS will include a summary of the changes that have been made to the project since originally proposed, including the benefits of these changes to the environment, Aboriginal Peoples, and the public. The EIS will include a schedule including time of year, frequency, and duration for all project activities.	
5. Scope of the Environmental Assessment	5.1 Factors to be Considered: a. The environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out. b. The significance of those environmental effects. c. Comments from the public that are received in accordance with the *CEAA* 2012. d. Mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project. e. The requirements of the follow-up program in respect of the designated project. f. The purpose of the designated project. g. Alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such alternative means. h. Any changes to the designated project that may be caused by the environment. i. The results of any relevant study conducted by a committee established under section 73[2] or 74 of the *CEAA* 2012. j. Any other matter relevant to the EA that the CNSC requires to be taken into account. Pursuant to subsection 19(2) of the *CEAA* 2012, the scope of the factors to be taken into account under paragraphs 19(1)(a), (b), (d), (e), (g), (h) and (j) is determined by the CNSC, as the responsible authority. To implement the Government of Canada interim measure with respect to upstream greenhouse gas emissions, the CNSC may require consideration of these types of emissions in the scope of the EA. On March 19, 2016, a definition of upstream GHG emissions was published by Environment and Climate Change Canada in the Canada Gazette. The proposed definition of upstream includes "*all industrial activities from the point of resource extraction to the project under review.*" The processes that are to be considered as upstream activities will vary by the type of resource and the nature of the project under assessment. In general, upstream activities will include extraction, processing and handling as well as transportation.	Introduction and discussion in Section 5.1 – Factors to be Considered. Refers to: a. Section 9 – Effects; Section 9.11 Accidents and Malfunctions; Section 9.12 – Cumulative Effects. b. Section 9 – Effects; Section 9.11 – Conclusion on Significance. c. Section 7– Public and Stakeholder Engagement. d. Section 10 – Mitigation Measures. e. Section 12 – Follow-up Program. f. Section 4.1 – Purpose of the project. g. Section 4.2 – Alternative Means of Carrying out the project. h. Section 9.13 – Effects of the Environment on the project. i. the CNSC issued their decision on the EA scope, and no additional requirements to the EIS

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	Where there is a reliable and feasible methodology for calculating upstream greenhouse gas emissions that are linked to the project, the proponent will be required to provide sufficient information to estimate these types of emissions. This information should be presented by individual pollutant and should be summarized in CO_2 equivalent units per year. If upstream greenhouse gas emissions are not considered in the assessment, the proponent will provide a rationale in the EIS.	Generic Guidelines were added. Section 9.2 – Effects (Atmospheric); Greenhouse Gas Emissions Technical Supporting Document. the CNSC issued their decision on the EA scope, and no additional requirements to the EIS Generic Guidelines were added.
	5.2.1 Valued Components: Valued components (VCs) refer to environmental biophysical or human features that may be impacted by a project. The value of a component not only relates to its role in the ecosystem, but also to the value people place on it. For example, it may have scientific, social, cultural, economic, historical, archaeological or aesthetic importance. The EIS will identify the VCs linked to section 5 of the *CEAA* 2012, including the ones identified in section 9.2 (part 2) that may be affected by changes in the environment, as well as species at risk and their critical habitat as per the requirement outlined in section 79 of the *Species at Risk Act* (*SARA*). Under section 73 of SARA, the Minister of Environment and Climate Change Canada may grant permits authorizing an activity affecting a listed wildlife species or any part of its residence or critical habitat that would otherwise be prohibited. Should the proponent identify a listed wildlife species or any part of its residence or critical habitat that would be affected by the project activities, the proponent should consult directly with the Canadian Wildlife Service as early as possible in the process. The final list of VCs to be presented in the EIS will be completed according to the evolution and design of the project and reflect the knowledge on the environment acquired through public consultation and Aboriginal engagement. The EIS will describe what methods were used to predict and assess the potential adverse environmental effects of the project on these components.	Section 5.2.4 – Valued Components Section 3.5.3.1 - Additional Regulatory Authorities & Legislation, Chapter 7 - Public and Stakeholder Engagement and Chapter 6 - Indigenous Engagement

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	The VCs will be described in sufficient detail to allow the reviewer to understand their importance and to assess the potential for environmental effects arising from the project activities. The EIS will provide a rationale for selecting specific VCs and for excluding any VCs or information specified in these guidelines. Challenges with particular exclusions may arise, so it is important to document the information and criteria used to make each determination. Examples of justification include primary data collection, computer modelling, literature references, public consultation, expert input or professional judgement. The EIS will identify those VCs, processes, and interactions that were identified to be of concern during any workshops or meetings held by the proponent, or that the proponent considers likely to be affected by the project. In doing so, the EIS will indicate to whom these concerns are important and the reasons why, including environmental, Aboriginal, social, economic, recreational, and aesthetic considerations. If comments are received on a component that has not been included as a VC, these comments will be summarised and the rationale for excluding the VC will be provided. Identify VCs that may be affected by changes in the environment, including species at risk and their critical habitat. Describe importance. Provide rationale for excluded VCs. Identify those VCs, processes, and interactions that were identified to be of concern during any workshops or meetings held by the proponent, or that the proponent considers likely to be affected by the project. Include discussion of importance. Select VCs, taking into account public consultation and Aboriginal engagement. Provide rationale for exclusions.	
	5.2.2 Spatial and Temporal Boundaries: The spatial and temporal boundaries used in the EA may vary depending on the VC and will be considered separately for each VC. The proponent is encouraged to consult with the CNSC, federal and provincial government departments and agencies, local government and Aboriginal groups, and take into account public comments when defining the spatial boundaries used in the EIS. The EIS will describe the spatial boundaries, including local and regional study areas, of each VC to be used in assessing the potential adverse environmental effects of the project and provide a rationale for each boundary. Spatial boundaries will be defined by taking into account, but not limited to, the following criteria: a. the physical extent of the proposed project, including any offsite facilities or activities; b. the extent of aquatic and terrestrial ecosystems potentially affected by the project; c. the extent of potential effects arising from noise, light and atmospheric emissions; d. the extent to which traditional land use or treaty rights could potentially be affected by the project;	Section 5.2.1 – Spatial & Temporal Boundaries of the Assessment, and spatial boundaries individually within Environmental components in Section 9 (e.g. Atmospheric environment).

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	e. current land and resource use for residential, commercial, industrial, recreational, cultural and aesthetic purposes by communities whose areas include the physical extent of the project; f. the size, nature and location of past, present and reasonably foreseeable projects and activities which could interact with items (b), (c), (d) and (e); g. community and Aboriginal traditional knowledge, ecological, and technical considerations. The following geographic study areas should serve as the basis for developing project specific and effect-specific study areas: Site study area: The site study area is the project footprint (i.e., where project activities would be undertaken including the project's proposed facilities, buildings and infrastructure). Local study area: The local study area is defined as that area existing outside the site study area boundary, where measurable changes to the environment resulting from the proposed activities from any phase of the project, either through normal activities, or from possible accidents or malfunctions, may be anticipated. The boundaries must change if appropriate following an assessment of the spatial extent of potential effects. The geographic boundary will depend on the factor being considered (e.g., a local study area defined for the aquatic environment will differ from that defined for the atmospheric environment). Regional study area: The regional study area is defined as the area within which the potential effects of this project may interact with the effects of other projects, resulting in the potential for cumulative effects. The geographic boundary for the regional study areas are also specific to the factor being considered. Within the aforementioned study areas, the boundary of concern will extend to a depth that will include the full extent of the surface water and groundwater. The EA's temporal boundaries will span all phases of the project determined to be within the scope of the project as specified under section 4.3 above. If impacts are predicted after project decommissioning, this should be taken into consideration in defining boundaries. At a minimum, the assessment is expected to include the period of time during which the maximum impact is predicted to occur. Community and Aboriginal traditional knowledge should factor into decisions around temporal boundaries. If the temporal boundaries do not span all phases of the project, the EIS will identify the boundaries used and provide a rationale. The spatial and temporal boundaries used in the EA may vary depending on the VC and will be considered separately for each VC. If the temporal boundaries do not span all phases of the project, the EIS will identify the boundaries used and provide a rationale.	

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
6. Public and Stakeholder Consultation	In accordance with CNSC's REGDOC-99.3, Public Information and Disclosure, the EIS will describe the ongoing and proposed participation activities that the proponent will undertake or that it has already conducted on the project. It will describe efforts made to distribute project information, as well information and materials that were distributed during the public consultation process. The EIS will indicate the methods used, where the consultation was held, the persons and organizations consulted, the concerns voiced and the extent to which this information was incorporated in the design of the project as well as in the EIS. The EIS will provide a summary of key issues raised related to the project and its potential environmental effects, as well as describe any outstanding issues and ways to address them. Describe the methods used, where the consultation was held, the persons and organizations consulted, the concerns voiced and the extent to which this information was incorporated in the design of the project as well as in the EIS. Summarize key issues raised related to the project and its potential environmental effects, including outstanding issues.	Section 7– Public and Stakeholder Engagement
7. Aboriginal Engagement	In accordance with the CNSC's REGDOC-3.2.2, Aboriginal Engagement, the EIS will describe the proponent's engagement activities with potentially affected Aboriginal groups. The EIS will include, and the proponent should consider engaging with potentially affected Aboriginal groups to obtain their views on, the following: • the objectives of and the methods used for Aboriginal engagement activities; • each Aboriginal group's potential or established rights including geographical extent, nature, frequency, timing and maps and data sets (e.g., fish catch numbers) when this information is provided by a group to the proponent or available through public records; • comments, specific issues and concerns raised by Aboriginal groups and how the key concerns were responded to or addressed; • the potential adverse impacts of the project on potential or established Aboriginal or treaty rights; • effects of changes to the environment on Aboriginal Peoples (health and socio-economic conditions; physical and cultural heritage, including any structure, site or thing that is of historical, archaeological, paleontological or architectural significance; and current use of lands and resources for traditional purposes) pursuant to paragraph (1)(c) of the *CEAA* 2012; • VCs suggested by Aboriginal groups for inclusion in the EIS, whether they were included, and the rationale for any exclusions; • measures identified to mitigate or accommodate potential adverse impacts of the project on the potential or established Aboriginal or treaty rights and effects of changes to the environment on Aboriginal Peoples, including suggestions raised by Aboriginal groups.	Section 6 – Indigenous Engagement

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	A suggested format for providing the information above is the creation of a tracking table of key issues raised by each Aboriginal group, including the concerns raised related to the project, proposed mitigation options, and where appropriate, a reference to the proponent's analysis in the EIS.	
8. Description of the Environment	8.1 Baseline Environment: The EIS will include a description of the environment, including the components of the existing environment and environmental processes, their interrelations and interactions as well as the variability in these components, processes and interactions over time scales appropriate to the EIS. In characterizing the environmental effects of the project, the proponent will consider the current baseline environment and environmental trends within the project area. The description of the existing baseline and the environmental trends should include a consideration of past projects and activities carried out by the proponent and/or others within the project area. Based on the scope of project described in section 4.3 (part 2), the EIS will present baseline information in sufficient detail to enable the identification of how the project could affect the VCs and an analysis of those effects. Should other VCs be identified during the conduct of the EA, the baseline condition for these components will also be described in the EIS. The baseline description should include results from studies done prior to any physical disruption of the environment due to initial project activities (e.g., site preparation). The proponent will use the information in appendix B of the CNSC's draft REGDOC-2.9.*1, Environmental Protection: Environmental Principles, Assessments and Protection Measures* to develop the characterization of the baseline environment. If a federal decision (as per section 5(2) of the *CEAA* 2012) in relation to the project may result in environmental changes such as changes on federal lands, outside the province or Canada, the proponent will use the information in appendix B, section A.3.7, Socio-economic environment, of the CNSC's draft REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*, to describe the baseline conditions in relation to these potential changes.	Section 8 – Description of the Existing Environment
9. Effects Assessment	9.1 Predicted Changes to the Physical Environment: The assessment will include a consideration of the predicted changes to the environment as a result of the project being carried out or as a result of any powers, duties or functions that are to be exercised by the federal government in relation to the project. These predicted changes to the environment are to be considered in relation to each phase of the project (i.e., construction, operation, decommissioning) and are to be described in terms of the following: • magnitude;	Section 9 – Assessment of Environmental Effects.

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	• geographic extent; • timing; • frequency; • duration; • reversibility. As changes to various parts of the physical environment may be inter-related as part of an ecosystem, the EIS will explain and describe the connections between the changes described. The proponent will use the information in appendix C of the CNSC's draft REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*, to assess the environmental effects of the project.	
	9.2 Predicted Effects on Valued Components: Based on the predicted changes to the environment identified in section 9.1 (part 2) above, the proponent is to assess the environmental effects of the project on the VCs identified as per section 5.2.1 (part 2). Based on the changes to the environment that have been identified in section 9.1 (part 2), additional VCs are to be selected based on the following: • If there is the potential for the project to result in environmental changes on federal lands, another province, or another country, then VCs of importance not already identified above are to be listed in this section. • If federal decisions about the project will lead to an environmental change, then these environmental changes are to be considered stand-alone VCs. All interconnections between VCs and between changes to multiple VCs will be described.	Section 9 – Assessment of Environmental Effects.
	9.3 Accidents and Malfunctions: The proponent will use the information in appendix B, section A.3.4, Malfunctions and accidents, of the CNSC's draft REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*, to assess the potential health and environmental effects from postulated accident and malfunction scenarios.	Section 9.12 – Accidents and Malfunctions

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	9.4 Cumulative Effects: The proponent will use the information in appendix B, section A.3, Cumulative effects, of the CNSC's draft REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*, to assess the project's potential cumulative effects.	Section 9.13 – Cumulative Effects
	9.5 Socio-economic Environment: The proponent will use the information in appendix B, section A.3.7, Socio-economic environment, of the CNSC's draft REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*, to assess the project's indirect socio-economic effects.	Section 9.11 – Socioeconomic Effects
	9.6 Effects of the Environment on the Project: The proponent will use the information in appendix B, section A.3.9, Assessment of effects of the environment on the project, of the CNSC's REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*, to assess the effects of the environment on the project (i.e., severe weather events).	Section 9.14 – Effects of the Environment on the project
10. Mitigation Measures	Every EA conducted under the *CEAA* 2012 will consider measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project. Measures that are technically and economically feasible include application of best industry practices, pollution prevention principles such as best available technology and techniques economically achievable (BATEA), and radiation protection principles such as keeping radiation exposure and doses as low as reasonably achievable (ALARA). Under the *CEAA* 2012, mitigation includes measures to eliminate, reduce or control the adverse environmental effects of a project, as well as restitution for damages to the environment through replacement, restoration, compensation or other means. Each measure will be specific, achievable, measurable and verifiable, and described in a manner that avoids ambiguity in intent, interpretation and implementation. Mitigation measures may be considered for inclusion as conditions in the EA decision statement and/or in other compliance and enforcement mechanisms provided by other authorities' permitting or licensing processes. As a first step, the proponent is encouraged to use an approach based on the avoidance and reduction of the effect(s) at the source. Such an approach may include the modification of the design of the project or relocation of project components. The EIS will describe the standard mitigation practices, policies and commitments that constitute technically and economically feasible mitigation measures and that will be applied as part of standard practice regardless of location (including the measures directed at mitigating adverse socio-economic effects). The	Section 9.#.3.2 – Proposed Mitigation Measures (for each environmental component) Section 10 – Mitigation Measures

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	EIS will then describe the project's environmental protection plan and its environmental management system, through which the proponent will deliver this plan. The plan will provide an overall perspective on how potentially adverse effects would be minimized and managed over time. The EIS will further discuss the mechanisms the proponent would use to require its contractors and sub-contractors to comply with these commitments and policies and with auditing and enforcement programs. The EIS will then describe mitigation measures that are specific to each environmental effect identified. Measures will be written as specific commitments that clearly describe how the proponent intends to implement them and the environmental outcome the mitigation is designed to address. The EIS will describe mitigation measures in relation to species and/or critical habitat listed under the Species at Risk Act (SARA). These mitigation measures will be consistent with any SARA permit, applicable recovery strategy and/or action plan. The EIS will specify the actions, works, minimal disturbance footprint techniques, best available technology, corrective measures or additions planned during the project's various phases to eliminate or reduce the significance of potential adverse effects. The impact statement will also present an assessment of the effectiveness of the proposed technically and economically feasible mitigation measures. The reason(s) for determining if the mitigation measure reduces the significance of a potential adverse effect will be made explicit. The proponent is also encouraged to identify mitigation measures for effects that are adverse although not significant. The EIS will indicate what other technically and economically feasible mitigation measures were considered, and explain why they were rejected. Trade-offs between cost savings and effectiveness of the various forms of mitigation will be justified. The EIS will identify who is responsible for the implementation of these measures and the system of accountability. For proposed mitigation measures for which there is little experience or that have questionable effectiveness, the potential environmental risks and effects – should those measures not be effective –will be clearly and concisely described. In addition, the EIS will identify the extent to which technological innovations will help mitigate environmental effects. Where possible, it will provide detailed information on the nature of these measures, their implementation and management and how these are integrated in the follow-up program.	

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
11. Conclusion on Significance	The proponent will use the guidance and information in appendix B, section A.3.6, Significance of residual effects, of the CNSC's draft REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*, for the preparation of this section of the EIS.	Section 11 – Conclusion on Significance

12. Follow-Up Program	The proponent will use the guidance and information in appendix B, section A.3.10 EA Follow-up Program, of CNSC's draft REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures* for the preparation of this section of the EIS.
	
	Where applicable, the proponent will describe how the follow-up program relates to the project's environmental protection plan and environmental management system as mentioned in section 10 above.
	
	Environmental assessment effects predictions, assumptions and mitigation actions that are to be tested in the follow-up program must be converted into field-testable monitoring objectives. The monitoring design must include a statistical evaluation of the adequacy of existing baseline data to provide a benchmark for testing project effects, and the need for any additional pre-construction or pre-operational monitoring to establish a firmer project baseline.
	
	The proponent will propose a schedule for the follow-up program. The schedule should indicate the timing, frequency and duration of effect monitoring. This schedule would be developed after statistical evaluation of the length of time needed to detect effects given estimated baseline variability, probable environmental effect size and desired level of statistical confidence in the results (type 1 and type 2 errors).
	
	The description of the follow-up program will include any contingency procedures or plans or other adaptive management provisions as a means of addressing unforeseen effects, or for correcting exceedances, as required, so as to comply with benchmarks, regulatory standards or guidelines.
	
	The follow-up program will describe roles and responsibilities for the program and its review process, by both peers and the public.
	
	The EIS should provide discussion on the follow-up program's requirements, and include:
	• objectives and structure of the follow-up program and the VCs targeted by the program;
	• tabular summary and explanatory text of the main components of the program including:
	  − a description of each monitoring activity under that component;
	  − which of the two generic program objectives the activity is relevant to (e.g., verify EA predictions, determine effectiveness of mitigation measures);
		Section 9.#.5 – Monitoring and Follow-up (for individual environmental components)
		Section 12 – Follow-up Program

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	− the specific statement from the EA that goes along with that generic objective and will be the focus for that activity (e.g., program objective: verify predicted effects; environmental assessment effect: no potential adverse effects); − the specific monitoring objective for that activity; − planned schedule; • roles and responsibilities to be played by the proponent, regulatory agencies, Aboriginal people, local and regional organizations and others in the design, implementation and evaluation of the program results; • possible involvement of independent researchers; • program funding sources; • information management and reporting (reporting frequency, methods and format); • possible opportunities for the proponent to include the participation of the public and Aboriginal groups, during the development and implementation of the program. The follow-up program plan should be sufficiently described in the EIS to allow independent judgment as to the likelihood that it will deliver the type, quantity and quality of information required to reliably verify predicted effects (or absence of them) and confirm the effectiveness of mitigation measures.	
CNSC REGDOC-2.9.1 *Environmental Protection: Environmental Principles, Assessments, and Protection Measures* (CNSC 2020a) Appendix A: Environmental Assessments Under *CEAA* 2012		
A.3 Specific *CEAA* 2012 Environmental Assessment Requirements	Where the information is common to both the EIS and the licence application, the applicant may provide the information in either the application or the EIS, with appropriate cross-referencing between the submissions. The applicant shall clearly indicate where the requirements of both the NSCA and *CEAA* 2012 are addressed. The EA of a designated project shall take into account the following factors as listed in subsection 19(1) of *CEAA* 2012: • the environmental effects of the designated project, including the environmental effects of malfunctions or accidents that may occur in connection with the designated project and in combination with other physical activities that have been or will be carried out; • the significance of those environmental effects; • comments from the public that are received in accordance with *CEAA* 2012;	The EIS and TSDs

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	• mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project; • the requirements of the follow-up program in respect of the designated project; • the purpose of the designated project; • alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such alternative means; • any changes to the designated project that may be caused by the environment; • the results of any relevant study conducted by a committee established under section 73 or 74 of *CEAA* 2012; • any other matter relevant to the EA that the responsible authority requires to be taken into account. The EIS and supporting technical studies are completed to meet the requirements of *CEAA* 2012, paragraphs 19(1)(a), (I (d), (e), (f), (g), (h) and, if appropriate, (i) and (j) in accordance with the scope of these factors as determined by the CNSC. The completion of the EIS and, as necessary, supporting technical studies is typically delegated to the applicant in accordance with section 23 of *CEAA* 2012. This regulatory document provides requirements and guidance to support project planning and early development of these documents by the applicant. These requirements and guidance do not negate the importance of pre-project consultation or the potential for project-specific EA guidelines.	
A.3.1 Purpose of the project	Paragraph 19(1)(f) of *CEAA* 2012 states that the EIS shall identify the purpose of the project (defined as what is to be achieved by carrying out the project). For additional information, see Addressing “Purpose of” and “Alternative Means” under the *Canadian Environmental Assessment Act*, 2012 [17].	Section 4.1 Purpose of Project
A.3.2 Alternative Means for Carrying out the project	Paragraph 19(1)(g) of *CEAA* 2012 states that the EIS shall identify and describe alternative means to carry out the project that are, from the perspective of the applicant, technically and economically feasible. As identified by the proponent, the alternative means include options for locations, development, and implementation methods, routes, designs, technologies, mitigation measures, and so on. Alternative means may also be related to the construction, operation, expansion, decommissioning and abandonment of a physical work. The approach and level of effort applied to addressing alternative means is established on a project-by-project basis taking into consideration:	Section 4.2 Alternative Means of Carrying out the project

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	• the characteristics of the project; • the environmental effects associated with the potential alternative means; • the health or status of valued components (VCs) that may be impacted by the alternative means; • the potential for mitigation and the extent to which mitigation measures may address potential environmental effects; • the level of concern expressed by the public and Aboriginal groups. The EIS should also describe the environmental effects of each alternative means. The criteria used to identify alternative means as unacceptable, and how these criteria were applied, should be described, as should the criteria used to examine the environmental effects of each remaining alternative means to identify the preferred alternative. For further guidance, consult Addressing "Purpose of" and "Alternative Means" under the *Canadian Environmental Assessment Act*, 2012 [17].	
A.3.3 Environmental Effects	Paragraph 19(1)(a) of *CEAA* 2012 states that the EA must take into account the environmental effects of the designated project. The environmental effects that must be considered in an EA under *CEAA* 2012 are also requirements under the NSCA. As described in section 4, the applicant should conduct an ERA in accordance with CSA 288.6, Environmental risk assessment at Class I nuclear facilities and uranium mines and mills [6].	Section 9 Assessment & Mitigation of Env. Effects
A.3.4 Malfunctions and Accidents	Paragraph 19(1)(a) of *CEAA* 2012 states that malfunctions and accidents shall be assessed in the EA. Malfunctions and accidents should be separated into radiological and non-radiological (conventional). The applicant should provide an assessment of potential health and environmental effects resulting from postulated radiological and conventional malfunctions or accidents. The EIS should also include any mitigation measures such as monitoring, contingency, clean-up or restoration work in the surrounding environment that would be required during or immediately following the postulated malfunction and accident scenarios. The EIS should provide a description of postulated malfunction and accident sequences leading to a radiological or non-radiological release considering, as appropriate, internal events, external events and human-induced events, including their frequency and an explanation of how these events were identified, and any modeling that was performed. The applicant can use a bounding approach or use facility- or activity-specific information (for example, design, operation, projected environmental releases) in the assessment of radiological accidents and	Section 9.12 Accidents and Malfunctions

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	malfunctions. If a bounding approach is used, the applicant should provide a detailed rationale for the selection of each bounding scenario. The EIS should include the source, quantity, mechanism, pathway, rate, form and characteristics of contaminants and other materials (physical and chemical) likely to be released to the surrounding environment during the postulated malfunctions and accidents. Note: Malfunctions and accidents are reviewed in depth under the NSCA for licensing purposes (for example, under REGDOC-2.4.1, Deterministic Safety Analysis [18], REGDOC-2.4.2, Probabilistic Safety Assessments for Nuclear Power Plants [19] and RD-346, Site Evaluation for New Nuclear Power Plants [20]). These scenarios should be taken into consideration by the applicant when designing environmental protection measures (see section 4). If applicable, the applicant should use operating experience (OPEX) to identify any past abnormal operations, accidents and spills to the extent that they are relevant to the current assessment for the purposes of identifying malfunction and accident scenarios to be assessed.	
A.3.5 Cumulative Effects	Paragraph 19(1)(a) of *CEAA* 2012 states that the applicant shall assess any residual adverse environmental effects of the project in combination with other past, present or reasonably foreseeable projects and/or activities within the study area. The applicant should explain the approach and methods used to identify and assess cumulative effects. The approach and methods should be consistent with Assessing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act*, 2012 [21].	Section 9.13 Cumulative Effects
A.3.6 Significance of Residual Effects	Paragraph 19(1)(b) of *CEAA* 2012 states that the applicant shall assess the significance of any residual effects that persist, taking into consideration the proposed mitigation measures. These residual effects are identified during the ERA or a characterization of the environmental effects. In the EIS, the applicant should include a detailed analysis of the significance of each residual effect. The applicant should clearly explain the method and definitions used to describe the level of the residual adverse effect (for example, low, medium, or high) for each of the issues. The applicant should also describe any cumulative environmental effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried on and how these levels were combined to reach an overall conclusion on the significance of the adverse effects for each valued component (VC). **Guidance** Some specific issues to be assessed are: • magnitude of the effect;	Section 9.#.5 Residual Effects Section 9.#.6 Conclusion Section 11 Conclusion on Significance

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	• spatial extent of the effect; • duration and frequency of the effect; • degree to which the effect can be reversed or mitigated; • ecological importance. The method used to describe the level of the adverse effect should be transparent and reproducible. The EIS should identify additional criteria used to assign significance ratings to any predicted adverse effects. It should contain clear and sufficient information to enable the CNSC and the public to understand and review the applicant's judgement of the significance of effects. The applicant should define the terms used to describe the level of significance. In assessing significance against the criteria, the EIS should, where possible, employ relevant existing regulatory documents, environmental standards, guidelines or objectives such as prescribed maximum levels of emissions or discharges of specific hazardous substances into the environment or maximum acceptable levels of specific hazardous substances in the environment.	
A.3.7 Socio-economic Environment	The applicant should characterize the socio-economic environment and identify all indirect socio-economic effects. An indirect effect is a secondary environmental effect that occurs as a result of a change that a project may cause to the environment. Paragraph 5(2)(b) of *CEAA* 2012 refers to any change to the environment caused by the project on health and socio-economic conditions, physical and cultural heritage, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance. For additional guidance, refer to Technical Guidance for Assessing Physical and Cultural Heritage or any Structure, Site or Thing that is of Historical, Archeological, Paleontological or Architectural Significance under the *Canadian Environment Assessment Act*, 2012 [22].	Section 9.11 Socio-economic Environment
A.3.8 Community and Aboriginal Traditional Knowledge	Subsection 19(3) of *CEAA* 2012 states that community and Aboriginal traditional knowledge may be considered in the EA. CNSC staff will provide guidance to the applicant at the earliest possible stage in the EA process concerning the extent to which community and Aboriginal traditional knowledge shall be considered in the EA. For additional information, refer to: • Considering Aboriginal traditional knowledge in environmental assessments conducted under the *Canadian Environmental Assessment Act*, 2012 [23]; • REGDOC-3.2.2, Indigenous Engagement [10] (for further information on the CNSC's expectations of applicants for Indigenous engagement).	Section 6 Indigenous Engagement Section 8.9 Traditional Land and Resource Use Section 0 Indigenous Socio-economic and Health Section 9.9 Traditional Land and Resource Use Section 9.10 Indigenous Socio-economic and Health

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
A.3.9 Assessment of Effects of the Environment on the project	Paragraph 19(1)(h) of *CEAA* 2012 states that the EIS shall take into account how the environment could adversely affect the project. The applicant shall also take into account any potential effects of climate change on the project, including an assessment of whether the project might be sensitive to changes in climate conditions during its lifecycle. Some adverse environmental conditions are flooding, severe weather, biophysical hazards (such as algae), geotechnical hazards and seismic events.	Section 9 Assessment & Mitigation of Env. Effects
A.3.10 EA Follow-up Program	Paragraph 19(1)(e) of *CEAA* 2012 states that the EIS shall include a framework or preliminary program upon which EA follow-up actions will be managed throughout the life of the project. The applicant should design the follow-up program to verify the accuracy of the EA predictions and to determine the effectiveness of the measures implemented to mitigate the potential adverse environmental effects of the project. The applicant should also design the follow-up program to incorporate pre- project information that would provide the baseline data; compliance data such as established environmental quality criteria; regulatory documents, standards or guidelines; and real-time data consisting of observed data gathered in the field. As part of the follow-up program, the applicant should describe the compliance reporting methods to be used, including reporting frequency, methods and format. Note: The CNSC, in collaboration with other federal authorities (where applicable), verifies and monitors all EA follow-up activities through the CNSC licensing and compliance process. EA follow-up monitoring activities may be integrated within the applicant's environmental protection measures.	Section 9.#.5 Monitoring and Follow-up (for individual environmental components) Section 12 Follow-Up Program
Appendix B – Characterization of the Baseline Environment for an Environmental Assessment under *CEAA* 2012		
B.1 Atmospheric Environment	The atmospheric environment includes the climate conditions at the site and in the local and regional study areas. It includes the seasonal variations in weather conditions within the study areas, to allow the assessment of effects on the facility or activity. The applicant or licensee should provide a description of the existing ambient air quality in the study areas, with emphasis on characterizing radiological and non-radiological analytes. The description should include meteorological information such as air temperature, relative humidity, precipitation, wind speed and direction, atmospheric pressure, and solar radiation. It should also include the occurrence of weather phenomena (for example, lightning, temperature inversions and fog). Special consideration should be given to the analysis of extreme and rare meteorological phenomena (for example, tornadoes). Uncertainties should be described and taken into account when discussing the reliability of the information presented.	Section 8.2 Atmospheric Environment

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	The description should also include current ambient daytime and nighttime noise levels at the site and local study areas, and include information on its source(s), geographic extent and temporal variations. The description should provide ambient noise levels for other areas that could be affected by the facility or activity. Some examples are: • increased traffic along transportation corridors to and from the site during construction; • receptors at residences and sensitive sites (such as hospitals, schools, daycare facilities, seniors' residences, and places of worship). The applicant or licensee should describe the influence of regional topography or other features that could affect weather conditions in the study areas. The baseline information should be sufficient to support the use of an atmospheric dispersion model to conduct the site-specific ERA and to support an assessment of the effects of the environment on the project (for example, tornadoes).	
B.2 Surface Water Environment	The surface water environment includes all surface water features and hydrology that affect surface water at the site or in the local and regional study areas. The applicant or licensee should include delineation of drainage basins at appropriate scales. When documenting the water quality of all surface water, the applicant or licensee should demonstrate the use of appropriate sampling and analytical protocols, for the range of analytical parameters with the potential to be influenced by the facility or activity. This information should be presented using tables, maps and figures to provide an understanding of surface water characteristics and conditions at the site and in the local and regional study areas. The applicant or licensee should describe hydrological regimes within the drainage basin, including seasonal fluctuations and year-to-year variability of all surface waters. The applicant or licensee should assess normal flow, flooding and drought properties of water bodies as well as the interactions between surface water and groundwater flow systems. The applicant or licensee should describe all water sources used for drinking water in the area, including source water intakes for drinking water treatment facilities. The baseline information should be sufficient to support the use of an aquatic dispersion model to conduct the site-specific ERA and to support an assessment of the effects of the environment on the facility or activity (for example, flooding). The applicant or licensee should document the sediment quality of all water bodies to be affected by the facility or activity, demonstrating the use of appropriate sampling and analytical protocols, for the range of	Section 8.3 Surface Water Environment

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	analytical parameters with the potential to be influenced by the facility or activity. This information should provide an appropriate understanding of sediment characteristics and conditions on the site and in the local and regional study areas. The study design should be fully described, including the allocation of samples in space and time, measurement methods and results. The applicant or licensee should include an assessment of any limitations or gaps in the quality and extent of baseline data and methods, as well as the method(s) by which they have been addressed.	
B.3 Aquatic Environment	The aquatic environment includes the aquatic and wetland species at the site and within the local and regional study areas, including the flora, fauna and their habitats. The applicant or licensee should seek information from relevant authorities (such as Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO) and provincial or territorial authorities) on aquatic and wetland species and habitat for the local and regional study areas. The applicant or licensee should also undertake independent studies to gather the necessary information. The applicant or licensee should include a description of the food chain and food web dynamics as a habitat component as this relates to fish populations, and potential effects resulting from the facility or activity (such as impingement and entrainment). The applicant or licensee should provide detailed habitat mapping that demonstrates habitat usage by fish within the study areas. This information should include depth profiles, substrate mapping, water temperature profiles, and a description of known and potential habitat usage (such as spawning, nursery, rearing, feeding and migratory) by fish that occur in the study areas. The applicant or licensee should identify any biological species of natural conservation status (that is, rare, vulnerable, endangered, threatened or uncommon at a federal, provincial or municipal level) and their critical habitats, if identified. The applicant or licensee should provide baseline characterization of radionuclide and hazardous substance levels in aquatic biota to support human and ecological risk assessment. The applicant or licensee should fully describe the study design, including the allocation of samples in space and time, measurement methods and results. The applicant or licensee should include an assessment of any limitations or gaps in the quality and extent of baseline date and methods, as well as the method(s) by which they have been addressed.	Section 8.4 Aquatic Environment

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
B.4 Geological and Hydrogeological Environment	The geological and hydrogeological environment includes the bedrock and overburden geology at both the local and regional scales.	Section 8.5 Geological and Hydrogeological Environment
B.4.1 Geology	The applicant or licensee should characterize the geomorphology, topography, quaternary geology and soil characteristics, structural geology, petrology, geochemistry, economic geology and hydrogeology. The applicant or licensee should also describe the geomechanical properties that apply to the region and at the site that will be disturbed. The applicant or licensee should provide the geotechnical properties of the overburden, including shear strength and liquefaction potential, to allow for the assessment of slope stability and bearing capacity of foundations under both static and dynamic conditions. The description of the structural geology should include regional, local and site-specific documentation of fractures and faults. It should include a description of primary geological features and deformation fabrics both at the site and within the local and regional study areas. If applicable, the applicant or licensee should describe the coastal geomorphology and should include the characteristics of any lakefront or ocean bluffs, shoreline, and both near-shore zone and offshore zones. The baseline characterization should be sufficient to assess effects of the environment on the facility or activity (for example, seismic effects). The applicant or licensee should present a geological model that incorporates all overburden and bedrock information. If extrapolation is required to derive the stratigraphy, the applicant or licensee should explicitly discuss the uncertainties and the need for additional field investigations to reduce those uncertainties. The applicant or licensee should describe the geotechnical and geophysical hazards including the consideration of subsidence, uplift, seismicity (and active faulting), and consider the potential for movement at the ground surface (including co-seismic rupture) and earthquake ground motions. A seismic hazard assessment should be provided. Where appropriate, the narrative descriptions should be supplemented by geological maps, figures, cross-sections, borehole logs and photographs (with specific location information).	Section 8.5.2 Geology Section 8.5.3 Soil Quality
B.4.2 Hydrogeology	The applicant or licensee should describe the hydrogeology at the site and in the local and regional study areas. The description should characterize the physical and geochemical properties of all overburden and bedrock hydrogeological units (from the ground surface to the uppermost basement unit, which is site dependent).	Section 8.5.5. Hydrogeology Section 8.5.6 Groundwater quality Section 8.8 Human Health (regarding current and

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	Units may be characterized as aquifers or aquitards, and unit descriptions should include their geochemical characteristics, vertical and lateral permeabilities, transport mechanism (diffusion versus advection) and directions of groundwater flow. The applicant or licensee should identify the groundwater recharge and discharge areas, and describe in detail the groundwater interactions with surface waters. The applicant or licensee should present a conceptual and numerical hydrogeological model that discusses the hydrostratigraphy and groundwater flow systems. The applicant or licensee should provide a description of baseline groundwater quality at the site and in the local study area. The applicant or licensee should also describe local and regional potable groundwater supplies, including their current use and potential for future use.	potential future use of groundwater)
B.5 Terrestrial Environment	The terrestrial environment includes flora and fauna, their habitats, any wildlife corridors and the soil. The applicant or licensee should describe the terrestrial species at the site and within the local and regional study areas, including flora, fauna and their habitat. The applicant or licensee should identify all biological species risk (that is, endangered, threatened, special concern, extirpated at a federal, provincial or municipal level) known to occur in the area or where the site is within the range of the species. The applicant or licensee should describe the presence and importance of wildlife habitat within the study areas, including critical habitats for listed species (if identified). The applicant or licensee should also describe any wildlife corridors and physical barriers to movement. The applicant or licensee should identify all protected and conservation areas established by federal, provincial and municipal jurisdictions (for example, wilderness areas, parks, sites of historical or ecological significance, nature reserves, federal migratory bird sanctuaries and wildlife management areas). The applicant or licensee should describe the existing soil quality (including hazardous and radiological substance concentrations) for all study areas, as well as any additional soil quality parameters potentially relevant for modelling purposes (such as transport and bioavailability of contaminants of potential concern). The applicant or licensee should provide baseline characterization of radionuclide and hazardous substance levels in vegetation and other non-human biota to support human and ecological risk assessment. The characterization should also take into consideration the baseline conditions of other applicable environmental components (such as the atmospheric environment).	Section 8.6 Terrestrial Environment

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	The applicant or licensee should undertake independent studies to gather the necessary information as appropriate. The applicant or licensee should describe field studies in terms of representativeness of the target populations where possible. The applicant or licensee should fully describe the design of the study, including the allocation of samples in space and time, measurement methods and results. The applicant or licensee should include an assessment of any limitations or gaps in the quality and extent of baseline data and methods, as well as the method(s) by which they have been addressed.	
B.6 Ambient Radioactivity	The ambient radioactivity arises from the sources, their activity levels and their origin, for all applicable environmental media (including air, soil, food, water, aquatic sediments and plant or animal tissue). The applicant or licensee should describe the ambient radiological conditions at the site and in the local and regional study areas. The applicant or licensee should include information on the existing conditions, including an inventory of sources, their activity levels and their origin (natural or anthropogenic), for all applicable environmental media. The applicant or licensee should fully describe the design of the study, including the allocation of samples in space and time, measurement methods and results. The description should include an assessment of any limitations or gaps in the quality and extent of the baseline data and methods, as well as the method(s) by which they have been addressed.	Section 8.7 Ambient Radioactivity
B.7 Human Health	The potential effects of the facility or activity on human health include both radiological sources and non-radiological contaminants. The applicant or licensee should describe the current health profiles of the communities likely to be affected by the facility or activity, including information on population health of the communities in the local and regional study areas. The applicant or licensee should provide, to the extent available, information on current consumption of locally grown harvests and country foods, and the quality by food type, amounts consumed, parts consumed (whole body or specific organs).	Section 8.8 Human Health Section 8.10.2 Indigenous Health
B.8 Indigenous Land and Resource Use	Indigenous land and resource use includes lands, waters and resources of specific value; traditional activities and lifestyle; and traditional dietary habits. Traditional land use may include areas where traditional activities such as establishing seasonal camps, camping, travel on traditional routes, gathering of country foods and medicines (hunting, fishing, trapping,	Section 8.9 Traditional Land and Resource Use

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	planting and harvesting) are being carried out. Traditional land use also includes spiritual sites of significance to Indigenous peoples. The applicant or licensee should identify the lands, water and resources of specific social, economic, archaeological, cultural or spiritual value to Indigenous people, including established and asserted Indigenous or treaty rights that may be affected by the facility or activity. The applicant or licensee should describe Indigenous land and resource use at the site and in the local and regional study areas. The applicant or licensee should identify traditional activities, including activities for food, social, ceremonial and other cultural purposes, in relation to such lands, waters and resources with a focus on the current use of lands, waters and resources for traditional purposes. The applicant or licensee should describe the traditional dietary habits and dependence on country foods and harvesting for other purposes, including harvesting of plants for medicinal purposes. The analysis should focus on the identification of potential adverse effects of the facility or activity on the ability of future generations of Indigenous peoples to pursue traditional activities or lifestyle.	
Appendix C Environmental Effects for an Environmental Assessment under *CEAA* 2012		
C.1 Atmospheric Environment	The licensee should characterize the effects of the facility or activity on the atmospheric environment during all phases of the lifecycle for the facility or activity, including postulated accident and malfunction scenarios. The licensee should identify and characterize all atmospheric emissions (radiological and non-radiological) expected to be generated during all phases of the lifecycle for the facility or activity, including postulated accident and malfunction scenarios. This information should include average and maximum emissions from planned discharges, point sources and fugitive (non-point source) releases (including greenhouse gases). The licensee should complete modelling that incorporates baseline (or existing ambient) air quality in combination with the predicted site-specific atmospheric characteristics (such as shoreline fumigation) to assess potential effects on air quality, the transport of atmospheric contaminants and any associated exposure to humans and non-human biota receptors. The licensee should describe predicted effects of noise on terrestrial and aquatic species as well as on nearby residents and communities. The description should include both daytime and nighttime noise levels and tonal noise. The predicted sound levels should be compared against baseline levels and any guidelines published by recognized organizations.	Section 9.2 Atmospheric Environment

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
C.2 Surface Water Environment	The licensee should describe the effects of the facility or activity on the surface water environment during all phases of the lifecycle for the facility or activity, including accident and malfunction scenarios. The licensee should identify and characterize all liquid effluents that could be generated during all phases of the facility or activity. Some examples are: • average and maximum emissions from point sources (concentrations/activity levels and volumes); • planned discharges; • fugitive releases; • deposition from airborne particulates; • surface runoff.	Section 9.3 Surface Water Environment
C.3 Aquatic Environment	For all phases of the lifecycle for the facility or activity, the licensee should describe the effects of the facility or activity on aquatic flora and fauna, and include a full accounting of effects on species of natural conservation status and their habitat. This evaluation should be based on results of field monitoring studies or predictions from an ecological risk assessment. The description should be clear on how predicted effects to the biota exposed to the stressor compare to the expected reference condition for unexposed biota on a biological population basis, taking natural variation into account. Predictions of effects should include sufficient detail to allow follow-up verification. Some potential effects are: • effects on habitat, including aquatic vegetation and sensitive areas such as spawning grounds, nursery areas, winter refuges and migration corridors; • effects on aquatic species, including rare or sensitive species; • effects of blasting on fish and fish habitat on local aquatic systems; • contaminant exposures through environmental and food-chain transport; • effects on aquatic biota due to impingement and entrainment; • effects of infilling on loss of fish habitat and changes to productive capacity; • effects of thermal plume(s) on fish and fish habitat; • effects on wetlands.	Section 9.4 Aquatic Environment

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	Under the NSCA, the CNSC assesses the ongoing operation of nuclear facilities and activities to ensure protection of the environment and the health and safety of persons. Under the Memorandum of Understanding between CNSC and Fisheries and Oceans Canada (DFO), the CNSC is responsible for conducting reviews of licence applications to assess the potential effects on fish and fish habitat, and to ensure that the assessment process considers the intent and requirements of the *Fisheries Act*, the *Species at Risk Act* and their associated regulatory and policy frameworks.	
C.4 Geological and Hydrogeological Environment	The geological and hydrogeological environment includes the bedrock and overburden geology at both the local and regional scales.	Section 9.5 Geological and Hydrogeological Environment
C.4.1 Geology	The licensee should fully describe any changes to the geology and geomorphology resulting from the facility or activity, including any interrelationships with the groundwater regime. The licensee should describe any changes to the environment resulting from the removal of bedrock and/or unconsolidated deposits. The licensee should also describe the disturbance of soils or sediments that may be stockpile, used for construction purposes or otherwise perturbed. The licensee should include an assessment of changes made that would affect coastal processes and features (such as changes to the shoreline morphology due to construction, erosion or sediment transport).	Section 9.5 Geological and Hydrogeological Environment
C.4.2 Hydrogeology	The licensee should describe and assess any effects the facility or activity may have on the groundwater regime including the quantity and quality of groundwater and how these effects may influence surface waters. The licensee should carry out modelling as needed to develop and test the predicted effects.	Section 9.5 Geological and Hydrogeological Environment
C.5 Terrestrial Environment	The licensee should describe the effects of the facility or activity on terrestrial fauna and flora and include a full accounting of effects on species with elevated conservation status and their habitat. This evaluation should be based on results of field monitoring studies or predictions from an ecological risk assessment. The description should be clear on how predicted effects to the biota exposed to the stressor compare to the expected “reference condition” for unexposed biota on a biological population basis taking into account natural variation. Predictions of the effects should include sufficient detail to allow follow-up verification. Some potential effects that should be considered are: • loss of terrestrial habitat and the quality of lost habitat for relevant species; • disturbance of feeding, nesting or breeding habitats;	Section 9.6 Terrestrial Environment

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
	• physical barriers to wildlife; • disruption, blockage, impediment and sensory disturbance (such as light effects, noise and vibration) of daily or seasonal wildlife movements (such as migration or home ranges); • direct and indirect wildlife mortality; • reduction in wildlife productivity; • contaminant exposures through environmental and food-chain transport; • effects on biodiversity.	
C.6 Ambient Radioactivity	The licensee should describe the effects of the facility or activity on ambient radioactivity. Humans and non-human biota exposed to ambient radioactivity should be assessed for all relevant routes of exposure (both internal and external exposure scenarios). To support the assessment of human health (see section 3.2.7), the licensee should provide information on radiation levels to which members of the public may be exposed, including consideration of consumers of country food whose exposure pathways may differ due to cultural norms; for example, any dietary characteristics of Indigenous peoples.	Section 9.7 Ambient Radioactivity
C.7 Human Health	The licensee should describe the potential effects of the facility or activity on the physical well-being of Indigenous groups and other people resulting from biophysical effects, including the effects of the facility or activity on all environmental components (for example, atmospheric environment) and the resulting effects on human health. Some examples are: • an analysis of the effects of the facility or activity on the health and safety of the public, including the possible effects from malfunctions and accidents (radiological and conventional); • the predicted radiation doses to members of the public resulting from activities within the scope of the facility or activity and any resulting health effects; • a description of quantitative risk assessment modeling conducted, where necessary, for any malfunctions and accidents; • an assessment of the potential effects on human health from all non-radiological contaminants released from the facility or activity, through all potential exposure pathways; • potential effects of noise generated from the facility or activity on human receptors within the study area(s).	Section 9.8 Human Health Section 9.10.2 Indigenous Health

Guideline[1] Section	EIS Guidelines Information Requirement	Corresponding EIS Section
C.8 Indigenous Land and Resource Use	The licensee should identify any change that the facility or activity is likely to cause in the environment and any effect of any such change on the health and socio-economic conditions, physical and cultural heritage and on the current use of lands and resources for traditional purposes by any Indigenous group including effects on hunting, trapping, fishing and gathering. The licensee should identify any concerns raised by Indigenous peoples about the facility or activity in relation to any Indigenous or treaty rights. For further information on the CNSC's expectations of licensees for Indigenous engagement, see REGDOC-3.2.2, Indigenous Engagement. [10]	Section 8.9 Traditional Land and Resource Use

Notes:

1 – Generic Guidelines for the Preparation of an Environmental Impact Statement (CNSC 2016a). Part 2 of the Guidelines document prescribes the EIS Content and Structure.

4 PROJECT DESCRIPTION

4.1 Purpose of Project

The purpose of the project is to safely carry out the closure of the NPDWF. The closure of NPDWF will ensure a prompt reduction of Canada's nuclear historic liabilities and eliminate interim waste storage, while reducing worker risk and transport/waste handling risk.

In Canada, nuclear waste producers and owners are responsible for the funding, organization, management and operation of disposal and other facilities required for LLW and ILW. CNL (2023a) has developed an Integrated Waste Strategy (IWS) which concisely details "cradle to grave" pathways for all CNL waste streams, from generation to final disposition. The IWS is based on CNL's waste inventory and forecast data and founded on the fundamental principles of waste prevention, minimization and re-use. It enables the assessment of the quantities and types of waste across the spectrum of waste that CNL manages, (e.g., from clearable waste to used fuel). In-situ disposal of NPDWF meets one of the CNL integrated waste strategy objectives by providing a disposition route for the NPD reactor, components and systems. Previous strategies had delayed closure of the NPD site until future disposal facilities had become available. The proposed project ensures CNL focuses their environmental efforts on limiting nuclear historic liability obligations for future generations.

As discussed in the decommissioning plans (Johnson 2022a), in-situ disposal is proposed to carry out these activities (see details in Section 4.3 below). The proposed in-situ disposal activities include removing the above ground structure and placing demolition materials into the below grade structure. The below grade structure, reactor vault, large tanks and systems will be filled with grout. Grouting is the process of placing, by pumping, a 90/10 mixture of ground blast furnace slag and Portland cement with sand, water and admixtures that produces a pourable, concrete-like, mixture to ensure filling of gaps to as reasonable extent as possible throughout the facility.

The ventilation stack, a current roosting structure for chimney swifts, will be retained. The footprint above the grouted reactor will then be capped with reinforced concrete and the Main Building footprint of NPDWF will be covered with an engineered cover. In-situ disposal will isolate the contaminated systems and components inside the below grade structure. Additional detail on each of these project activities is provided in Section 4.3 below, as well as in Section 7 of Johnson (2022a).

The closure activities which constitute the designated project scope are:

- assembly and operation of the grout batch mixing plant;
- grouting of below grade structures;
- removal of above grade structures to be used as backfill;
- installation of concrete cap and engineered cover over the grouted area;
- final site restoration; and
- preparation for and implementation of long-term care and maintenance activities.

4.1.1 Robustness of the System

In-situ disposal provides containment and isolation of the NPDDF inventory for a sufficiently long time to ensure that the postclosure environmental concentrations do not cause adverse effects to human health or the environment. The assessment shows that the disposal facility will contain the dominant radioactive and non-radioactive contaminants very effectively.

For most of the assessed period, only a small percentage of the initial total radioactivity is released from the NPDDF as soluble contaminants. Even after 50,000 years, the vast majority of the radioactivity (i.e., over 96%) remains in the NPDDF. The remainder gradually decays and disperses so that when it reaches the accessible environment, concentrations are sufficiently low such that the corresponding dose rates are negligible.

The engineered barriers restricting contaminant release from the NPDDF are:

- waste form: the majority of the radioactivity is embedded within the matrix of steels and zircaloy that will corrode very slowly in the chemical environment of the disposal facility;
- thick concrete walls of the reactor vault and structure: provide a diffusive barrier; and
- grout backfill: inhibits groundwater movement and creates an alkaline environment that limits the solubility of key contaminants.

The isolation of contaminants is achieved by:

- historic siting of the facility in bedrock;
- filling much of the NPDWF with grout;
- placing a concrete cap over key parts of the nuclear area lowers the probability of future inadvertent intrusion; and
- institutional controls in the short term (e.g., access controls to site).

Safety after closure of the facility relies on both natural and engineered controls. These are a combination of institutional and passive controls using the properties of the site, facility, and waste. Monitoring of the facility is not needed following the Institutional Controls phase.

The site features and engineered barriers identified for the postclosure period of the NPDDF are:

- facility location underground in bedrock in a remote location;
- concrete and grout monolith;
- concrete cap and engineered cover; and
- land use controls.

The grout and concrete monolith and concrete cap provide a robust structure that make drilling or digging into the facility difficult.

The engineered cover is designed to limit the rate of water ingress from precipitation into the facility. Additionally, it protects the concrete cap by reducing its exposure to the weather. The engineered cover also conceals the facility. This reduces the chance of deliberate human intrusion. Examples of this would be archaeological digging, or searches for valuable materials.

The facility location is a barrier to human intrusion. Its siting in bedrock in a remote area makes it difficult to access the facility. The low population in the area reduces the chances that humans will encounter the facility. This will also reduce the risk of deliberate access into the site.

The institutional control phase will be at least 100 years. After this time uncontrolled access to the site may occur. Fences, warning signs and security arrangements protecting the site may no longer be required. Site features and engineered barriers, as identified above, prevent human access into the disposal facility.

AECL as the landowner will register land usage controls on the land title. These will be the same controls as used for waste disposal sites in Ontario. The title will show that the land contains a radioactive waste disposal site and list all forbidden activities. This will be effective as long as a land registry exists, and its requirements enforced.

The project will not use signage and permanent markers to identify the NPD disposal site. Signage and permanent markers can encourage interest and potentially future site investigations. Signs need continued maintenance that may not happen in the future. Markers are better suited to high-level waste repositories due to their higher hazards.

Where areas are revegetated, thorny and stinging plants will not be used, to avoid attracting people and animals, as many thorny plants have edible berries; stinging plants may have medical uses or be of cultural significance. The vegetation used needs to blend into the local area so that people or animals are not drawn to the disposal site. There is also the possibility of human harm due to poisoning or allergic reactions.

Moving into the Post-Institutional Control Phase requires CNL to submit a licence amendment application to the CNSC. Removal of institutional controls will be subject to the jurisdictional authority acts and regulations in force at the time of application.

The containment and isolation described above are considered to be in-design mitigation measures, i.e., features included in the project design for the purpose of pre-empting possible environmental effects, based on good practice and CNL experience.

4.1.2 Natural Analogues

The EA for the NPD Closure Project is a challenging undertaking because of the very long time periods involved. Natural analogues can be used to provide understanding and enhance confidence in the behaviour of the disposal facility over time.

4.1.2.1 Iron-based Materials

The Postclosure Safety Assessment (PostSA) TSD assumes that radionuclides embedded in iron-based matrices are gradually released into the surrounding cement pore water as the iron corrodes. It is generally accepted that iron and in particular steels can corrode quickly. Thus, for the purpose of this discussion, it is biased towards the fact that this is not always the case and that there are many examples of iron artefacts surviving in good condition for long periods of time under a wide range of conditions.

Johnson and Francis (1980) studied the corrosion of iron-based archeological artefacts, native metals and meteorites under a wide range of environmental conditions. The environmental conditions ranged from buried in mud in the sea to dry tombs in arid environments, with ages spanning up to 3,500 years old for manmade iron objects and up to 130,000 years old for iron meteorites. The NPDWF is a below ground structure in a water saturated environment, therefore only those artefacts that were located either in fresh water or buried in the ground in non-arid environments were considered. The reported iron corrosion rates in Johnson and Francis (1980) ranged from 0.1-10 microns per year for manmade objects, consistent with the assumed range in the PostSA TSD for the corrosion of carbon and stainless steels. Ferrous materials have shown long-term durability in several environments, examples of which are iron articles in the Tutankhamen tomb (1,300 BC), the iron pillar of Delhi (400 AD), and cast iron water pipes (Versailles, France, 1665 AD).

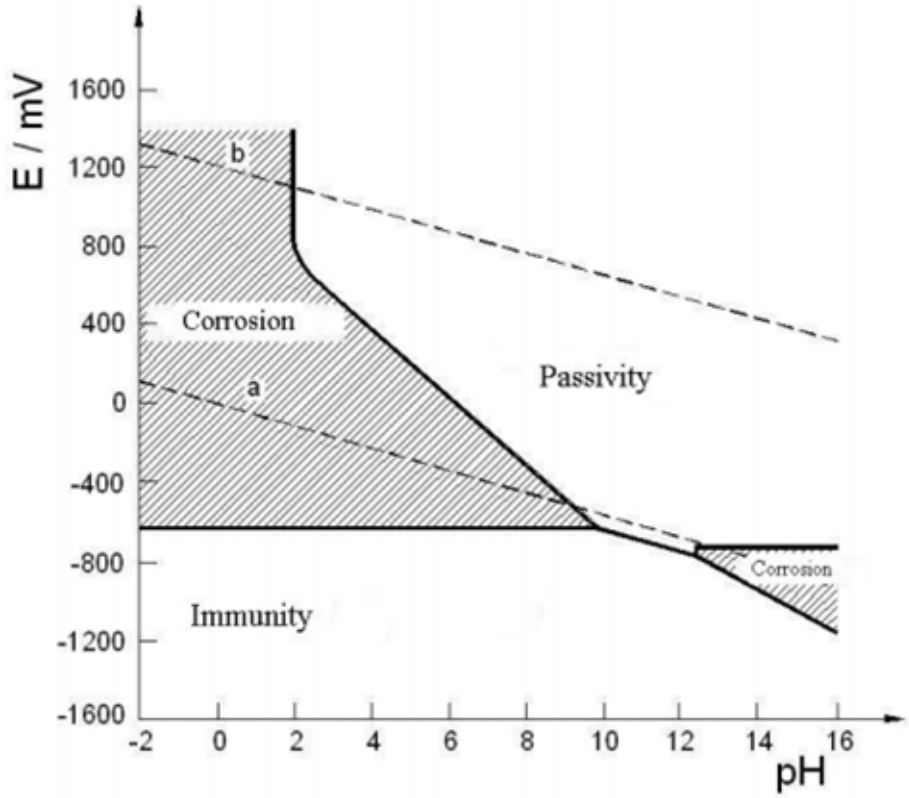
The carbon steel and stainless-steel waste forms of the NPDWF contain impurities such as nickel and chromium. Natural analogue studies of meteorites have shown that the presence of nickel and chromium in iron meteorites offers resistance to corrosion (Johnson and Francis 1980). These metal analogues do not have exactly the same chemical composition as the iron-based matrices of the NPDWF, however, they provide insight and support the possible survival of these metals over long periods of time. The corrosion of meteorites also gives confidence that metals containing large amounts of nickel and chromium, similar to modern stainless steels used in the NPD reactor, are able to survive many thousands of years under wet conditions and when exposed to freeze-thaw cycles. A significant example studied in Johnson and Francis (1980) are meteorites in the climate at the Canyon Diablo crater in Arizona. Although the area is currently dry, there is evidence that a lake once existed in the crater during the last Pleistocene ice age (around 10,000 to 15,000 years ago), exposing the meteorite masses to extremely moist conditions for several thousand years. Metal masses on the surface of the soil apparently survived the moisture quite well but degradation of buried metal masses may have been accelerated by the increased groundwater flow. There are estimated to be more than 20,000 metal masses found ranging in size from 0.05 kg to 635 kg with an age of around 20,000 years. The PostSA TSD conservatively estimates that the steels in the reactor will take around 30,000 years to corrode and this is supported by the analysis of meteorites. It is noted that many meteorites have dark surface oxides which appear to be compact and coherent, formed as a fusion layer from heat as they entered the Earth's atmosphere, and provide protection from corrosion. Similarly, there are well preserved archeological iron pillars in India (Balasubramaniam 2000, Johnson and Francis 1980). They are believed to have been erected around 400 AD although their exact age is not known. Their durability is attributed to dry conditions, metal purity and possibly corrosion resistant surface oxides. This is similar to the oxide layers intentionally formed using processes such as chemical pickling on ferrous alloy components to provide protection from corrosion. This is a feature of reactor components where corrosion resistant materials are required.

Helmuth (1991) examined the corrosion of native iron with a low nickel content in basalt which unsurprisingly corrodes easily when exposed to weathering. Fissures in the rock, which provide pathways for oxygen, are observed to be filled with corrosion products, which was not widespread except where hydrothermal influences were active. Of the samples examined it was also seen that disintegration of the rock matrix from volume expansion of the corrosion products did not occur. There are no hydrothermal effects predicted to be associated with the NPDDF therefore it can be inferred that, should cracking of the facility occur, only localized corrosion of the reactor steels can be expected and it is unlikely that volume expansion due to corrosion products would cause further damage to the concrete and grout.

Some analogues include very large amounts of iron, where the large amount is able to buffer redox conditions, preventing oxidizing conditions and thus, corrosion is essentially prevented for thousands of years (Pitts and St. Joseph 1985). A large number of nails and iron ties were found in Scotland at an abandoned Roman fortress dating from 87 AD, (Angus *et al*., 1962, Pitts and St. Joseph 1985). Over a million nails were buried in an underground pit and it is estimated that the total mass of iron recovered from the site was around 10,000 kg. Only the nails on the outside have corroded and the iron oxides that formed self-sealed the remaining nails from intruding groundwater and oxygen. As a result, the vast majority of the nails experienced minimal to no corrosion over close to 2,000 years. The corrosion experienced by these anthropological artefacts reflects the corrosion of native iron in basalt discussed by Helmuth (1991). This again provides further evidence that iron alloys under moist low-oxygen conditions can survive for thousands of years with minimal corrosion, similar to the conditions that are expected to be seen by the steels in the NPDDF.

Many archaeological iron weapons have been discovered in good condition even after burial for many centuries in soil, even in corrosive environments, due to the protective properties of the layers of corrosion products formed on the surface (Jegdić *et al*., 2011). Iron buried in soil normally experiences corrosion due to chemical and electrochemical effects. Figure 4.1-1 is a Pourbaix diagram for iron and water showing how iron is affected by corrosion depending on pH and electrical potential. The hatched areas show the regions where iron corrodes, the lower part of the diagram is where iron is thermodynamically stable and the remaining passive area is where insoluble corrosion products form and provide a protective layer to the iron preventing further corrosion. For the NPDDF, the steel components in the facility experience high pH from the grout used to backfill the facility. Under these alkaline conditions it is expected that the steels will be in the passive region and will be protected from corrosion due to the passivation layer formed on the metal surface. Jegdić *et al.*, (2011) discuss the corrosion of iron archaeological artefacts in soil, and how contact with oxygen is required to accelerate the rate of corrosion. They also identify that the iron artefacts can have different layers of corrosion produced with the lower oxidation state, next to the metal surface, and the layers of iron compounds with a higher oxidation state in the outer layer. These layers are identified as significantly reducing the corrosion rate of iron in relation to the initial corrosion rate seen at the time of burial of the artefact. This suggests that the iron-based metals in the NPDDF can be expected to resist corrosion for long periods of time due to the exclusion of oxygen and the highly alkaline conditions arising from grouting of the facility.

Figure 4.1-1 Pourbaix Diagram for Iron and Water (Jegdić *et al*., 2011)



It should be noted that the PostSA TSD accounts for the corrosion of iron-based waste forms and also includes a case with increased corrosion rates to address any residual uncertainty. Based on the above analogues, the steel wastes in the NPDDF can therefore be expected to take thousands of years to corrode as they experience similar conditions to the examples discussed above. This correlates well with the predicted time of 30 000 years for the stainless-steel components of the waste form to corrode, and provides confidence that the NPDDF will perform as expected.

4.1.2.2 Lead

There is a significant quantity of lead associated with shielding at NPDWF. There are also minor amounts associated with lead paint. Much of the shielding lead is part of the NPDWF structure itself, e.g., lead has been used as shot infill in voids and lead lining of doors and walls to provide shielding during the operational phase of the NPD reactor. The gradual dissolution of lead is modelled conservatively in the PostSA TSD, assuming solubility control of its release. No credit has been taken for the corrosion rate of lead.

Lead has been used in antiquity for weights, pipes, cladding, etc., and many such artefacts have survived over the years. Recent dating of lead artefacts has shown that such artefacts undergo very slow corrosion when buried in soils with pH>6.5 (Reich *et al.*, 2003). The annual corrosion rate of lead artefacts inferred from the work of Reich *et al*. is about 0.1 micron. These corrosion rates are similar to that seen for iron and thus it will take many thousands of years for the lead to fully corrode. Reich *et al*. (2003) also identify that

the lead corrosion products are mostly lead oxide, lead carbonate and lead hydroxides all of which are sparingly soluble in water at room temperature. While no credit has been taken in the PostSA TSD model for the lead corrosion rates, the low corrosion rates seen in historical lead artefacts under alkaline conditions (such as that seen for the NPDDF) show that the model is conservative and that lead can be expected to remain in the NPDDF for thousands of years. Further to this, the low solubility of lead corrosion products associated with the archaeological artefacts gives confidence that the lead in the NPDDF will only be released sparingly into the environment over thousands of years.

This analogue provides credibility to the conservative nature of the lead dissolution model.

4.1.2.3 Concrete / Grout / Cement

The NPDWF structure includes concrete walls. The proposed in-situ disposal activities include removing the above ground structure and placing redundant materials and demolition waste into the below grade structure. The below grade structure will be sealed by grouting. The PostSA TSD assumes that the grout will gradually degrade as the cement constituents are slowly leached out upon contact with groundwater.

A site that has been extensively studied and discussed as an analogue for cement evolution, cement-rock interaction (and radionuclide behaviour) in radioactive waste repositories, is Maqarin, Jordan (Linklater 1998, Smellie 1998, and Baker *et al*., 2002). An overview of the site and its main features is presented by Savage (2011).

The Maqarin site is located on the south side of the Yarmouk valley in northwest Jordan and lies on the border with Syria, ~16 km north of the city of Irbid and 25 km east of the River Jordan. The hyperalkaline groundwaters in the area are the product of leaching of highly bituminous siliceous limestones. The interaction of the high-pH waters and the surrounding rock at Maqarin provides an analogue for the ‘alkaline disturbed zone’ expected in the bedrock downstream from the NPDDF.

The alkaline groundwaters emanating from the ‘Cement Zone’ rocks flow through fractures in the adjacent sedimentary strata, to discharge through loose, unconsolidated sediments and gravels in a series of springs along the floor of the Yarmouk valley. Extensive deposits of travertine (mineral spring deposits) are formed at the spring discharge points as the $Ca(OH)_2$-saturated groundwaters interact with atmospheric CO_2. Maqarin is relatively well fractured and subject to high hydraulic gradients. Moreover, the host rock is a clayey limestone, rather than a true mudstone, such as those considered for deep geological disposal systems. The principal alteration products at Maqarin includes: ettringite and thaumasite (and ettringite-thaumasite solid solutions); calcium-silicate-hydrate (C-S-H) gels; poorly-crystalline or amorphous ‘zeolitic composition’ or calcium aluminosilicate hydrate (C-A-S-H) gels. For the NPDDF, the blast furnace slag cements used in the grout to backfill the interior of the facility share a number of similarities with the Maqarin analogue. The NPDDF is situated in a hydraulic gradient, in an area of disturbed and fractured bedrock and in a hyperalkaline environment as a consequence of the grout and cement. The use of blast furnace slag also mimics the chemistry of the alteration products seen at the Maqarin site, e.g. C-S-H and C-A-S-H gels, and ettringite and thaumasite are observed to form in slag blended cement concretes. Therefore, the chemical performance, some of the concrete degradation phases and robustness of the NPDDF grout can be compared to the Maqarin site.

Studies at Maqarin have demonstrated significant reduction in the matrix porosity of the rock, gravel and sediments through cementation with gels and zeolites. These observations suggest that reactions occurring in a repository in aluminosilicate-rich rocks will therefore tend to produce sealing and reduction in porosity. Observations at Maqarin also show that interaction with alkaline groundwater can produce narrow (1-5 mm wide) zones, adjacent to fracture walls, in which the microporosity is enhanced by the dissolution of calcite and dolomite. These alteration zones are complex and include areas where the porosity is reduced by secondary calcite cementation. There is evidence for both repeated fracture sealing operating on timescales of tens to hundreds of years and for the long-term stability of newly formed minerals measured in thousands of years.

Fracture sealing may occur extensively and over short timescales with calcic fluids (over tens to hundreds of years). Many modeling studies of the Maqarin analogue have been undertaken (Shao *et al*., 2013, Steefel and Van Cappellen 1990, Martin *et al*., 2015, and Watson *et al.*, 2016). The models broadly suggest fracture sealing, but this process is complex and is dependent upon a range factors and modeling assumptions such as: rock composition (mineralogy, grain size, porosity); groundwater composition and flow rates; and mineral reaction kinetics.

Milodowski *et al*. (1989) also include Maqarin in their “catalogue of analogues”, where they focus on the longevity of calcium-silicate-hydrate phases, which are primary constituents of cementitious materials. It is noted that a wide variety of hydrated CSH minerals and gels are present, minerals include tobermorite, jennite and afwillite, along with calcium-alumino-sulphates and silico-sulphates such as ettringite and thaumasite, with waters present having a pH as high as 12.9. Milodowski *et al.* (1989) suggest that C-S-H and C-A-S-H minerals and gels are able to persist for tens to hundreds of thousands of years. When reaction does occur, the formation of ettringite and thaumasite leads to fracture sealing.

The main conclusion of these studies is that the alkaline plume will generally seal fractures by forming secondary minerals with positive reaction volumes that precipitate in fractures. Plugging of porosity was also established in recent modelling studies investigating these sites. Concrete or grout made with blast furnace slag cement, such as that used in the NPDDF, sets more slowly than concrete made with ordinary Portland cement, depending on the amount of slag in the cementitious material. It also continues to gain strength over a longer period and parts of the grout using blast furnace slag can remain unreacted for long periods of time. This means that the grout used in the NPDDF will seal fractures in the grout and continue to cure unreacted material when groundwater reaches it forming C-S-H, C-A-S-H gels and other minerals. This process is analogous to the processes at work at the Maqarin site and gives confidence that the NPDDF grout and concrete can conservatively perform their barrier functions on the order of a thousand years as described in the Amber model.

Studies of natural cements suggest that these materials are very durable. For example, ~2 million years old natural cements were found in northern Jordan (Alexander 1982), and natural cements that were produced ~58 million years ago were reported in Northern Ireland (Savage 2011). It is interesting to note that these natural cements stayed impermeable within tectonically stable systems. However, if accessed by groundwater through structural damage caused by events such as tectonic activity, these systems tend to reseal with secondary calcium silicate minerals or carbonates (Linklater 1998, Cramer 1994). This is

directly analogous to the concrete used in the NPDDF which has many similarities to natural cements and should be able to reseal itself due to the chemical species and processes at work within the concrete reacting with groundwater that is able to make its way into the facility.

The natural cements have also been exposed to a range of conditions and cannot be narrowed down to a specific set of conditions especially when considering time frames spanning 58 million years, which encompasses multiple periods of climate change and the effects of continental drift. Temperature is usually constant at depths beyond 5 m reflecting the mean earth temperature and therefore it can be considered that climatic effects due to temperature variations can be ignored between the NPD facility and the natural analogues. Due to the depth of the calandria (greater than 5 m) in the NPDDF temperatures are expected to be relatively constant over a period of thousands of years. Of most interest is the effect water has had on the natural cements which have demonstrated their ability to reseal, showing that it is possible to safely contain the wastes for extremely long durations under less than favourable conditions, and again is analogous to the NPDDF grout. In addition to this the NPDDF grout, as it is in direct contact with the building concrete, will be able to provide chemical species that can also assist in sealing cracks formed in the concrete.

The NPD grout fill will be 90% blast furnace slag which is a pozzolanic material, similar to the volcanic ash used in the Roman cements. The pozzolanic cements developed by the Romans in the 3rd century BC or those used in Tiryns and Mycenae, around a 1,000 years earlier (Middleton 1998) are analogues that show that cements can last for over 2,000 years with little degradation. Recent studies of Roman cements, even those exposed to saline water (e.g., marine environment) demonstrate little degradation over approximately 2,000 years (Milodowski *et al.*, 1989, Oleson *et al*., 2004), and Vola *et al*., 2011).

Ancient anthropological cements show that even under conditions where weathering, ultraviolet radiation, large temperature changes and exposure to harsh conditions such as seawater occurs it is possible for manmade materials to survive for hundreds if not thousands of years and still maintain their integrity. The cements and grouts used in the NPPDF are subjected to less harsh conditions than the Roman/Tyrinian cements. Even though there are chemical differences between these cements and the grouts and cements used in the NPDDF they can provide confidence that cements can survive for long periods of time intact. It can be conservatively inferred from the performance of these natural cements that the NPDDF grout can survive and perform its required barrier functions for around a thousand years.

It should be noted that the PostSA TSD also considers a case with high grout permeability and a hypothetical case with no grout at all to bound implications of any uncertainty in the grout material properties over time.

4.1.2.4 The Concrete Cap

The NPDDF will have a reinforced concrete cap and a multi-layered engineered barrier emplaced over it at closure. The concrete cap is to divert water away from the facility to reduce the flushing out of contaminants, in particular tritium and in the longer term provides a barrier to human intrusion. The PostSA TSD assumes that the cap starts to degrade 100 years after its emplacement and is assumed to have fully degraded (in terms of hydraulic performance) by 1,000 years after decommissioning is complete.

Natural cements are considered to be close to ordinary Portland cements. These natural cements have shown themselves to be very durable over extremely long timescales up to millions of years in some cases, even when in contact with water. The concrete cap will be protected under the engineered cover, protected from frost, and will not be exposed to chemical species such as chlorides that can attack and damage concrete. The engineered cover will reduce contact with water and the surface drainage features will divert water away from the concrete cap. Therefore, during the first hundred years of its life the concrete cap will exist under ideal conditions. Following this initial period, it will gradually degrade over the next several hundred years. Considering the long-term durability of natural cements that are similar to the ordinary Portland cements used in the concrete cap, and the initial protective conditions provided by the engineered barrier it can be assumed that cap is unlikely to experience much degradation in the first several hundred years of its lifetime. The 1,000-year time period used in the PostSA model during which the concrete is assumed to fully degrade is therefore considered conservative.

4.1.2.5 Engineered Cover System

The NPDDF engineered cover system is a multi-layer barrier including topsoil or clay loam, clay liner, coarse sand, crushed rock, geotextile and an earth mound. The mound will be graded and surface drainage features added to capture and direct water away. These structures will be engineered to provide multiple barriers to inflowing water but will ultimately degrade. The cover will be graded to promote surface water run-off. While the final cover is designed with the best engineering practices, specifically with the NPD site characteristics in mind, it is assumed that these barriers will eventually degrade.

The design life of the engineered cover is 100 years and after this period the PostSA TSD assumes that the engineered cover starts to degrade. Anthropogenic analogues provide support for the possibility of using a cover structure made up of fine material such as clay, followed by coarse material and soil to keep the NPDDF dry for a long period of time (Fayek and Brown 2015). Thus, ancient tombs with wooden coffins have stayed dry, when covered by such layers, for ~1,300-1,500 years and are generally well preserved (USGS 2010 and Watanabe 1989).

These anthropogenic analogues provide credibility to the conservative nature of the assumptions in the PostSA TSD and indicate that the engineered cover should survive significantly beyond its 100-year design life.

4.1.2.5.1 Existing Earthen Mounds / Anthropogenic Analogues

Areas covered by earthen mounds acting as covers, have been built by humans for thousands of years. Several of them still exist today, demonstrating that earthen mounds can be constructed to withstand thousands of years of natural evolution and weathering effects. Furthermore, the existence of these structures today demonstrates that humans are able to recognize human-made structures and are willing to leave them relatively undisturbed for centuries. This section describes several human-made earthen mounds in existence today and supports the idea that a facility near the surface can be constructed to last thousands of years. It can be seen from the examples give below that earthen mounds have many similarities to the NPDDF engineered cover. There are many examples of earth mounds that have survived for time periods up to thousands of years in similar environmental conditions to that expected to be

experienced by the NPDDF. These examples show that an engineered cover constructed mostly of natural materials can provide weathering protection to the grouted facility significantly in excess of the 100-year design life of the engineered cover. This again demonstrates the conservatisms used in the PostSA TSD and gives confidence that the NPDDF design is likely to perform significantly better than the PostSA model predicts.

Newgrange, Ireland

Newgrange is a type of tomb known as a passage-grave, located in Meath, Ireland. Constructed in about 3000 Before Common Era (B.C.E), (5,200 years ago), it is older than Stonehenge and the Great Pyramids of Giza (O'Kelly 1982). The mound is 76 meters across, 12 meters high, and covers 1.1 acres (4,047 m^2)of ground. It is completely constructed of natural materials, built of alternating layers of earth and stones. The cover contains medium sized pebbles, 15-22 cm across. The Newgrange structure demonstrates that a large earthen mound can be built out of natural materials and remain undamaged by the effects of the environment for over 5,000 years.

Newgrange's location in Ireland is a particularly good comparison to the climate near the NPDDF, specifically the amount of precipitation received. Meath, Ireland receives about 73 cm of precipitation per year weather-and-climate.com, (available online), compared to the nearby Chalk River's 86 cm per year.

Sutton Hoo, England

Sutton Hoo is a burial site located at Sutton, in Suffolk, England. Earthen mounds dating to the 6^{th} and 7^{th} centuries were discovered at this site. There are approximately 20 earthen mounds that were used as cemeteries, and a large mound containing an entire ship-burial (Claude and Bruce-Mitford 1977).

The ship contained in the mound was found to be about 27 meters long. While the wood of the ship did not survive, nearly all of the iron planking rivets were in their original places.

Many metallic objects were recovered during the site investigation of Sutton Hoo: helmets, bowls, spoons, weapons, and armour. While the items had corroded with time, the findings support the idea that water ingress into the ship burial mound was minimal over many hundreds of years. The similarities between this barrow and the NPDDF, i.e. an earthen mound covering metal artefacts, show that the metals in the NPDDF can remain in place in excess of a 1,000 years in wet conditions.

Serpent Mound, USA

The Great Serpent Mound is a 411 m-long, about 1 metre high, 20-foot (6 metre) wide effigy mound located in Adams County, Ohio. Carbon dating suggests that it was constructed around 300 B.C.E, making the mound over 2,000 years old. It likely served a mortuary function, directing spirits of the dead from burial mounds northward. The Great Serpent Mound still exists today, demonstrating that human-made mounds such as the NPDDF can be constructed to persist thousands of years (Romain *et al*., 2017) under similar environmental conditions to the NPD site.

Burial Mounds of British Columbia, Canada

There are many burial mound sites identified in British Columbia (Thom 1995, Pickford 1947). A selection of them are described here, to demonstrate that earthen mounds can exist undisturbed for over a thousand years, even in the wet climate of British Columbia.

The Scowlitz site is located at the confluence of the Harrison and Fraser Rivers, and was historically the base of an important transportation route from the Fraser River valley to the Lillooet River valley (Thom 1995).

There are 42 visible burial features found at the site, dating between 1,600 and 1,100 years old. The mounds vary in size and form. The largest mound is 12 m on each side of the rectangular base, reaching a height of 3 metres. At the center of the mound is approximately 500 boulders, sitting on a thin layer of clay. Beneath this rock layer are the well-preserved remains of an adult male. Radio-carbon dating for this mound indicates an age of about 1,300 years.

Items found preserved in these mounds include clam shell bowls, knives, worked quartz, stone pendants, composite harpoons, copper objects, and granite bowls.

Monks Mound, USA

Monks Mound is the largest Pre-Columbian earthwork in the Americas and the largest pyramid north of Mesoamerica. The beginning of its construction dates from 900-955 CE. Located at the Cahokia Mounds UNESCO World Heritage Site near Collinsville, Illinois, the mound size was calculated in 1988 as about 100 feet (30 m) high, 955 feet (291 m) long including the access ramp at the southern end, and 775 feet (236 m) wide, resulted in area of 6.9 (69,000 m^2) hectares (Skele 1988).

This makes Monks Mound roughly the same size at its base as the Great Pyramid of Giza (5.3 hectares or 53,000 m^2). The geotechnical site characteristics of the mound have been studied extensively and reported in Scilling (2012), with the purpose of understanding construction methodology. Surficial geology and seismic hazards are also available in Grimley *et al.* (2007) and Williams (2009). The level of seismic hazard at the Monks Mound site is comparable to the NPD site.

The existence of Monks Mound demonstrates that man-made structures, built using earth materials, can last longer than 1,000 years, even with limited construction methods and engineering knowledge.

4.1.2.5.2 Site Specific Characteristics Comparison

When discussing natural analogues, it is important to also compare the local climate and seismic characteristics, as these are the most important factors affecting the long-term performance of a facility on the surface. Table 4.1-1 below compares the annual yearly precipitation and peak ground acceleration (pga) at each of the sites. The pga shown in the table corresponds to a 2% probability of exceedance in 50 years. The NPD site characteristics are comparable to the other sites, especially those with coastal climates. Canadian seismic data are from the National Building Code Canada, American seismic data is from Applied Technology Council (available online), and weather data is from NOAA (available online). It

should also be reiterated that the grouted facility is protected beneath the engineered cover, and that the majority of the waste is at least 10 m below grade in bedrock. At these depths, the facility is below the frost line and at depths below 5 m the ground temperature remains relatively constant. Therefore, seasonal temperature changes will not have an effect on the grouted facility or the wastes it contains.

Table 4.1-1 Comparison of Seismic and Precipitation Data

Site	pga (g)	Annual Precipitation (mm)
NPDWF, ON, Canada	0.253	852
Chalk River, ON, Canada	0.25	852
Newgrange, Ireland	<0.05	730
Sutton Hoo, England	<0.04	523
Adams County, Ohio (Serpent Mound)	0.079	~1129
Scowlitz, BC, Canada	0.222	~1000+
Monks Mound, IL, USA	0.265	~980

4.1.2.6 Conclusion

Natural analogues are natural or anthropogenic features that are similar to the features being assessed (e.g., isolation and containment). For the NPDDF, some of the examples of natural analogues include:

- Iron-based materials: The PostSA assumes that the inventory embedded in iron-based materials is released gradually. Reports of corrosion of iron-based archaeological artefacts, native metals and meteorites from various locations under a wide range of environmental conditions (Johnson and Francis 1980) were consistent with the assumed range of corrosion in the PostSA.
- Lead: There is a significant quantity of lead associated with shielding at NPDWF. Lead has been used in antiquity for weights, pipes, cladding, etc. and many such artefacts have survived over the years. Recent dating of lead artefacts has shown that such artefacts undergo very slow corrosion when buried in soils with pH greater than 6.5 (Reich *et al.*, 2003). This provides credibility to the results of the lead dissolution model in the PostSA.
- Concrete/grout/cement: The PostSA assumes that the grout will gradually degrade as the cement constituents are slowly leached out upon contact with groundwater. The cement being considered for the NPD Closure Project is similar to early cements used in the 3rd century and approximately 1,000 years earlier (Middleton 1888). These cements demonstrate little degradation over approximately 2,000 years (Cramer 1994, Oleson *et al.*, 2004, Vola *et al.*, 2011).
- The concrete cap: The PostSA assumes that the concrete cap starts to degrade 100 years after its emplacement and is assumed to have fully degraded (in terms of hydraulic performance) by 1,000 years after closure. The long-term durability of natural cements that are similar to the ordinary Portland cements used in the concrete cap, suggest that the cap is unlikely to experience

much degradation in the first several hundred years of its lifetime and that the 1,000-year degradation time period (for the cap) used in the PostSA model is conservative.

- Engineered Cover System: Ancient tombs with wooden coffins have stayed dry when covered by such layers for approximately 1,300 to 1,500 years and are generally well preserved (USGS 2010; Watanabe 1989). These analogues provide support for the use of a multi-layer engineered cover to keep the NPDDF dry for a long period of time (Fayek and Brown 2015) and provide credibility that the engineered cover should survive significantly beyond its 100-year design life. Thus, the assumptions used in the PostSA TSD regarding the cover system are conservative.

The use of natural analogues to support long-term safety assessment models has its limitations. In particular, the materials and environmental conditions involved are somewhat different in the analogue compared to the NPDDF and its environment. In addition, the purpose of the man-made natural analogue structures are not always the same – many are burial sites, not disposal facilities. This is typical of natural and anthropogenic analogues. Therefore, the above examples are used as additional lines of evidence that does not replace the safety assessment. Nonetheless, these examples support the concepts of the long-term containment provided by the engineered barriers of the NPDDF and illustrate similar long-term behaviour of natural and anthropogenic systems. The above examples also show that the NPDDF barrier functions can be maintained and their required lifetimes achieved. It can also be inferred from the analogues that the PostSA has been conservative in its assumptions and that the barrier functions can be expected to perform for time durations significantly in excess of the modelled design.

4.2 Alternative Means of Carrying out the Project

4.2.1 Introduction

4.2.1.1 Objective

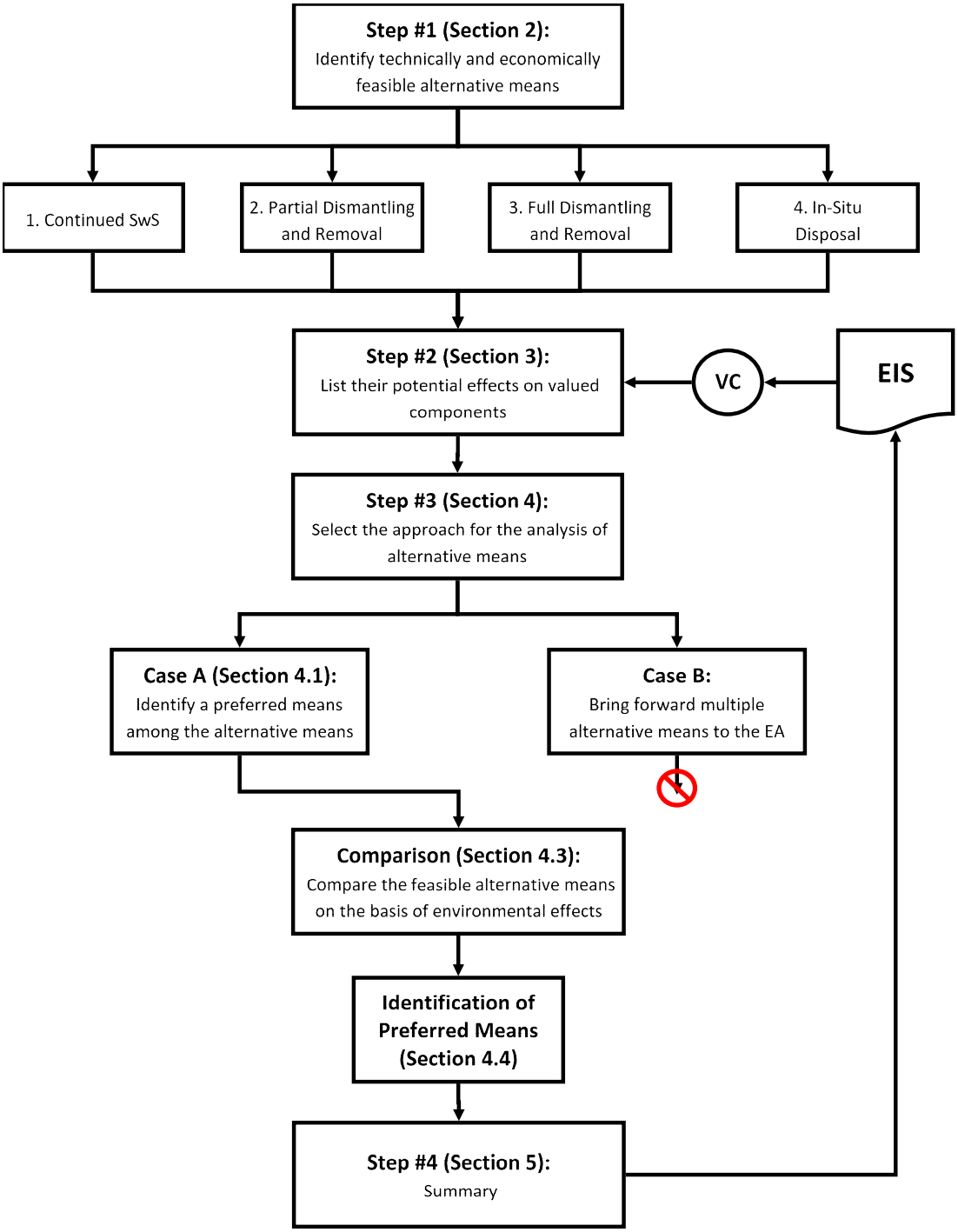
The closure of the NPDWF has been proposed using the in-situ disposal approach triggering an Environmental Assessment. An AMA is a required input to the EIS as defined in the *Canadian Environmental Assessment Act* (2012), the CNSC "Generic Guidelines for the Preparation of an Environmental Impact Statement" (2016), REGDOC-2.9.1 (2020a), and the CEAA Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" under the *Canadian Environmental Assessment Act*, 2012 (2015). The AMA TSD provides the AMA for the closure of the NPDWF. The objective of the AMA TSD is to provide a qualitative analysis of the environmental risks (including human health) of alternative techniques, as specified in the Project Description (Titterington 2016), as well as quantitative analyses of dose and injury to workers. The AMA TSD uses the temporal boundaries used in this EIS for the comparison across alternatives.

4.2.1.2 Approach

Figure 4.2-1 shows the overall structure and approach used in this assessment. This structure follows the *CEAA Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" under the Canadian Environmental Assessment Act*, *2012* (CEAA 2015).

The potential impacts of each alternative on each VC group, through the environmental components, are assessed qualitatively and compared.

Figure 4.2-1 Alternative Means Flow Chart



Following the CEAA Operational Policy Statement (CEAA 2015), the first step is to identify technically and economically feasible alternative means. This includes the selection of feasibility criteria and the definition of the alternative means. Following this, the assessment of the alternative means against the criteria is presented to determine which alternative means are technically and economically feasible, and should be carried through to the next step. This information is presented in Section 2 and the four alternatives can be seen on the flow chart.

These alternatives feed into the second step, which is to list the potential effects on VCs. The VCs assessed are listed by environmental component in Section 3.1. Finally, a set of interaction matrices, which show the potential impact of each alternative means on the environmental components, can be found in Section 3.2.

This information then feeds into step three, where the analysis approach moving forward is selected. Section 4.1 explains that CEAA "Case A" is being pursued for this project. A methodology is then explained in Section 4.2, which will structure the analysis performed. Following this, in Section 4.3, the four alternative means are assessed and compared for their effect on the key VCs. Additionally, in Section 4.3.6, a quantitative analysis of radiological dose and injury to workers was undertaken. Based on the environmental impacts and the effects on the VCs, a preferred means can be selected.

4.2.2 Identification of Feasible Alternative Means

The alternative means for closure that are provided in the Project Description and have been considered for this project are (AMA TSD):

1. Continued Storage with Surveillance;
2. Partial Dismantling and Removal;
3. Full Dismantling and Removal;
4. In-Situ Disposal.

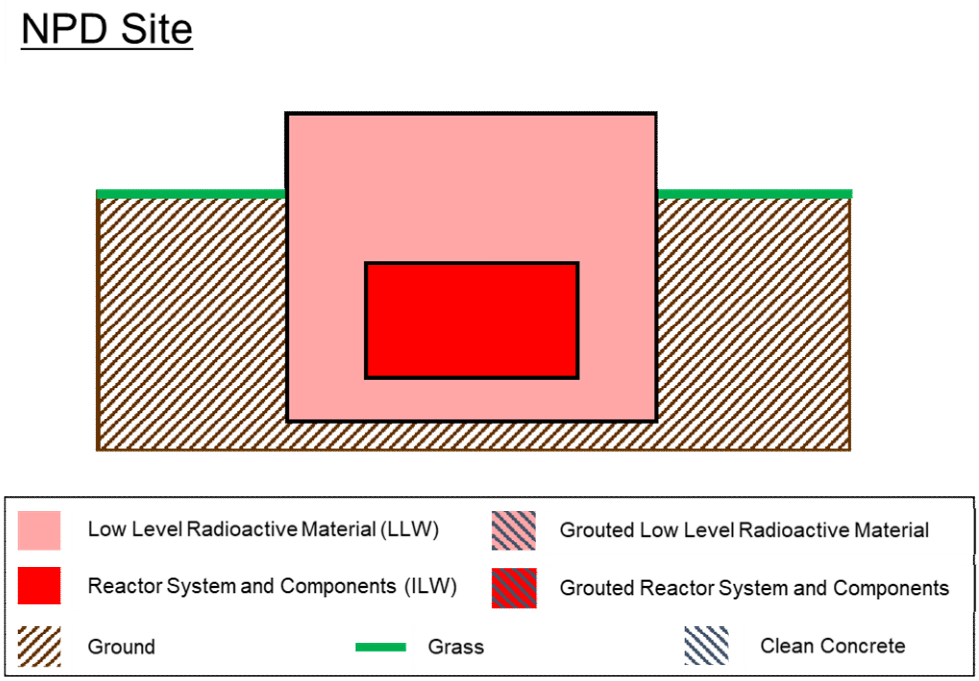
Each of these four alternative means is described in more detail below, along with a pictographic representation of the approach. The legend for the pictographs can be found directly below.

1. Continued Storage with Surveillance (SwS)

"Continue with a deferred decommissioning approach which includes maintaining the NPDWF in the Storage with Surveillance phase to allow for further radioactive decay." (Titterington 2016)

For this analysis it has been assumed that this approach involves continuing to defer decommissioning by maintaining the NPDWF in the SwS phase, thereby allowing for further radioactive decay. This will involve continued maintenance, monitoring and yearly reporting in the form of annual compliance reports (ACRs). Specific activities may change over time as the state of the facility changes.

Continued SwS serves as a baseline case against which the other alternative means are compared.

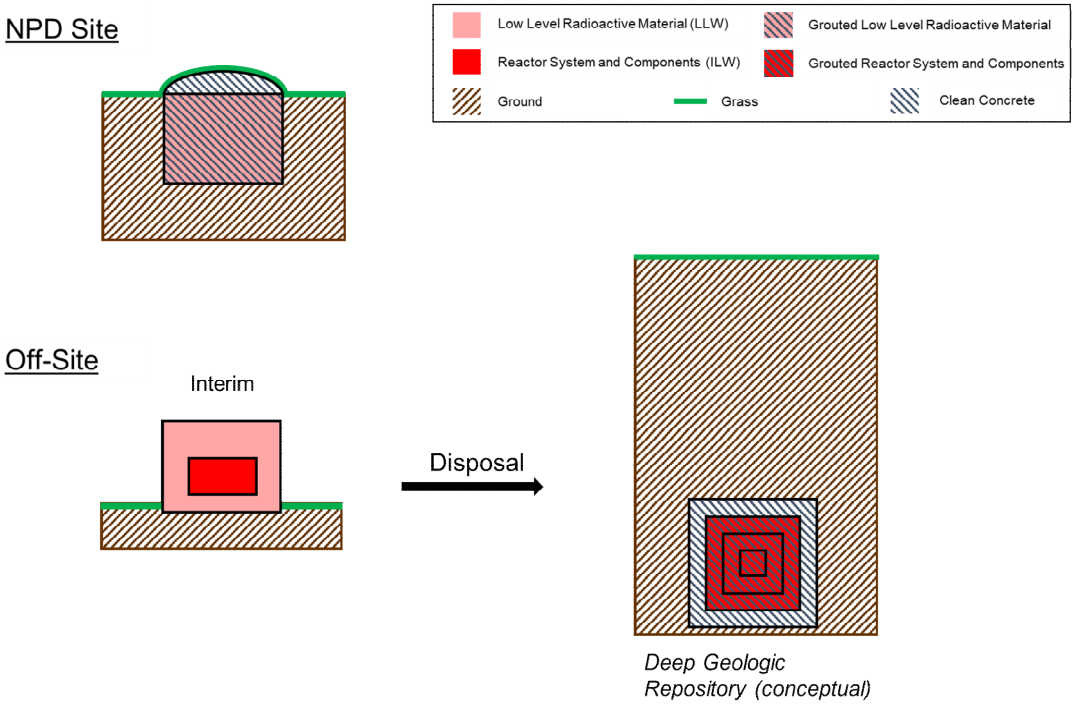

NPD Site
Low Level Radioactive Material (LLW)
Grouted Low Level Radioactive Material
Reactor System and Components (ILW)
Grouted Reactor System and Components
Ground
Grass
Clean Concrete

2. Partial Dismantling and Removal

"Partial removal of the source term (i.e., reactor systems and components) for interim storage at the Chalk River Laboratories (CRL) site until the waste undergoes final disposal at the CRL site. The remaining facility systems, structures and components will remain in situ." (Titterington 2016)

This alternative means is a combination of the in-situ disposal and full removal alternatives and involves removal of the reactor system and components. The feeders, pressure tubes, calandria tubes, calandria and associated bioshielding will be removed, and the fuel handling room will be decommissioned. This waste would be packaged in containers for transport and storage. This waste would be temporarily stored at the CRL site, prior to final disposal. It is assumed that a disposal facility for ILW will become available at CRL at some point during the Institutional Controls phase. Activities associated with the construction of such a facility are not considered in this assessment; only disposal-related activities (e.g., transportation, handling, emplacement) are considered. The remaining facility systems, structures, and components will remain in-situ, and will be decommissioned in the same manner as for "4. In-Situ Disposal". The above ground structures will be demolished, and the rubble emplaced in the below grade structures prior to grouting. A concrete cap and engineered cover would cover the facility and the surrounding area would be remediated. The stack would remain intact to continue serving as a habitat for chimney swifts.

During the Institutional Controls phase, surveillance, inspection, maintenance, and monitoring activities will be undertaken at the NPD site. These activities will include inspection of the integrity of the disposal facility, i.e., concrete cap and engineered cover, and maintenance such as re-grading and removing trees and deep-rooted plants. The specific monitoring activities would be developed in compliance with applicable CSA N288 series documents for groundwater, effluent, and environmental monitoring.



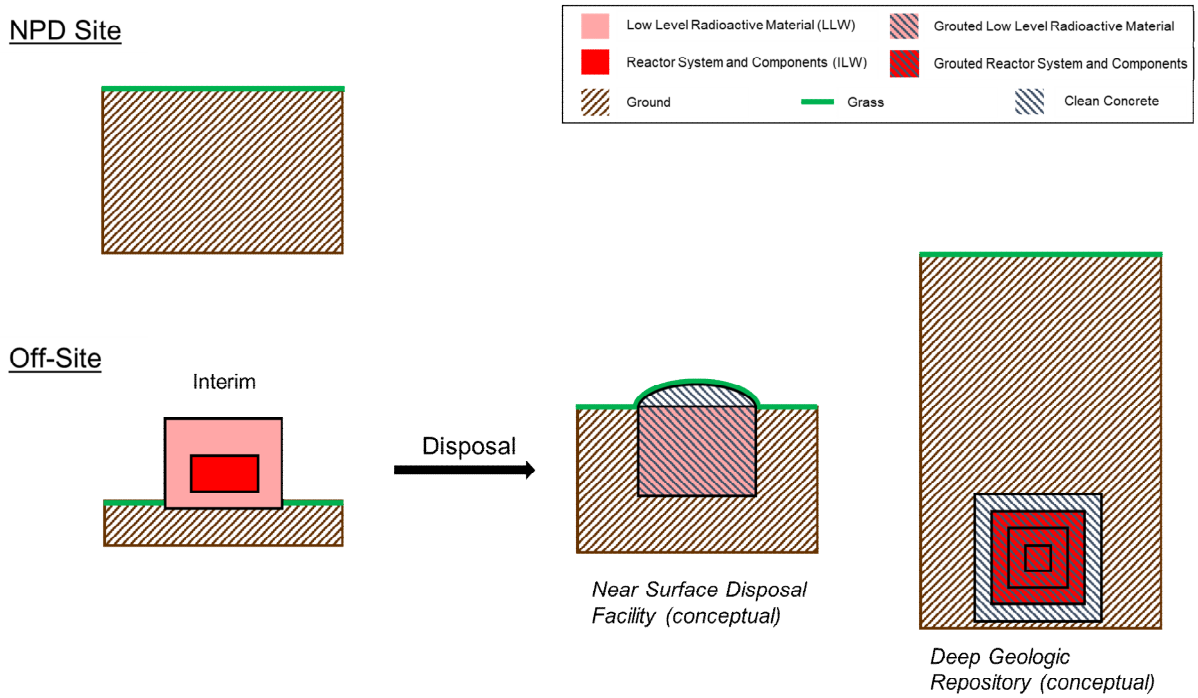
3. Full Dismantling and Removal

"Full dismantling and removal of all systems, structures and components for interim storage at the CRL site, until the waste undergoes final disposal at the CRL site." (Titterington 2016)

For this analysis it has been assumed that this alternative means involves removing all radioactive material from the site and storing it temporarily at CRL, until a final disposal location is available. It is assumed that disposal facilities for both low-level waste (LLW) and intermediate-level waste (ILW) will become available at CRL during the Institutional Controls phase. The activities associated with the construction of these facilities is not in the scope of this assessment; only the disposal-related activities (e.g., transportation, handling, emplacement) are considered.

All structures on-site would be demolished and removed from the site, along with any nuclear or hazardous waste. This would include the removal of the reactor and the associated systems. The site would be remediated following the removal of all structures. It has also been assumed that the waste will be stored in containers within a building due to the lack of a disposal facility at the time of waste removal.

During the Institutional Controls phase, it is assumed that minimal surveillance, inspection, and maintenance activities will be undertaken at the NPD site. It is expected that monitoring activities will continue to demonstrate the enhancement of the site following removal of the facility. Similarly, monitoring of the chimney swift population and use of the roosting structure will be required. General maintenance of the property will also be required (e.g., surface condition of roads and landfills).

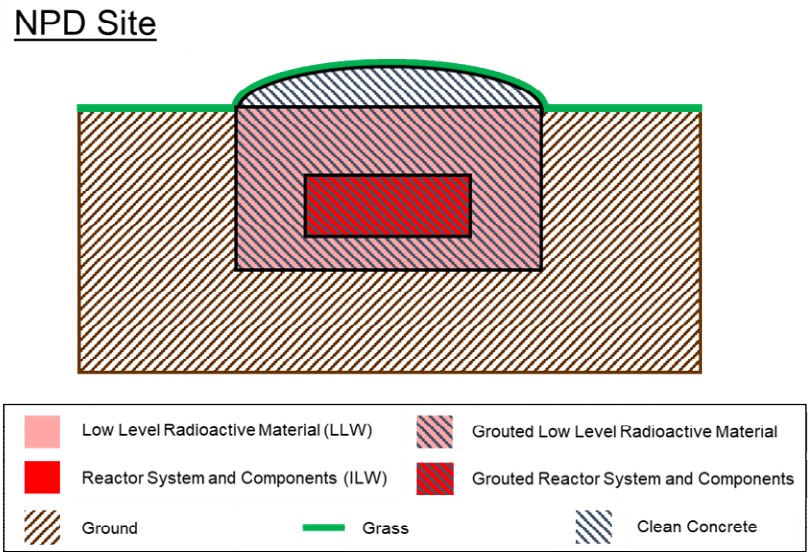


4. In-Situ Disposal

"In situ disposal where the source term will be isolated inside the below grade structure and systems to allow for continued radioactive decay." (Titterington 2016)

For this analysis it has been assumed that this alternative means involves grouting the reactor and associated systems in place within the building as a means of decommissioning. The above ground structures will be demolished, and the rubble will also be grouted within the below grade structures. The stack would not be demolished, as it will be left as a habitat for chimney swifts. Finally, a concrete cap and engineered cover would be placed over the facility to close it and the site will be remediated.

During the Institutional Controls phase, surveillance, inspection, maintenance, and monitoring activities will be undertaken at the NPD site. These activities will include inspection of the integrity of the disposal facility, i.e., concrete cap and engineered cover, and maintenance such as re-grading and removing trees and deep-rooted plants. A proposed follow-up monitoring program has been developed in compliance with applicable CSA N288 series documents for groundwater, effluent, and environmental monitoring to be undertaken during both the Decommissioning Execution and Institutional Controls phases.



4.2.3 Feasibility

The CEAA Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2015) identifies that the first step in performing an AMA is the identification of technically and economically feasible alternative means. In order to do this two sets of feasibility criteria were developed to aid in determining which alternative means to carry through the assessment.

This AMA TSD assesses four alternative means over three different timeframes. In this way, aspects of sustainability over the expected life of the waste are inherently considered. Therefore, explicit criteria related to sustainability are not required.

4.2.3.1 Technical Feasibility

In order to determine the alternatives that will be carried through the AMA, the four alternative means that have been identified must be assessed against the feasibility criteria.

The criteria that are used to assess the technical feasibility of the alternative means are:

- Reliable Technology, i.e. does the alternative means use a previously demonstrated technology?
- Regulatory Compliance, i.e. does the alternative means meet regulatory requirements?

Table 4.2-1 below shows the assessment of the four alternative means against the technical feasibility criteria.

Table 4.2-1 Technical Feasibility Assessment

Alternative Means	Assessment of Feasibility	Criteria Met?
Reliable Technology, i.e., does the alternative means use a previously demonstrated technology?		
1. Continued SwS	Storage with Surveillance (SwS) is the current operating state. For the Decommissioning Execution timeframe, the techniques and technologies used will not change from those that have already been successfully demonstrated. For the Institutional Controls timeframe, as time passes, and the facility continues to age and degrade, the task of maintaining the facility will become increasingly more complex, but feasible based on CNL experience at Chalk River Laboratories (CRL). In the Post-Institutional Controls timeframe, given the uncertainty in the end state of this alternative means, institutional control will be required indefinitely, unless a disposal approach can be found. This is deemed feasible, albeit, complex.	Y
2. Partial Dismantling and Removal	As a combination of aspects from the alternatives "3. Full Dismantling & Removal" and "4. In-Situ Disposal", this alternative will use the same demonstrated technologies as described for those alternative means.	Y

Alternative Means	Assessment of Feasibility	Criteria Met?
3. Full Dismantling and Removal	During the Decommissioning Execution phase, the removal of components from the facility is not a new technology and has been performed in the past. Transfers of waste are routinely done in Canada i.e. from OPG's reactor sites to their Western Waste Management Facility. This alternative means uses the technology and approaches demonstrated through these past works. During the Institutional Controls phase, interim storage of waste at the CRL Site will involve monitoring and maintenance as needed. The eventual disposal of waste will require the development and construction of disposal facilities for both low- and intermediate-level waste. Although quite complex, this is deemed to be technically feasible. During the Post-Institutional Controls phase, maintenance and monitoring activities will be required at the disposal facilities. The complexity of these activities is low.	Y
4. In-Situ Disposal	In-situ disposal has been successfully implemented in a number of locations and projects across North America and the European Union. See Appendix B of the AMA TSD for further information. In the Institutional Controls timeframe, following the closure of the facility, only monitoring will be required, and the waste will be safely within the grouted monolith. In the Post-Institutional Controls timeframe, ongoing institutional control may not be required. As a result, the complexity of this alternative is very low. While there is a potential risk of human intrusion in the long-term, this risk is low because the facility is grouted.	Y
Regulatory Compliance, i.e. does the alternative means meet regulatory requirements?		
1. Continued SwS	Continuing with the existing operations would not require licensing changes and experience with the current regulatory compliance could be applied. However, in the Institutional and Post-Institutional Control phases, there is considerable uncertainty regarding the end state of this alternative, and the potential impacts that could have on the VCs. This uncertainty carries with it a large regulatory risk (e.g., inability to obtain a Licence to Abandon, or similar type of licensing activity). Additionally, the regulatory regime could also change, and a more permanent alternative means may be required.	Y
2. Partial Dismantling and Removal	As a combination of aspects from the alternatives "3. Full Dismantling & Removal" and "4. In-Situ Disposal", this alternative will have similar regulatory compliance consideration as described for these alternative means. This alternative will require an ILW disposal facility; there is regulatory uncertainty associated with both the approval and timing of the availability of such a facility. A Licence to Abandon, or similar type of licensing activity, for the off-site disposal facility would be required to undertake cessation of institutional controls	Y

Alternative Means	Assessment of Feasibility	Criteria Met?
	and would likely be contingent on decommissioning and environmental monitoring results.	
3. Full Dismantling and Removal	During the Decommissioning Execution timeframe, this alternative will require regulatory approval for the decommissioning of the facility, and potentially for transportation of waste to, and interim storage at, a new location. Additionally, removal of the stack would require a replacement habitat to be built for the chimney swifts, however if the swifts do not move to the replacement habitat, there is a risk that CNL would not be authorized by regulators to remove the stack. During the Institutional Controls phase, the eventual disposal of waste will require disposal facilities for both low- and intermediate-level waste. There is some uncertainty with respect to the licensing/approval, as well as the timing of the availability, of these disposal facilities. This uncertainty carries some risk. A Licence to Abandon, or similar type of licensing activity, for the off-site disposal facilities would be required to undertake cessation of institutional controls and would likely be contingent on decommissioning and environmental monitoring results.	Y
4. In-Situ Disposal	During the Decommissioning Execution timeframe, this decommissioning approach will carry some regulatory risk, as it will be the first time this approach has been used in Canada outside of the uranium mining industry. A Licence to Abandon, or similar type of licensing activity, would be required to undertake cessation of institutional controls, which would likely be contingent on decommissioning and environmental monitoring results.	Y

4.2.3.2 Economic Feasibility

The criteria that are used to assess the economic feasibility of the alternative means are:

- Cost, i.e., is the alternative within the financial guarantee limit from Natural Resources Canada (NRCan)?

Table 4.2-2 shows the estimated costs of four alternative means. The costs presented in this table are in Canadian dollars. It is also important to note that none of the costs include off-site storage or eventual disposal costs (for the stored waste). Furthermore, “1. Continued SwS” will require periodic capital investment to replace infrastructure, which has also not been included in the cost.

The primary costs for “2. Partial Dismantling & Removal”, “3. Full Dismantling & Removal”, and “4. In-Situ Disposal” are all during the Decommissioning Execution timeframe. This is because these alternative means all involve increased work in the short term to limit requirement for future interactions. It can be seen that “4. In-Situ Disposal” is significantly less expensive than “2. Partial Dismantling & Removal” or “3. Full Dismantling & Removal”. This is because “4. In-Situ Disposal” does not involve the removal and transportation of any waste.

Table 4.2-2 Overall Project Costs

	1. Continued SwS	2. Partial Dismantling & Removal	3. Full Dismantling & Removal	4. In-Situ Disposal
Cost	$4.5 M/yr. + periodic infrastructure improvement	$70-90 M + storage costs + eventual final disposal costs	$125-150 M + storage costs + eventual final disposal costs	$60-80 M, including institutional control activities

Alternative "3. Full Dismantling & Removal" is the bounding case, as it involves the largest initial investment, and is within CNL's guarantee from NRCan, and therefore economically feasible. Given that the bounding case is feasible, all of the alternative means are therefore feasible.

4.2.4 Analysis of Alternative Means

4.2.4.1 Methodology

The AMA TSD was undertaken for three project phases (see Section 5.2.1.1) and considered each VC. The approach involved comparison of the risk of the alternative means with the risk from current operations of the facility, that is, relative to continued Storage with Surveillance (SwS). This latter risk is evaluated in detail in Athauda-Arachchige (2015) and the specific baseline risks to each environmental component are discussed in the applicable section. The risk for each alternative is evaluated with respect to the VCs identified in the EIS. The assignment of relative risk arrows was based on an understanding of the results of safety assessments (Decommissioning Safety Assessment (DecomSA), PostSA and Ecological Risk Assessment (EcoRA) TSDs) as well as the experience and professional judgement of technical specialists. Although subjective in scale, the arrows in Table 4.2-3 consider aspects such as magnitude, spatial extent, impact to human and non-human biota health. It is important to note that all VCs were assigned equal weighting for the comparison of risk from the different alternative means to baseline. Different project phases are evaluated separately. In addition to the relative environmental risks, this report also addresses absolute environmental risk. Together, these comparisons of environmental risk are used to select a preferred decommissioning technique.

The relative risk was scored qualitatively based on the scale in Table 4.2-3.

Table 4.2-3 Relative Risk Scale

Symbol	Explanation
↑↑ Risk	Alternative is associated with more risk than baseline.
↑ Risk	Alternative is associated with slightly more risk than baseline
≈ Risk	Alternative is associated with approximately same risk as baseline.
↓ Risk	Alternative is associated with slightly less risk than baseline.
↓↓ Risk	Alternative is associated with less risk than baseline.

4.2.4.2 Relative Risk of Alternative Means

The differences between alternatives seen in the Decommissioning Execution timeframe are pronounced. All of the alternatives carry increased risk relative to the baseline case, “1. Continued SwS”. This is due to the increase in activity associated with radioactive materials for each of the options. It can also be seen that while “4. In-Situ Disposal” does have a higher risk than the baseline case, it is lower that the “2. Partial Dismantling and Removal” and “3. Full Dismantling & Removal” for almost all of the environmental components. This is due to the increased extent and effort associated with “2. Partial Dismantling and Removal” and “3. Full Dismantling & Removal”, and therefore increased emissions and risk to the atmospheric and surface water environments. Furthermore, the increased effort results in additional worker dose and exposure, and potential for accidents. Thus, “4. In-Situ Disposal” offers a lower risk to worker health and the environment.

The differences between the alternative means are still pronounced in the Institutional Controls phase. Overall, all alternatives now carry a reduced risk relative to the baseline case, “1. Continued SwS”. Mainly, this is because additional containment provided by these alternatives. This reduction is most pronounced for the “4. In-Situ Disposal” alternative because of the additional containment and isolation of radioactive materials relative to the interim storage in alternatives “2. Partial Dismantling and Removal” and “3. Full Dismantling and Removal”. The dismantling and removal alternatives offer increased containment once the waste is permanently disposed, however in the Institutional Controls phase, this is offset by the increased activity associated with maintenance and disposal activities (e.g., transportation, multiple handling, emplacement).

Finally, in the Post- Institutional Controls timeframe, all alternatives have a reduced risk relative to the baseline case due to the containment provided as part of permanent disposal. In general, there is little difference between alternatives, as all alternatives are considered safe, and would have been subject to a robust regulatory regime to attain approval. The only difference between the alternatives is seen for worker health, as long-term care, maintenance, and monitoring activities are expected to continue into the Post-Institutional Controls timeframe at the off-site disposal locations while radioactive materials are in storage waiting for permanent disposal. When looking at the probability of inadvertent human intrusion into the disposal sites, there is a slight difference between “4. In-Situ Disposal” and the dismantling alternatives “2. Partial Dismantling and Removal” and “3. Full Dismantling and Removal”. The probability of human intrusion is negligibly higher in the dismantling alternatives, due to the need for two disposal sites, instead of one disposal site in “4. In-Situ Disposal”. This difference is negligible because the additional site is a deep geological repository with a very low probability of inadvertent human intrusion.

Table 4.2-4 to Table 4.2-6 below summarize the relative risk assessment undertaken in the AMA TSD for each timeframe. The reader is directed to this TSD for more detail. For the sake of simplicity, the results of the assessment of individual VCs are presented by group. The presentation of risk is inclusive of risks to all VCs within each group.

Table 4.2-4 Summary of Relative Risk for Decommissioning Execution Timeframe

Alternative Means	Atmospheric	Surface Water	Aquatic		Geological and Hydrogeological			Terrestrial		Ambient Radioactivity	Human Health		Traditional Land and Resource Use	Indigenous Socioeconomic & Health	Socio-economic				
	Air Quality & Noise	Site Drainage & Water Quality	Aquatic Habitat	Aquatic Biota (e.g., lake sturgeon, emerald shiner)	Soil Quality	Groundwater Quality	Groundwater Flow	Terrestrial Habitat	Terrestrial Biota (e.g., chimney swift, bald eagle, black bear, eastern milksnake)	External Gamma Radiation	Public Health	Worker Health	Traditional Land and Resource Use (e.g., trapping, hunting, gathering)	Indigenous Socio-economic	Indigenous People	Indigenous Worker	Socio-economic Assets (hunting, fishing, etc.)	Traffic	Land Use
1. Continued SwS	Baseline																		
2. Partial Dismantling and Removal	↑↑	↑↑	≈	≈	↑	↑	↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑	↑	↑↑	↑↑	↑	↑↑	≈
3. Full Dismantling and Removal	↑↑	↑↑	≈	≈	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑	↑	↑↑	↑↑	↑	↑↑	≈
4. In-Situ Disposal	↑	↑	≈	≈	↑	↑	↑	↑↑	↑↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	≈

Table 4.2-5 Summary of Relative Risk for Institutional Controls Phase

Alternative Means	Atmospheric	Surface Water	Aquatic		Geological and Hydrogeological			Terrestrial		Ambient Radioactivity	Human Health		Traditional Land and Resource Use	Indigenous Socioeconomic & Health			Socio-economic		
	Air Quality & Noise	Site Drainage & Water Quality	Aquatic Habitat	Aquatic Biota (e.g., lake sturgeon, emerald shiner)	Soil Quality	Groundwater Quality	Groundwater Flow	Terrestrial Habitat	Terrestrial Biota (e.g., chimney swift, bald eagle, black bear, eastern milksnake)	External Gamma Radiation	Public Health	Worker Health	Traditional Land and Resource Use (e.g., trapping, hunting, gathering)	Indigenous Socio-economic	Indigenous People	Indigenous Worker	Socio-economic Assets (hunting, fishing, etc.)	Traffic	Land Use
1. Continued SwS	Baseline																		
2. Partial Dismantling and Removal	↓	↓	≈	≈	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↑	↓
3. Full Dismantling and Removal	↓	↓	≈	≈	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↑	↓↓
4. In-Situ Disposal	↓↓	↓↓	≈	≈	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓	↓	↓↓	↓↓	↓	≈	↓

Table 4.2-6 Summary of Relative Risk for Post-Institutional Controls Timeframe

Alternative Means	Atmospheric	Surface Water	Aquatic		Geological and Hydrogeological			Terrestrial		Ambient Radioactivity	Human Health		Traditional Land and Resource Use	Indigenous Socioeconomic & Health			Socio-economic		
	Air Quality & Noise	Site Drainage & Water Quality	Aquatic Habitat	Aquatic Biota (e.g., lake sturgeon, emerald shiner)	Soil Quality	Groundwater Quality	Groundwater Flow	Terrestrial Habitat	Terrestrial Biota (e.g., chimney swift, bald eagle, black bear, eastern milksnake)	External Gamma Radiation	Public Health	Worker Health	Traditional Land and Resource Use (e.g., trapping, hunting, gathering)	Indigenous Socio-economic	Indigenous People	Indigenous Worker	.Socio-economic Assets (hunting, fishing, etc.)	Traffic	Land Use
1. Continued SwS	Baseline																		
2. Partial Dismantling and Removal	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↑	↓↓	↓↓	↓↓	↑	↓↓	≈	↓↓
3. Full Dismantling and Removal	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↑	↓↓	↓↓	↓↓	↑	↓↓	≈	↓↓
4. In-Situ Disposal	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓	≈	↓↓	↓↓	↓↓	≈	↓↓	≈	↓↓

4.2.4.3 Quantitative Assessment of Worker Health

Table 4.2-4 through Table 4.2-6 show that worker health effects are one of the main differentiators between the Alternative Means in the long term. The following sections present a quantitative assessment of worker health due to radiological dose as well as injury.

4.2.4.3.1 Radiological Dose to Workers

For the Decommissioning Execution phase, an estimate of the collective dose to perform the alternate of full dismantling and removal has been performed (McVeigh 2018c). The dose estimates have been made using the same level of detail and similar assumptions as the Detailed Decommissioning Plan (Johnson 2022a). The collective dose estimate for the "3. Full Dismantling and Removal" is 761 person•mSv, which is approximately 50 times greater than the Detailed Decommissioning Plan dose estimate of 14.7 person•mSv for "4. In-Situ Disposal". The estimated collective dose for removal of the calandria alone is on the order of 300 person•mSv based on the breakdown of work packages that would need to be executed. The worker dose estimate for "3. Full Dismantling and Removal" is only for the Decommissioning Execution phase and does not include the Institutional Controls phase where workers would receive doses during re-handling and packaging of this waste during transition from storage to disposal.

Based on these scoping calculations, the dose reduction to workers in alternative "4. In-Situ Disposal" is more significant than the minimal dose reduction to the public in alternatives "2. Partial Dismantling and Removal" and "3. Full Dismantling and Removal". Ultimately the assessment undertaken in this report remains unchanged with consideration of the potential availability of a deep geologic repository.

4.2.4.3.2 Injury to workers

Safety is a core value at CNL; a safety culture governs the actions of all activities undertaken. Despite this emphasis on safety, it is possible that some injuries will occur, and that some injuries may occur, resulting in lost-time, or even fatality, during the Decommissioning Execution phase. The statistics for construction, demolition, and trucking accidents indicate that injuries are a fairly common part of working in these industries, despite efforts to prevent and mitigate against injury.

CNL will minimize the quantity and magnitude of these incidents as much as possible using safe work practices. Procedures and programs will be in place to ensure safe working conditions and compliance with provincial health and safety regulations. CNL requires that contractors and their subcontractors maintain a level of safety equivalent to that of CNL employees while on-site to ensure that the site preparation and construction activities at NPD are carried out safely.

Work activities carried out within the province of Ontario are subject to the *Occupational Health and Safety Act.* The main purpose of the Act is to protect workers from health and safety hazards on the job. The Act imposes duties on employers and workers and establishes and enforces rights for workers and procedures for dealing with workplace hazards.

The Infrastructure Health & Safety Association (IHSA) publishes injury rates associated with different sectors. Activities during the Decommissioning Execution phase were assigned to the relevant sector for which IHSA injury rates were available: demolition, industrial, commercial & institutional construction, and

general trucking. Using the projected duration of Decommissioning Execution activities, and the sector-specific rates for lost-time and non-lost time injuries, and traumatic fatalities, the estimated number of injuries for each alternative was calculated (Table 4.2-7).

Table 4.2-7 Estimated Number of Injuries for each Alternative

Alternative Means	Estimated Number of Injuries			
	Lost-time injuries	Non-lost time injuries	Traumatic fatalities	Total
1. Continued SwS	0.00	0.00	0.00	**0.00**
2. Partial Dismantling	6.0×10^{-1}	2.3	4.2×10^{-3}	**2.88**
3. Full Dismantling	1.2	4.4	8.3×10^{-3}	**5.61**
4. In-Situ Disposal	1.9×10^{-1}	7.8×10^{-1}	1.4×10^{-3}	**0.97**

The estimated number of injuries for the "3. Full Dismantling and Removal" is 5.61, which is over 5 times greater than the estimate of 0.97 for "4. In-Situ Disposal", and approximately two-fold higher than "2. Partial Dismantling". The estimated number of injuries is directly linked with the duration of activities (i.e., extent of effort) in the Decommissioning Execution phase.

It is expected that the rates of injury or fatality for employees working on the Decommissioning Execution phase will be similar to those at other construction sites for jobs of similar duration and complexity in Ontario. Therefore, if the workers were not employed at the NPD site, they would be exposed to similar risk at another construction site within the province.

4.2.4.4 Absolute Risk

In addition to relative risk, the alternative means were also compared with respect to absolute risk. This is to ensure that if a negligible risk, of alternative means X, is deemed to be higher than an even smaller risk, of alternative means Y, that it does not give undue credibility to alternative means Y. Similarly, if alternative means X is deemed to have less risk than alternative means Y, but both alternative means carry a significant risk to the environment, alternative means X cannot be considered as a good option, as it will still have significant environmental effects, regardless of how it compares to alternative means Y.

The main differences between the alternative means are related to:

1) The increased effort (e.g., material handling, transportation), emissions, and releases associated with the "2. Partial Dismantling and Removal" and "3. Full Dismantling and Removal" alternatives.
2) The immediate disposal in "4. In-Situ Disposal" which eliminates susceptibility to low probability malfunctions and accidents.

First, despite differences in effort, emissions, and releases, all alternatives would be fundamentally safe. This is because all alternatives would be subject to a robust regulatory regime and undertaken with measures to ensure safety. For example, by ensuring that work is undertaken in compliance with work control documents and radiation protection protocols, worker doses for all alternatives would be maintained well below relevant dose criteria. Similarly, the hypothetical disposal facilities (e.g., the ILW and LLW disposal facilities) can be assumed to be safe, because the construction and operation of such facilities would be contingent on regulatory approval.

Second, although two alternatives require interim storage prior to the availability of the appropriate disposal facilities, this storage will be safe. During interim storage, it is expected that maintenance activities will ensure the integrity of the containment, and will ensure that releases carry no undue risk, under normal operating conditions.

4.2.4.5 Timely Reduction of Historic Liability

In addition to the relative and absolute risk assessments discussed above, there is one final consideration in the selection of a preferred means. As stated in the problem statement, Section 1.2 of the AMA TSD, one of the major concerns of this project is the timely reduction of Canada's Nuclear Historic Liability. Based on the assessments throughout this report it can be seen that "1. Continued SwS" does not provide any reduction to the historic liability. "2. Partial Dismantling and Removal" provides a reduction in the historic liability, as some of the waste has been packaged moved to CRL for storage and eventual disposal, and the remaining waste is grouted securely in place. Similarly, "3. Full Dismantling and Removal" provides will provide a reduction in the historic liability, as the waste has been packaged moved to CRL for storage and eventual disposal. For both of these alternative means, the interim storage of waste and reliance on the eventual approval and construction of disposal facilities for LLW and ILW limit the timely reduction of historic liability. "4. In-Situ Disposal" succeeds in providing timely reduction of the historic liability by immediately securing the contamination within the grouted monolith. This alternative means is the only feasible alternative means identified that most significantly reduces the historic liability in a timely manner.

4.2.4.6 Alternate Assessment Viewpoints

During their review of the AMA, AOPFN provided the most extensive feedback of all the Indigenous Nations, communities and organizations. As described in Section 4.2.4.6, AOPFN would have preferred a different approach for the conduct of the AMA. In November 2020 CNL provided an overview of the in-situ disposal concept to the AOPFN Advisory Committee (AAC). In October 2021, CNL held a workshop with the AAC that explained how CNL conducted the AMA and why in-situ disposal is the preferred method of CNL. This was also an opportunity for AAC members to ask questions about the AMA and voice their concerns directly with the NPD Closure Project team. AOPFN recommended to CNL that further revisions were required to the EIS section on the AMA, including a meaningful effort to integrate AOPFN perspectives from the three studies (i.e., the Algonquin Knowledge and Land Use Study (AKLUS), Diet and Harvest Study, and Culture and Rights Study) and through the AAC on in-situ disposal compared with other alternative means. To help address ongoing concerns on this topic, CNL provided funding for AOPFN to conduct an independent AMA. In April 2022, AOPFN issued the final AOPFN Alternative Means Report (see Section 4.2.4.7 and Appendix D).

The AOPFN AMA results reflect AOPFN's priority values and associated criteria and weighting for assessing alternatives. The study results found that in-situ disposal was the least favored alternative means to decommission the NPD facility using AOPFN's assessment criteria and weighting. AOPFN's preferred strategy for the project is to fully dismantle the NPD reactor for interim storage.

The AOPFN AMA will not replace or supersede CNL's AMA, but instead will be complementary and form part of the final EIS submission. To ensure that AOPFN's perspective on this subject has been recorded, a discussion on AOPFN's AMA, written by the AOPFN, is provided below.

4.2.4.7 AOPFN's Alternative Means Assessment

This subsection of the EIS was prepared by AOPFN. AOPFN have raised extensive concerns with how CNL undertook their AMA for the NPD; failing to meaningfully gather or capture Algonquin perspectives, and scoring based only on technical measurements. To ensure that the AOPFN view is incorporated into the EIS process, CNL has provided capacity for AOPFN to conduct its own independent AMA process. This is documented in AOPFN AMA for the Nuclear Power Demonstration Project Decommissioning report (Appendix D). A summary of the results of AOPFN's independent AMA is provided in Section 4.2.4.7.4, and the full report is provided in the Appendix D. The AOPFN AMA does not replace the CNL alternative means but provides Pikwàkanagàn perspective, values, and Indigenous (Algonquin) knowledge, and therefore enriches the overall EA.

4.2.4.7.1 AOPFN Concerns about CNL's Alternative Means Assessment (AMA)

AOPFN is not satisfied with the execution or outcome of the AMA conducted by CNL. The relative and absolute risks presented by CNL do not reflect the perspective, values, and Indigenous (Algonquin) knowledge of AOPFN members, and AOPFN was not engaged by CNL for the identification of values, criteria, weighting or scoring of alternatives in CNL's AMA. A summary of AOPFN concerns regarding the AMA is provided below, along with AOPFN's proposed path forward to provide a more meaningful consideration of Indigenous perspectives into the AMA.

Overall, CNL's AMA does not reflect AOPFN perspectives, values, criteria or weighting, and the in-situ disposal alternative is opposed by our members. This is in part because of the risks associated with environmental quality, fish and wildlife health associated with creating a permanent radioactive waste disposal facility in AOPFN territory, and how this overall change and uncertainty about the future risks associated with the site and how the radioactive materials will be contained, affect human health and AOPFN rights long into the future. Through a Diet and Harvest Study for the NPD Closure Project, completed in 2021 (Fediuk *et al.* 2021), AOPFN members were asked to rank the four alternatives in terms of their preference. The majority (55%) chose full dismantling and removal of the site. This was more than twice the percentage of AOPFN members who chose in-situ disposal (26%).

Opposition to in-situ disposal continued to prevail as AOPFN undertook its own AMA, with technical data on the four technically and economically feasible alternatives provided by CNL. The proximity to the surface, the proximity to the Kichi-Sìbì, the lack of a long-term track record for in-situ disposal, the extremely long time horizons required for monitoring and adaptive management, the difficulty of "unentombing" the components if the containment fails, and uncertainty associated with climate change are among the factors that raise concerns for AOPFN members.

Much of the difference comes from CNL and AOPFN having very different worldviews, values and priorities. When those differences are not embraced in the AMA process, the vision presented is one-sided. In this case, AOPFN's vision was not included in the EIS' AMA and that is an extremely problematic gap, given that AOPFN members are the people most likely to be adversely impacted if the wrong decommissioning method proceeds. The CNL AMA does not include any information about impacts on AOPFN rights, it was completed before AOPFN's three studies associated with the NPD Closure Project were completed, and it does not consider AOPFN perspectives on continued alienation, fear, stigma and loss of use in alternative futures with and without full removal of the radioactive materials at the site. Instead, CNL relies primarily on

technical data associated with radioactive exposure of biophysical VCs. While this is important, it is also important to recognize that human activities – including priority rights practices protected under the Canadian Constitution – are influenced by more than scientific measures. Impacts on people are caused by biophysical risks, human observations, and inter- and intra-group communications. This complexity is not captured in CNL's AMA and would have been had AOPFN been meaningfully engaged in the AMA process.

During a meeting between the AOPFN Advisory Committee (AAC), CNL and AECL in July 2021, AOPFN members discussed the uncertainties that they consider when contemplating the in-situ disposal proposal. For example, a member of the AAC identified that they are not confident the proposed in-situ disposal would contain radioactivity throughout any and all changing environmental conditions that may occur in the future. CNL representatives responded with a discussion on long-term monitoring, which would identify any breach in containment. AOPFN is not willing to put all its faith in monitoring in-situ disposal; AOPFN wants to fully understand whether in-situ disposal should be the decommissioning strategy actioned by the Crown. The uncertainties – which include questions about the containment capacity of the technology, the lack of a long-term track record for in-situ disposal, questions about the ability to reverse the process and remove the radioactive materials if a failure occurs, and even whether monitoring will be adequate to identify any escape of radioactive materials - do not assure AOPFN members that the in-situ disposal will not become a source of contamination during the lives of all future generations.

For AOPFN, the best solution is to fully remove the risk to a purpose-built facility, either now or in the future and it is our understanding that this is also best practice in the nuclear sector. AOPFN members do not feel it is, or ever was, their responsibility to take on Canada's nuclear liabilities, past, present, and into the future. AOPFN were never consulted before the NPD facility was built in our unceded traditional territory, and were not consulted in the process by which CNL determined that in-situ disposal is its preferred alternative means to decommission the facility. In addition, AOPFN's confidence that monitoring will be adequate, and that adaptive management scenarios will be implemented in a failure mode, decreases with the long time horizons associated with the Institutional Control and Post-Institutional Control phases for in-situ disposal.

AOPFN notes as well that the ALARA Principle, when practiced, requires that decisions result in radiation exposures and doses to be 'As Low as Reasonably Achievable'. CNL explained in their response to AOPFN comments on the 2020 Draft EIS that the "R" ("reasonably") in ALARA allows for "consideration of social and economic factors and the magnitude of effort required to control the projected doses". Effectively, then, the "R" could permit CNL to justify any alternative. The in-situ disposal option reduces risk to workers by not requiring dismantling and transporting the NPD facility to another site. CNL allows, however, that a deep geological repository could "result in lower radiation doses to the public". This goes back to the need for a quantitative assessment of alternatives, which AOPFN requested and CNL did not conduct for all relevant variables. CNL has weighted the short-term risk to workers higher than the long-term risk to the public when selecting an alternative and has determined this fits within the application of the ALARA Principle. Ultimately, this decision may not align with AOPFN's definition of "reasonable". An AMA should include disclosure of relative weights used and how these weights are in line with ALARA.

4.2.4.7.2 Technical Deficiencies with CNL's Selection Process

At a more technical level, CNL's methodology for completing the AMA associated with the NPD is not sufficient. CNL has chosen its preferred alternative based primarily on a qualitative approach – using a relative estimation of risks of each feasible alternative in comparison to the current state. This method was applied to the risk of effects to environmental, physical, socio-economic, Indigenous people, and health values. The AMA does not include an acceptable amount of information about how the determination of relative risk was identified or how effects within each category are weighted to determine the ultimate choice of in-situ disposal.

i. While AOPFN members have identified clear apprehension about future risk of environmental contamination, there is no indication that the effects of fear and stigma related to the in-situ disposal option were weighed as part of that assessment.

ii. While AOPFN members have identified the need for alternatives to weigh the maximization of safe and trusted access and use of the NPD site and its surroundings for present and future generation, there is no indication the burden of radioactive waste management for future generations of AOPFN has been considered.

iii. Finally, while AOPFN members have identified the value of the physical and spiritual health of the land, there is no indication this Algonquin worldview was weighted as part of CNL's assessment.

These are the major failings of CNL's AMA.

In addition to the concerns identified by AOPFN members and leadership (as noted above), the First Nation commissioned an independent technical assessment of CNL's selection methodology by Mr. Tony Brown, the results of which are reflected in AOPFN's 2020 EIS Comments. That assessment identified multiple structural flaws in the selection process. Critical flaws identified by AOPFN's independent technical assessment include:

1. **Inconsistency with International Best Practices** – While there are instances where in-situ disposal has been used to manage radioactive wastes from nuclear reactors, leading international radioactivity authorities consider in-situ disposal to be inappropriate in most circumstances. For example, the International Atomic Energy Association (IAEA 2014a) concluded that in-situ disposal: "…is not considered a decommissioning strategy, and is not an option in the case of planned permanent shutdown. It may be considered a solution only under exceptional circumstances (e.g., following an accident)". Further, the US Nuclear Regulatory Commission (NRC 2017) states that in-situ disposal: "….should be used as a last resort for the decommissioning of power reactor facilities, with the expectation that this method would be selected only under unique decommissioning circumstances", and that in-situ disposal "….should be used only if this option provides more benefit than harm to public health and safety and the environment and does not create a legacy situation to be managed by future generations." Despite this guidance, CNL has concluded that the proposed NPD remediation concept is consistent with international best practices.
2. **Absence of a Comprehensive Siting Process** - The proposed undertaking involves constructing a permanent hazardous waste disposal facility for hazardous radioactive waste. Based on modern best practices, the decision to construct such a facility at a given location would be preceded by a

rigorous, transparent and highly consultative siting process. The overall goal of such a process would be to select a preferred site which: a) has superior physical/technical attributes; and b) has a "willing host" for the facility. CNL's selection process did not include a siting process to confirm that the Rolphton site is the most technically appropriate location for a hazardous waste disposal facility, nor has a willing host been identified. Instead, CNL proposes to retrofit a pre-existing facility that was designed for another purpose and a limited operational life. This is inappropriate for the management of long-lived hazardous waste.

3. **Failure to Develop a Purpose-Built Permanent Radioactive Waste Management Facility** - In their submission, CNL indicates that alternatives involving off-site disposal in a purpose- built facility are less viable than in-situ disposal primarily because such a facility does not yet exist. It is significant to note that early decommissioning strategies for NPD were based on the assumption that AECL would be successful in the siting, design and construction of a permanent, purpose-built radioactive waste management facility. Unfortunately, despite knowing that such a facility would be required for more than 40 years, AECL neglected to take the actions necessary to ensure this permanent facility is available to receive wastes from NPD in a timely fashion. This failure is the primary reason why CNL is now proposing to use in-situ disposal instead of other best management practices for radioactive waste disposal.
4. **Insufficient Consideration of Long-Term Risks** - The revised alternatives assessment (March, 2020) includes a quantitative assessment of occupational risks associated with the alternatives. While the assessment concluded that in-situ disposal has lower occupational risks, it also demonstrated that the other alternatives could be implemented without resulting in unacceptable risks. Notably, the majority of risks associated with the various alternatives are attributable to conventional construction activities that are commonly associated with demolition and decommissioning projects. CNL also concluded that the transportation risks associated with in-situ disposal are lower than for other alternatives, although all such risks could be effectively mitigated. Overall, the selection of the preferred alternative (i.e., in-situ disposal) is heavily weighted by the potential for occupational and transportation risks, even though precedent and the proponent's own findings indicate all alternatives can be implemented safely. At the same time, it should be noted that long-lived radioactivity present in the facility represents a permanent hazard to the environment, as compared to the finite duration of occupational and transportation risks. Within this context, CNL's unilateral decision to place a heavy emphasis on minimizing occupational and transportation risks resulted in less emphasis being placed on other critically important topics such as the long-term protection of the environment and public well-being. AOPFN's independent technical assessment questioned the appropriateness of giving priority to the elimination of temporary, manageable and fully regulated/controlled risks to informed workers at the expense of long-term, uncontrolled exposures to the environment and public. AOPFN's AMA also strongly focused on passing on nuclear waste management to future generations in the unceded Algonquin territory, which does not fit with the "Seven Generations" precautionary approach that Algonquin worldview embraces.

4.2.4.7.3 The Importance of Indigenous Consent for Permanent Radioactive Waste Disposal Facilities

Indigenous consent is a necessary piece of any regulatory process, especially regarding hazardous materials. The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) specifies that: "States shall take effective measures to ensure that no storage or disposal of hazardous materials shall take place in the lands or territories of indigenous peoples without their free, prior and informed consent" (Article 29, clause 2). Canada is now a signatory to UNDRIP, which means all articles of UNDRIP are recognized throughout the country. AOPFN did not consent to have the NPD reactor constructed on its traditional lands in the first place. Nor does it agree to have the radioactive wastes from that facility permanently disposed of and leaking contaminants onto its lands and waters when other viable alternatives exist. And AOPFN notes that all four of the alternatives identified by CNL are considered by CNL technically and economically achievable.

4.2.4.7.4 AOPFN's Alternative Means Assessment - Approach and Findings

Considering AOPFN objections with the current AMA and desire to get AOPFN perspectives built into the consideration of alternative means, CNL provided funding for AOPFN to conduct its own AMA in November 2021. This work utilized AOPFN knowledge, values, criteria and weighting to identify which of the four feasible alternatives is preferred by its membership. The criteria was built from a foundation of the AOPFN worldview and reflects AOPFN's understanding of acceptable risk and duration of impacts. The AOPFN AMA was completed in April 2022 with results informing the overall NPD decommissioning plan, through engagement of AOPFN, CNL and AECL.

This subsection provides a summary of AOPFN's independent AMA Report, which includes the approach and findings. For the complete and detailed assessment, refer to AOPFN AMA for the Nuclear Power Demonstration Project Decommissioning report which is also provided in Appendix D.

4.2.4.7.4.1 Introduction

AOPFN's AMA was developed by working with the AOPFN Advisory Committee (AAC), made up of AOPFN community members with support from an AOPFN technical team of staff and consultants, to assess CNL's alternative means for decommissioning the NPD Reactor.

As part of the AMA, the AAC identified eight values, value statements, guiding questions, and weighting by which three of the four alternatives (Alternative 2 Partial Dismantling and Removal, Alternative 3 Full Removal, and Alternative 4 In-Situ Disposal) would be ranked. Alternative 1 (Continued Storage with Surveillance) was determined by the AAC not to be a viable alternative, and therefore was not ranked. The AOPFN values that were assessed included:

1. Water, Wildlife and Vegetation: Habitat and Quality;
2. AOPFN Access to and Use of Land and Waters;
3. Algonquin Culture, Spirituality and Knowledge;
4. Future Generations;
5. Sustainable AOPFN Economy;

6. AOPFN Governance and Stewardship;
7. Worker and Transportation Risk; and,
8. Risk to Other Populations Outside of Algonquin Territory (including nonhuman).

The following table provides the percentage weight applied for each AOPFN value based on importance to AOPFN decision-making.

Table 4.2-8 AOPFN Weighting by Value (adapted from Appendix D)

Value	Weight
1. Water, Wildlife and Vegetation: Habitat and Quality	15%
2. AOPFN Access to and Use of Land and Waters	15%
3. Algonquin Culture, Spirituality and Knowledge	15%
4. Future Generations	15%
5. Sustainable AOPFN Economy	15%
6. AOPFN Governance and Stewardship	15%
7. Worker and Transportation Risk	5%
8. Risk to Other Populations	5%
Total Percentage	100%

Values 1-6 were given higher weighting as compared to values 7-8 on the basis that the former values were more unique to the AOPFN perspective and way of life, whereas the latter, while still important, were more generally applicable.

AOPFN's general approach for evaluating each alternative was through a relative ranking method, whereby using specific guiding questions for each value, each alternative could be ranked. A ranking scoring system was used, where number 1 indicated the most preferred alternative means for a given value, and number 3 indicated the least preferred alternative means for a given value. As will be discussed in section 4.2.4.6.4.3 value 8 was not quantitatively ranked, unlike the other 7 values.

4.2.4.7.4.2 Discussion on Alternative 1: Continued Storage with Surveillance

AOPFN Advisory Committee members did not consider Alternative 1 to be a viable alternative means for decommissioning the NPD site. While the other three alternatives would result in a permanent solution, this alternative would delay this decision and any mitigative action to an undetermined time in the future. The AAC reasoning for not considering Alternative 1 a viable alternative for ranking is two-fold:

i. Aversion to passing the responsibility of nuclear waste management to future generations; and
ii. Aversion to perpetuating the existing state of contamination at the NPD site.

Therefore, Alternative 1 was not discussed in the ranking exercise for the AOPFN AMA, and only viable Alternatives 2, 3, and 4 were compared to one another.

4.2.4.7.4.3 AOPFN's Alternative Means Assessment Report Results

A summary of the results for AOPFN's AMA for the NPD Reactor decommissioning is provided below. Please note: it is critical to review the actual full report (Appendix D to this EIS) to understand the considerations behind each of these rankings.

Table 4.2-9 AOPFN Weighted Scores for Alternative Means to Undertake the NPD Site Decommissioning (adapted from Appendix D)

		Alternative 2 (Partial Dismantling & Removal)	Alternative 3 (Full Removal)	Alternative 4 (In-Situ Disposal)
1. Water, Wildlife and Vegetation: Habitat and Quality	Points	2	3	1
	Weighted Points: 15%	0.3	0.45	0.15
2. AOPFN Access to and Use of Land and Waters	Points	2	3	1
	Weighted Points: 15%	0.3	0.45	0.15
3. Algonquin Culture, Spirituality and Knowledge	Points	2	3	1
	Weighted Points: 15%	0.3	0.45	0.15
4. Future Generations	Points	2	3	1
	Weighted Points: 15%	0.3	0.45	0.15
5. Sustainable AOPFN Economy	Points	2	3	1
	Weighted Points: 15%	0.3	0.45	0.15
6. AOPFN Governance and Stewardship	Points	2	3	1
	Weighted Points: 15%	0.3	0.45	0.15
7. Worker and Transportation Risk	Points	2	1	3
	Weighted Points: 5%	0.1	0.05	0.15
8. Risk to Other Populations	Points	N/A	N/A	N/A
	Weighted Points: 5%	N/A	N/A	N/A
Total		**1.9**	**2.75**	**1.05**

Alternative 3 (Full Removal) was found to be AOPFN's preferred alternative means against AOPFN identified, weighted, and scored values, which was ranked over twice as preferred as Alternative 4 (In-Situ Disposal) and ranked better than Alternative 2 (Partial Dismantling and Removal). In addition to the group ranking and scoring process, each of the AAC members who identified a preferred alternative means chose Alternative 3 (Full Removal).

4.2.4.7.4.3.1 Ranking Value 8: Risk to other populations

AAC members expressed mixed feelings on this value, not wanting to take on the burden of radioactivity left behind by Canada themselves, in Algonquin territory, while also expressing concern for other people and living beings outside Algonquin territory, as well. Given uncertainty of where any waste would ultimately be disposed of at this time, and there not being enough information available, the AAC chose not to rank the alternatives on this value. However, it would continue to be included as part of the individual assessments (see section below) due to its importance to the AAC and AOPFN.

4.2.4.7.4.3.2 Individual AAC Member Rankings

While ranking each alternative against specific values and tabulating those scores is an important tool, AOPFN members tend to think holistically, about the pros and cons of each alternative on balance rather than as a compilation of discrete value scores. As a result, each AAC member was asked to provide their own individual overall ranking, from 1 (best) to 3 (worst) for the three alternative means given full consideration in the AOPFN AMA. The results are shown in Table 4.2-10.

Table 4.2-10 Individual Ranking of Alternative Means by AAC members

	Rank #1 (Best)	Rank #2 (Middle)	Rank #3 (Worst)
Member 1	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)
Member 2	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)
Member 3	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)
Member 4	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)
Member 5	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)
Member 6	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)
Member 7	Abstained from overall ranking		
Member 8	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)*
Member 9	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)
Member 10	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)
Member 11	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)

* Member 8 wanted to make it clear that they are very opposed to Alternative 4 (In-Situ Disposal) and would prefer not to see it on a ranking list at all.

Overall, ten members of the AAC preferred Alternative 3 (Full Dismantling and Removal) as the approach to decommission the NPD site. No members preferred any other alternative means. The least favoured alternative mean is Alternative 4 (In-Situ Disposal). One AAC member opted to abstain from providing an individual, overall ranking, on the basis that they saw ranking by values to be the preferred method of determining the preferred alternative.

4.2.4.7.4.4 AOPFN's Alternative Means Assessment Report Conclusion and Recommendations

In addition to Alternative 3 (Full Removal) being AOPFN's preferred, viable alternative for the NPD decommissioning project, the report also indicates the following conclusions and recommendations that AOPFN, CNL, AECL and CNSC must consider when making subsequent decisions:

1. AOPFN Preferences for NPD Reactor Decommissioning;
2. AOPFN and Algonquin Knowledge's Role in Decision-Making;
3. The Role of Financial Cost in AOPFN Decision-Making; and
4. Inclusion of AOPFN in Monitoring Programs.

4.2.4.7.4.4.1 AOPFN Preferences for NPD Reactor Decommissioning

Alternative 3 (Full Removal) fit best with AOPFN identified preferences for decommissioning the NPD site, including preference for an alternative means that:

- Minimizes the number of permanent hazardous waste disposal facilities in Algonquin territory;
- Supports the healing of the land back to a natural condition as quickly as possible, and thus supports healing of spirit as well;
- Will allow for the greatest chance for meaningful reconnection of AOPFN members to the NPD site in the future, for cultural and traditional use purposes;
- Reduces fear, stigma and perceived risk for AOPFN members in relation to the use of their territory;
- Provides the maximum real and perceived protection for the Kichi-Sìbì (Ottawa River);
- Does not pass risks in Algonquin territory on to future generations to handle;
- Maximizes the flexibility of future land uses for economic purposes by AOPFN and its members;
- Is a permanent rather than temporary site solution at NPD;
- Has acceptable and well understood and well managed worker and transportation risks, and can be completed safely; and
- Is endorsed by AOPFN through a Free, Prior and Informed Consent decision.

While each of the above preferences are important, there were three very strong preferences shared by AAC members multiple times across several values. These points help to explain AOPFN perspectives drawn on for this AMA, in determining an AOPFN preferred alternative means to decommission the NPD site:

i. The first preference was a desire to heal the land, its spirit, and how the land is tied to the people. Under all AOPFN-specific values, the importance of the land, and it's physical and spiritual healing, was stressed.

ii. The second preference was for maximization of safe and trusted access and use of the NPD site and its surroundings for present and future generations. This access is critical for AOPFN to practice governance and stewardship activities as rightful caretakers of the land. Not only do AAC members want their future great-grandchildren to have the option to practice their culture safely throughout their territory, they also do not want those same great-grandchildren to be burdened with decisions regarding NPD waste management.

iii. The third strong preference was a desire to limit the number of permanent waste storage sites within Algonquin territory. This was stated by multiple AAC members who were also worried that allowing the NPD to become a permanent waste site would set a precedent for future permanent hazardous waste sites throughout the Algonquin territory.

4.2.4.7.4.4.2 AOPFN and Algonquin Knowledge's Role in Decision-Making

As seen by this exercise, the incorporation of Indigenous (Algonquin) Knowledge, values, and culture in an AMA can influence decision-making and needs to be included prior to and as part of decision-making on a preferred alternative future for the NPD site and all nuclear sites within unceded Algonquin territory. AOPFN has the right to be consulted. They should be brought into discussions on project scopes and alternatives during the design phases. Their decisions are not to be filed away, they are material to decisions by all parties - the Proponent, Canada, and AOPFN.

4.2.4.7.4.4.3 The Role of Financial Cost in AOPFN Decision-Making

AOPFN teachings may, at times, be in conflict with decisions that are made solely, or partially, from a financial perspective. In undertaking this AMA, it was remarked by the AAC that Alternative 4 (in situ disposal), CNL's preferred alternative, was by far the least expensive alternative. Throughout this exercise, it was observed that, to AOPFN, social and environmental values outweighed the financial impact of alternative preferences.

4.2.4.7.4.4.4 Inclusion of AOPFN in Monitoring Programs

Regardless of the outcome of this decision-making process, any action at the NPD site must be paired with AOPFN involvement in monitoring programs. This was stressed throughout the AMA process by the AAC, and this involvement will increase trust between AOPFN and CNL and would increase the likelihood that AOPFN members would utilize the area in and around the site in the future.

In addition to identifying a preferred alternative, the AAC flagged the importance of the inclusion of AOPFN's Algonquin perspective into all decision-making processes within the Algonquin territory, weighing minimization of environmental and social impacts over financial costs, as well as the inclusion of AOPFN in ongoing monitoring of the project site. AOPFN put forth the following recommendations in its AMA report:

1. Alternative 3 (Full Removal) is the preferred alternative of NPD decommissioning from an AOPFN perspective. This preference for fully removing all radioactive waste from the NPD site needs to be considered in decision-making for this project, and AOPFN requests that CNL, AECL and CNSC all engage with/consult with AOPFN about the implications of this finding.

2. AOPFN requests early and comprehensive consultation and engagement on future AMAs in or impacting on Algonquin territory, to incorporate AOPFN values and determine weighting and criteria early in the process.
3. Regardless of which decommissioning strategy is adopted, AOPFN requests adequate funding from CNL to perform fulsome Algonquin knowledge-based monitoring of the NPD site and its surroundings through the AOPFN Guardians monitoring program, for the life of the project, including the Institutional Control period.
4. Regardless of which decommissioning strategy is adopted, AOPFN requests a limiting of the number of radioactive waste storage sites in Algonquin territory.
5. Regardless of which decommissioning strategy is adopted, AOPFN requests that the movement of radioactive wastes into, across and out of AOPFN territory be subject to written AOPFN permissions.
6. Regardless of what decommissioning strategy is eventually adopted, AECL and CNL should be actively and immediately engaging with/consulting with AOPFN about compensatory/ accommodation measures for over 60 years of lost use and occupancy by AOPFN members of the area at and around the NPD site. Recognizing, calculating and compensating for these losses, which will likely occur on into the future, is a critical step in reconciliation between Canada and AOPFN.

As evidenced by this exercise, the consideration of AOPFN values and Algonquin Knowledge in performing an AMA led to a different conclusion than that of CNL's. In addition to the implications this has for what decommissioning strategy should be implemented in this instance, these conclusions demonstrate the need for early and meaningful engagement with AOPFN on future AMA's and, by extension, any proposed project in the Algonquin territory. Additionally, it is equally as important AOPFN be involved in ongoing monitoring of the project site. By having AOPFN monitoring involvement, it will help to ensure that AOPFN's values are constantly considered, and will allow for the spirit of the land to heal.

4.2.4.8 CNL's Response to AOPFN's Alternative Means Assessment

CNL appreciates the efforts that AOPFN has committed to completing the AOPFN AMA. CNL acknowledges that in-situ disposal was the least favored alternative means to decommission the NPD facility from an AOPFN perspective. AOPFN's preferred strategy for the project is to fully dismantle the NPD reactor for interim storage. CNL respects that it is the position of AOPFN, and has fairly considered AOPFN's views, opinions and interests and have ongoing engagements and commitments that reflect their input on Alternative Means.

As a designated project, the NPD Closure Project is subject to the requirements of *CEAA* 2012 for the preparation of an AMA. Under *CEAA* 2012, the proponent conducts the alternative means, assessing economic and technically feasible alternatives. The result of the AMA is the project option chosen to undergo the EA evaluation. The AOPFN are seeking a joint assessment of alternatives for the NPD Closure Project, however CNL maintains its position that a joint assessment of alternatives, including a multi-party approach, goes beyond the requirements of *CEAA* 2012. *CEAA* 2012 requires engagement of Indigenous

peoples that may be directly impacted by the activities of a designated project such as the NPD Closure Project; however, *CEAA* 2012 does not require a specific joint assessment of alternatives to be conducted with Indigenous Nations and organizations. CNL has engaged Indigenous Nations, communities and organizations to incorporate their interests and concerns with respect to the protection of the environment as part of the planning process for the NPD Closure Project. CNL is mindful of the diverging perspectives on this topic. For the AOPFN AMA, AOPFN provided criteria and weighting that are meaningful to their community and represented their community values and interests. CNL respects and appreciates that AOPFN has unique community values and a distinct set of criteria, weighting and scoring that represents their view on potential decommissioning strategies for the NPD reactor. When the AOPFN AMA became available, CNL did consider alternative criteria and weighting from the AOPFN AMA to determine whether changes should be made to the AMA TSD. While CNL acknowledges that the weighting of each criterion is somewhat of a subjective exercise where different perspectives and understandings will value different criteria, it did not result in changes to CNL's criteria and weighting. CNL believes its assessment, which involved determining the criteria as well as weighting and scoring of the criteria, is reasonable and balanced. The primary driver for the differing conclusions of the CNL and AOPFN assessments is the weighting of each criterion.

CNL has provided written responses to AOPFN's recommendations in the AOPFN AMA. CNL is of the view that all parties have had an adequate opportunity to present their interests on the Alternatives and that conducting additional AMAs will not yield any additional insights that haven't already been made. Therefore, CNL is not prepared to reconsider the outcome of its alternative means at this time.

CNL understands that the topic of Alternative Means for the NPD Closure Project is outstanding from the AOPFN's perspective. Through the framework of the contribution agreement, AOPFN and CNL have had the opportunity to conduct continued engagement through meaningful dialogue, technical studies, and sharing of traditional knowledge and land use. CNL will continue to listen, and consider all feedback and perspectives on the project, and work together with AOPFN to address all interests and concerns through the Working Group meetings. This approach ensures the contribution of valued Algonquin knowledge, and that AOPFN's desire for meaningful engagement on the NPD Closure Project, is met.

4.2.5 Conclusions

Based on the comparison of the relative risk to VCs, quantitative risks to worker health, absolute risk to VCs, and meeting the need for timely reduction of historic liability, "4. In-Situ Disposal" was determined to be the preferred means for completing this project. CNL's assessment was based on an assumption of equal weighting for each VC and in particular, equal weighting of environmental and health components.

In the short term, during the Decommissioning Execution Timeframe, all of the proposed Alternative Means have increased risks compared to the baseline option of Continued SwS, because work involving radioactivity is being conducted. However, in the long term, "4. In-Situ Disposal" has a greatly reduced risk relative to the baseline option (see Table 4.2-6) due to enhanced containment and isolation of the radioactivity. Furthermore, " 4. In-Situ Disposal" is better than the other two Alternative Means in the long term, due to a reduced risk to workers health, because Alternative Means "2. Partial Dismantling and Removal" and "3. Full Dismantling and Removal" require additional handing, ongoing maintenance and

storage of the removed radioactive material while waiting for final disposal. During this storage period, “4. In-Situ Disposal” is also more robust with respect to disruptive events.

A quantitative assessment of environmental effects to the VCs has been completed for the preferred alternative means as part of a DecomSA, PostSA and EcoRA TSDs. The assessment of effects is summarized in Section 9 of this EIS.

4.3 Scope of the Project

As defined in the Project Description (Titterington 2016), and further reiterated in the decommissioning plans (Section 7, Johnson 2022a), the extent of the project components and activities comprises the closure activities directly associated with the Decommissioning Execution and Institutional Controls phases of the NPD Closure Project.

For EA purposes, the project will consider:

- assembly and operation of the grout batch mixing plant;
- grouting of below grade structures;
- removal of above grade structures to be used as backfill;
- installation of concrete cap and engineered cover over the grouted area;
- final site restoration; and
- preparation for and implementation of long-term care and maintenance.

Although there are no activities associated with the Post-Institutional Controls phase, this phase is also part of the EA scope of the NPD Closure Project, as discussed in Section 5.2.1.2 below. It is important to note that although the planning phase is considered a part of decommissioning, that it is not part of the EA scope.

The major components and activities of the project are discussed in the subsections below.

4.3.1 Project Components and Activities

4.3.1.1 Roads

The NPD site has one main access road, as well as a network of gravel roads. These roads are expected to be sufficient for the decommissioning execution activities and no new roads will need to be made.

4.3.1.2 Grout Batch Mixing Plant

The following table has the reference grout formula to be used at NPD.

Table 4.3-1 Grout Formula to Be Used at NPD

Materials	Standard Reference	Quantity (kg/m^3) water to binder ratio of 0.90
Type 90/10 Cement (90% BFS/10% OPC) note 1	ASTM C595	386
Sand (quartz)	ASTM C33	1375.0
Water	ASTM C94/CSA A23.1-14	346.2
SIKA Visco Crete 2100	ASTM C494 B&F	4.681
Diutan Gum based VMA	ASTM C94	0.299

Note 1: BFS – Blast Furnace Slag, OPC – Type I/II Portland Cement

The NPD Closure Project has worked with Golder and Associates (now part of WSP Global Inc.) to validate the formula using locally sourced materials. The grout is intended to prevent future subsidence and fill voids in the facility to as reasonable extent as possible. It is required then to have good flow characteristics, zero bleed and reach a compressive strength of greater than 6.7 MPa at 28 days. The testing has confirmed these performance requirements. Results are summarized in a grout specification (Johnson 2022c).

Due to the distance between the NPD site and the nearest concrete suppliers, a grout batch mixing plant will be set up on site to supply the grout needed for this project (Johnson 2022a). The grout batch mixing plant is one of the major physical components of this project. The preferred location for the grout batch mixing plant, including the materials lay-up areas, is the area of the previously removed training facility and parking lot. This is over 1 km from the three nearest residential properties (see Figure 4.3-1).

An area of approximately 1.2 hectares currently containing milkweed will have to be cleared in the area where the grout batch mixing plant will be located (as shown on Figure 4.3-1). The removal of milkweed will occur only during a period of time when the host plant is not known to be occupied by any life stages of the species in order to prevent impacts to monarch butterflies. Removal will occur between October 01 and April 30. This area will be reseeded with milkweed at the end of the NPD Closure Project.

Figure 4.3-1 Proposed Location of the Grout Batch Mixing Plant

The activities of the grout batch mixing plant can be broken down into three main phases: assembly, operation, and disassembly. Each of these phases will be discussed separately, below.

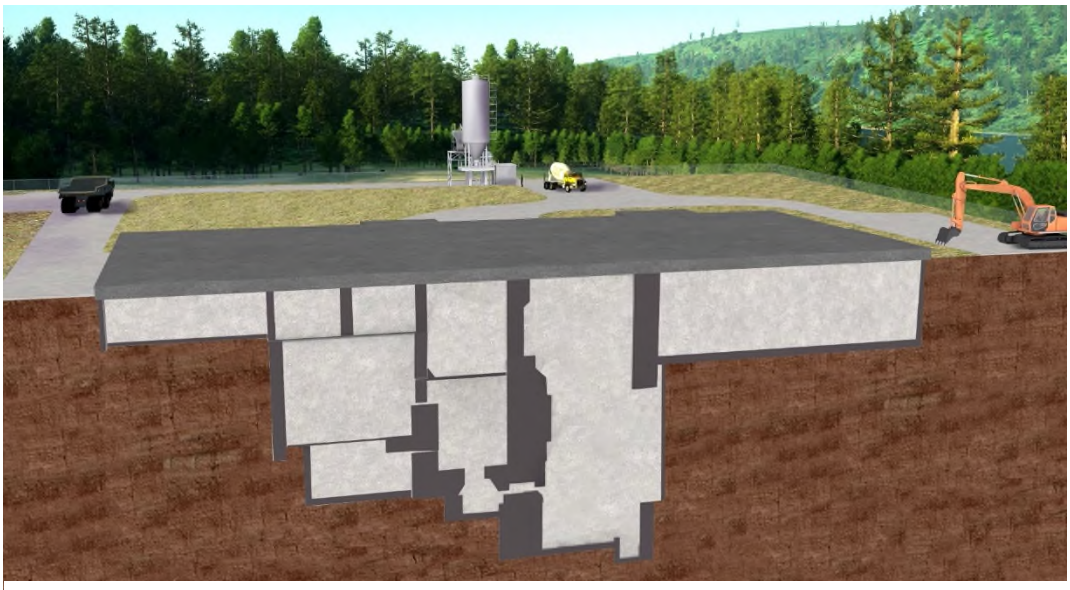
4.3.1.3 Assembly of the Grout Batch Mixing Plant

In addition to bringing in and assembling the grout batch mixing plant, other materials will need to be trucked in and stockpiled, specifically; sand and binder (see Greenhouse Gas TSD for more details). Furthermore, a water tank, piping, and a power supply will be needed to supply the grout batch mixing plant. Finally, a washout pit may need to be constructed to allow for equipment washout. This washout pit will be an engineered catchment that collects water and allows sediments to settle and collect. The washout pit would be lined with a watertight material to prevent infiltration of water into the ground. In accordance with the NPD Effluent Monitoring Plan (CNL 2022b), water from the washout pit will be sampled prior to pumping for release or recycling to the grout batch mixing plant. Settled material from the washout pit may be placed and grouted into the facility. Any remaining aggregate or sand may be used as backfill in or around the facility before final capping, thereby minimizing or eliminating waste generation (Johnson 2022a).

4.3.1.4 Operation of the Grout Batch Mixing Plant

Once the grout batch mixing plant has been assembled and all of the necessary materials have been gathered, batches of grout can be mixed.

The grout batch mixing plant is expected to be powered by a diesel generator. The heavy machines on-site will also run on diesel.



3D rendering of the decommissioning execution activities at the NPD site.

4.3.1.5 Disassembly of the Grout Batch Mixing Plant

The disassembly of the grout batch mixing plant will require the equipment to be washed out, using features such as a washout pit, before being removed from site. Additionally, the water tanks and piping will need to be removed, and the excess grout ingredients will be used as backfill on the site as appropriate.

4.3.1.6 Grouting of Below Grade Structure

The process piping between the facility and the river will be filled with grout; this does not include the external tile drain system used to divert ground water from the building. Grout is placed by pumping to fill gaps and crevices to as reasonable extent as possible. One of the grout's main purposes is to avoid future subsidence of the facility. All penetrations through the facility foundation walls will be closed with an engineered seal to maintain the structural integrity of the wall.

All below-grade areas are to be filled with grout. Using a master fill schedule, lifts of grout pours will be planned to systematically fill the entire structure. The grout pours will be designed to balance forces across walls and between rooms such that failures of the current structures will not occur. Pathways created during preparation of rooms will minimize void space and allow for dissipation of heat during curing of the grout. Quality control measures on grouting operations will be implemented to ensure that the finished product will meet specified parameters. The systems within NPDWF will be grouted to the extent practical and the outfall discharge pipes will be capped and grouted. (Johnson 2022a).

The NPDWF will be grouted. The grout function is to fill voids to prevent subsidence and to create a high pH environment which helps to slow contaminant release and transport through, and out of, the facility.

Open voids such as large pipes and tanks will be penetrated to allow for grout flow to fill in these voids. The ventilation stack will be isolated from the building by filling the concrete ventilation duct with grout, including the base of the stack up to an elevation just above the surface of the engineered cover (i.e., the multi-layered earth and geotextile cover that will overlie the NPDDF). All penetrations through the facility foundation walls will be closed with an engineered seal with a minimum thickness of the foundation walls.

4.3.1.7 Removal of Above Grade Structures

The main building, the above-ground portion of the pressure relief pit walls, and guard house will all be demolished and placed within voids in the below-ground facility, such as the pressure relief pit and the condenser room (see Section 3.3.1 for a description of structures at the NPD site). Recyclable material will be separated where practicable and the remaining structures will be crushed and placed as fill prior to final grouting (Johnson 2022a).

4.3.1.8 Installation of Concrete Cap and Engineered Cover

After all below-grade grouting has been completed, a reinforced concrete cap will be placed over the Reactor Hall floor of the NPDWF. The concrete cap provides a redundant barrier to inadvertent human intrusion and excavation. The concrete cap will be up to 0.71 m thick and is designed to support the loads of the engineered cover and its construction. The cap has an area of approximately 557,570 m^2 and acts as a redundant barrier to inadvertent human intrusion. It will be present only over the nuclear area because of the long-lived radionuclides present and the consequences of intrusion are higher than elsewhere. The concrete cap performs a secondary function of helping to withstand the load associated with a postulated collapse of the exhaust stack, considered a low probability event.

A multi-layered engineered cover will be placed over the grouted facility, following placement of the concrete cap over the nuclear area. The engineered cover consists of a compacted layer of select fill at the bottom, overlain by a very low permeability geosynthetic clay liner (GCL). Above the GCL is a layer of sand supporting a layer of crushed rock. The GCL is designed to intercept water percolating through the top of the cover and direct the water to the outside of the cover where it can drain away. The crushed rock serves as a drainage layer, and an initial barrier to inadvertent intrusion, while the coarse sand also provides some drainage capability and acts as a protective layer to the GCL. Over the crushed rock, a geotextile will be placed and covered by a layer of select fill and then topsoil to form the top of the engineered cover. The geotextile allows water to drain through the select fill to the drainage layer below, while preventing the select fill from being washed into and clogging the drainage layer. The top of the engineered cover will be graded with a slope to allow for surface drainage, and a shallow-rooted vegetative cover will be established on the topsoil to protect the barrier against erosion. The area will be graded and drainage ditching installed to manage precipitation run-off.

4.3.1.9 Final Site Restoration

Activities related to final site restoration will occur outside of the current fenced area. Once the final cap system has been completed, the temporary facilities will be removed. The remainder of the site infrastructure (e.g., roads, buried cables, drainage systems, and pipes) will be characterized and remediated. Some infrastructure may be disposed in place and some removed. Disruption to the environment and habitats will be considered as part of this decision-making and minimized to the extent practical. Fencing will be installed. Grading and planting using a native vegetation seed mix will be done. The above grade electrical distribution systems will also be deactivated. Once CNL completes the decommissioning of the NPD reactor and site closure has been achieved, AECL will evaluate the future of the lands considering all Indigenous and stakeholder input. CNL will incorporate Indigenous Knowledge systems and undertake stakeholder engagement in site restoration activities.

4.3.1.10 Long-Term Care and Maintenance

Routine surveillance of the site will include inspecting the engineered cover for subsidence, erosion, animal or other intrusion, and routine inspections of the ventilation stack. The surveillance activities and frequencies required are documented in CNL's *Surveillance Plan for the Institutional Control phase* (Taylor 2019). Additional groundwater monitoring wells will be installed, as required, to monitor the performance of the in-situ disposal facility (Johnson 2022a). The EA follow-up monitoring activities are summarized in Sections 9 and 12 below.

The ventilation stack remains structurally sound and capable of continuing to function as a chimney swift habitat into the 2060s (CNL 2022c). This is expected to complement the timeline for recovery of the species.

4.3.2 Project Schedule

Table 4.3-2 shows the planned schedule for the activities in the Decommissioning Execution, Institutional Controls phases. This schedule is included for illustrative purposes only and is based on the assumption of CNSC approval to begin work in early 2026. These activities are not recurring; therefore, frequency does not apply for any given activity. The Post-Institutional Controls phase is not included in the below table, as there are no activities associated with this project phase.

Table 4.3-2 Proposed Schedule of Project Activities (dates to be confirmed based on regulatory approvals)

Decommissioning Phase	Project Description Scope	NPD Closure Project Work Breakdown Structure[1]			Corresponding Physical Activity (EIS Interaction Matrix (Table 5.2-1))	Duration	Planned Start
Decommissioning Execution	Assembly and operation of grout batch mixing plant.	8.1 NPD Enabling Works	8.1.003 Decommissioning Works	8.1.003.24962 Grout Solution Mobilization	1.1 Designate footprint, create access, temporary fencing. 1.2 Assign storage area for raw materials, ship in sand. 1.3 Set up mixing stations, hook up power. 1.4 Truck in necessary water supply or source water directly from river. 1.5 Provide slip pipe access to nuclear area. 1.6 Construct washout pit. 1.7 Level area for pumper. 1.8 Mix grout to required formula. 1.9.a. Truck grout to pumping station. 1.9.b Alternatively set up pumping lines from mixing station to various areas around the main building.	20 days	March 2028
	Preparation and grouting of below grade structures.	8.2 Nuclear System Disposition	8.2.005 Tank and Pipe Penetrations	8.2.005 Tank and Pipe Penetrations	2.2 Systems Preparation Large Vessels. [2]	35 days	August 2027
		8.3 Building Disposition	8.3.007 Facility Preparation Activities	8.3.007.00001 Structural Penetrations 8.3.007.00002 External Penetration Seals	2.1 Room Preparation (e.g., sealing of pipes).	60 days	November 2027
			8.3.001 Bldg. Characterization and Work Planning	8.3.001.24973 Building Grout, Demolition and Stack	2.3 Grout Fill Nuclear Area (includes grouting base of stack and creating penetrations at base of stack for drainage and ventilation). 1.10 Wash out cement truck sluice and pumper truck and slip pipes. 1.11 Sample and dewater the cleaning pit. 3.4 Steel and rubble emplaced in condenser pit. 3.5 Grout first level of demolition material in condenser pit. 3.6 Steel and rubble emplaced in condenser pit. 3.7 Grout second level of demolition material in condenser pit. 3.8 Steel and rubble in condenser pit. 3.9 Grout third level of demolition material in condenser pit. 3.15 Grout furnace room and adjacent areas to ground level.	50 days	June 2028
	Removal of above grade structures and use as backfill.		8.3.006 Above-Grade Demolition	8.3.006.24988 Demolish Above-Grade Facilities	3.1 Conventional heavy equipment knockdown of reactor hall. 3.2 Sizing of material such as cutting steel beams or crushing masonry for fitting into void areas. 3.3 Set up lay down area and perform clearance surveys on materials for possible recycling. 3.10 Demolish block walls and inside walls around control room and change rooms. 3.11 Collapse ceilings of furnace room and adjacent rooms. 3.12 Emplace block wall rubble in furnace room or condenser. 3.13 Remove recyclables from guard house. 3.14 Demolish guard house and emplace in furnace room and adjacent rooms. 3.16 Demolish above grade portion of pressure relief pit. Fill with grout.	75 days	March 2029

Decommissioning Phase	Project Description Scope	NPD Closure Project Work Breakdown Structure[1]			Corresponding Physical Activity (EIS Interaction Matrix (Table 5.2-1))	Duration	Planned Start
	Install concrete cap and engineered cover.	8.4 Balance of Site Disposition	8.4.005 Site Restoration	8.4.005.25030 Concrete Cap Installation	4.1 Concrete cap (construct forms, install rebar, and pour, level and slope concrete).	30 days	August 2029
				8.4.005.25031 Engineered Cover Installation	4.2 Engineered cover (ship in materials, layer and shape mound, install geotextile layer, grade property, install remaining earth layers and seed).	90 days	September 2029
	Final site restoration.		8.4.006 Site Demobilization	8.4.006.25027 Site Restoration and Demobilization	1.12 Demobilize grout batch mixing plant after cap installation. 5.1 Site Restoration (install fencing, install monitoring wells if required, remediate areas impacted by decommissioning, washout pit, complete closure surveys). 5.2 Demobilize Site (Remove temporary facilities, decontaminate equipment, remove power upgrades, poles and lines, return transformers and install controlled access gate at highway (if required)).	50 days	May 2030
Institutional Controls Phase	Long-term care and maintenance activities.				6.1 Groundwater sampling. 6.2 Vegetation removal. 6.3 Road maintenance. 6.4 Fence maintenance. 6.5 Inspection activities of engineered cover.	At least 100 years	August 2030

Notes:
1 - The Work Breakdown Structure (WBS) is a hierarchical break-down of project scope into increasing levels of definition. Specifically, the NPD WBS subdivides scope into 6 level 2 elements, 21 level 3 elements and 43 level 4 elements. 8.1.003 is the Level 3 element for Decommissioning Works.
2 - To ensure that grouting fills voids to the extent reasonably practicable, large vessels will be opened to allow grout to flow inside. This fills large voids that might contribute to future subsidence or become buoyant during grout filling.

4.3.3 Scope Changes

The EIS Guidelines (CNSC 2016a) specify that:

"*The EIS will include a summary of the changes that have been made to the project since originally proposed, including the benefits of these changes to the environment, Aboriginal Peoples, and the public.*"

Certain aspects of the project have evolved during the development of decommissioning plans (Johnson, 2022a) since the submission of the project description (Titterington 2016). Table 4.3-3 below summarizes these changes and provides a rationale for the change.

Table 4.3-3 Changes in Project Scope

Initial Project Plan (from Project Description (Titterington 2016))	Current Project Plan (Johnson 2022a)	Rationale and Benefit for Change
The ventilation stack, the current roosting habitat for chimney swifts, will be demolished and an alternative roosting habitat for chimney swifts constructed. A permit under *SARA* is required in order to remove the ventilation stack.	The ventilation stack, the current roosting habitat for the chimney swift, will be *retained*. A permit under *SARA* is being sought to undertake decommissioning activities which may result in disturbance of the chimney swifts and modify the ventilation stack to incorporate it into the engineered cover. Best practices, mitigation measures and monitoring requirements have been recommended by a chimney swift subject matter expert to minimize disturbance to the swifts and to detect any impact on the swifts from the project activities (see Chimney Swift TSD).	Uncertainties related to the selection of the new alternative habitat by the chimney swifts are large. In Canada's cold climate, artificial nesting chimneys have not been successful in attracting breeding chimney swifts or roosting groups. A panel of experts from academia, government agencies and Non-governmental Organizations (NGO) gathered to discuss the challenges associated with alternative habitat available to chimney swifts in Canada. It was decided that the preferred option for the chimney swifts was to retain the current structure, which is known to attract thousands of individuals every year, removing completely the risk associated with jeopardy of the chimney swift population in Ontario and Canada. The ventilation stack remains structurally sound and capable of continuing to function as a chimney swift habitat for another 50 years. This is expected to complement the timeline for recovery of the species.

Initial Project Plan (from Project Description (Titterington 2016))	Current Project Plan (Johnson 2022a)	Rationale and Benefit for Change
After all below grade grouting has been completed, a final reinforced concrete cap will be poured over the footprint of the in-situ disposal reactor facility. An engineered cover is anticipated to be installed over the concrete cap to reduce infiltration.	After all below grade grouting has been completed a final reinforced concrete cap will be poured over the grouted reactor systems and components. An engineered cover will be installed over the Main Building footprint of NPDWF to reduce infiltration.	The PostSA has demonstrated that the inventory that remains following the Institutional Control phase is primarily in the reactor vault. The inventory elsewhere in NPDDF will be substantially decayed below concentrations which pose a risk if contacted directly. As a result of this decision, it requires clarification that the engineered cover is intended to be installed over the Main Building footprint of the disposal facility and not just over the grouted reactor system and components. The result of these changes means reduced project cost and resources, including less material to site and slightly reduced timeframe for grout batch mixing plant operation, thus somewhat reduced nuisance effects.
Water will be trucked in from an off-site location. This provides a worst-case assumption for atmospheric emissions.	For operational flexibility, it is also possible to obtain water from the existing dry hydrant on the NPD site.	Discussion with contractors regarding the project led to consideration of the potential drawing of water for the operation of the grout batch mixing plant. Thus, for operational flexibility, it is necessary to consider the potential of drawing water as part of the project. The hydrant was designed and installed according to DFO guidelines. For example, the horizontal strainer includes design features to avoid harm to fish and fish habitat, including placement of wire mesh over the strainer and rip-rap pad under the intake to reduce attractant habitat. Drawing water will eliminate/reduce the need to truck water onto the site, reducing atmospheric emissions associated with the project.

Another change to the project scope relates to the removal of obsolete equipment from the ventilation stack (working platforms, communication equipment, and a legacy access ladder). This activity was not discussed in the Project Description because it was included in the original plan to remove the stack. Once the decision was made to retain the stack, the original EIS included the removal of obsolete equipment from the stack as a project activity. At the time of initial EIS submission, approval of the NPD Closure Project was anticipated in 2018 and the communication equipment was still in service therefore removing the equipment from the stack was included as part of site closure activities. Since that time, the project schedule has been extended and the communications equipment at the top of the stack was no longer in service.

Given that the equipment on the stack is obsolete, and continued inspection and maintenance of this equipment at an elevation of approximately 45m (150 feet) poses industrial working hazards, CNL determined the safest approach to ensure the facility is maintained in a safe configuration during the Storage with Surveillance phase was to permanently remove this historic liability and out of service equipment from the ventilation stack.

The required removal of this equipment is not driven by the NPD Closure Project, and is required whether the NPD Closure Project proceeds or not. Removal of this activity from the project scope was discussed and confirmed with both the CNSC and ECCC.

4.4 Waste Strategy

By selecting a strategy of in-situ disposal, the project end state results in a disposal facility for the waste inventory at the NPD site. In that regard, all of the existing waste inventory at NPDWF, or generated as a result of the closure activities, will remain within the grouted facility. This includes all radiological inventory such as the reactor systems, structures and components, which will be grouted in place. All debris from the above-grade structures demolition will also be re-used as fill for below grade voids (Johnson 2022a). This plan for managing waste also includes encapsulation of designated substances materials such as asbestos, residual contamination from polychlorinated biphenyls (PCBs), mercury and lead paint and shielding.

4.4.1 Waste Types

During decommissioning of NPDWF, various forms of waste will be encountered. The waste can be divided into two main categories: the existing inventory (such as the systems currently in safe interim storage) and waste generated during the project. Existing inventory includes the radiological and non-radiological inventory that is currently within NPDWF and will be disposed of through in-situ disposal. Generated waste is the waste that will be produced as a by-product of the decommissioning activities, and includes items such as gloves and coveralls used by workers as personal protective equipment (PPE).

4.4.1.1 Existing Radiological Inventory

The radiological inventory comprises the radionuclides that would remain in NPDDF as part of the in-situ disposal strategy. The radiological inventory is defined in Porter (2024). The radiological inventory is

primarily associated with the reactor system (pressure tubes, calandria, and associated structures), as well as contamination within the heat transfer system, equipment for spent fuel storage and handling, facility structure and historic drummed waste.

Radionuclides will be present in these materials in two forms:

- radionuclides embedded within metals and other materials, present due to the interaction of neutrons from the reactor operation with the structures; and
- as contamination on surfaces, mainly resulting from the handling of fuel elements which had suffered failure of their protective cladding, enabling the release of some radionuclides.

The reference inventory developed in Porter (2024) is primarily based on the data sources and assumptions presented in Edwards and Adams (2019), Psotka (2021), Psotka (2022), and McVeigh (2018a). Information on the derivation of the inventory is available in Porter (2024).

The majority of the radioactivity, i.e., approximately 95%, is contained in the reactor vault and components, mainly associated with the disused reactor vessel and its internal tubing, the calandria. It is necessary to distinguish between the various materials present, as they differ in both radionuclide inventory and in terms of the mode and rate of release of radionuclides. In particular, radionuclides embedded in metals will only be released at the rate at which the metals themselves corrode, which can be very slow for materials such as zircaloy. The radiological inventory of the reactor system is therefore categorized as being associated with:

- concrete (containing characteristic activation products such as Cl-36, released on contact with groundwater due to the porous nature of the material);
- stainless steel (containing activation products such as Co-60, Ni-59, Ni-63 and C-14, released gradually as corrosion occurs);
- carbon steel (with similar activation products to stainless steel also released by corrosion);
- aluminium (with specific activation products, likely to corrode rapidly depending on water chemistry);
- zircaloy (with specific activation products such as Zr-93, released very slowly by corrosion); and
- surface contamination (fission products and actinides, primarily within the primary circuit) which are released instantaneously on contact with water.

Table 4.4-1 presents the Porter (2024) reference radionuclide inventory. This inventory is considered conservative. The reactor vault inventory is defined taking into account radionuclide concentration estimates from measurements and from modelling. For the reactor vault, the modelled values (from neutron activation calculations) were typically higher and therefore typically used in preference to measurement data. For other facility systems, components and structures, measurement data has been used but includes uncertainty factors to account for measurement uncertainties.

Table 4.4-1 Reference Radiological Inventory for the NPDDF

a) Reference Activity (Bq at 2019) of the Reactor Vault (Source: Porter (2024))

Radionuclide	Half-life (y)	Aluminium	Concrete	Carbon Steel	Stainless Steel	Zircaloy	Contamination
H-3	1.23×10^{1}	9.13×10^{9}	1.41×10^{12}	2.35×10^{8}	2.04×10^{9}	7.36×10^{11}	2.29×10^{9}
C-14	5.70×10^{3}	1.00×10^{11}	2.40×10^{10}	1.25×10^{9}	1.05×10^{11}	1.36×10^{12}	8.91×10^{9}
Cl-36	3.01×10^{5}	4.58×10^{9}	1.74×10^{8}	1.09×10^{7}	2.64×10^{5}	2.50×10^{10}	8.37×10^{7}
Ca-41	1.02×10^{5}	9.21×10^{8}	7.62×10^{9}	5.80×10^{6}	3.28×10^{8}	1.25×10^{9}	-
Co-60	5.27	5.28×10^{11}	3.18×10^{11}	1.61×10^{11}	1.34×10^{13}	2.63×10^{12}	7.56×10^{8}
Ni-59	1.01×10^{5}	2.17×10^{9}	1.68×10^{6}	8.37×10^{8}	1.54×10^{11}	2.16×10^{11}	-
Ni-63	1.00×10^{2}	5.22×10^{11}	6.83×10^{10}	3.96×10^{10}	1.44×10^{13}	3.36×10^{13}	3.15×10^{9}
Se-79	2.95×10^{5}	1.06×10^{4}	2.06	6.08×10^{5}	1.77×10^{7}	1.04×10^{5}	-
Sr-90	2.88×10^{1}	3.11×10^{9}	1.01×10^{6}	1.68×10^{8}	3.55×10^{10}	2.55×10^{10}	8.04×10^{10}
Zr-93	1.53×10^{6}	2.76×10^{6}	2.80×10^{3}	3.67×10^{3}	2.06×10^{6}	2.40×10^{11}	-
Nb-93m	1.61×10^{1}	4.97×10^{6}	2.25×10^{3}	2.55×10^{7}	1.41×10^{9}	1.94×10^{11}	-
Nb-94	2.03×10^{4}	0.00	1.62×10^{5}	5.84×10^{7}	4.40×10^{9}	1.13×10^{10}	-
Tc-99	2.11×10^{5}	2.17×10^{6}	3.94×10^{2}	7.53×10^{6}	4.12×10^{8}	1.45×10^{8}	5.28×10^{7}
Ag-108m	4.18×10^{2}	3.42×10^{8}	3.96×10^{3}	8.63×10^{8}	7.74×10^{10}	2.16×10^{10}	-
Sn-121m	4.39×10^{1}	6.19×10^{7}	1.60×10^{2}	1.94×10^{6}	7.56×10^{7}	2.08×10^{11}	-
Sn-126	2.30×10^{5}	5.66×10^{4}	3.32	0.00	3.71×10^{5}	6.86×10^{5}	-
Sb-125	2.76	2.67×10^{7}	1.55×10^{1}	1.15×10^{6}	2.52×10^{7}	9.05×10^{10}	-
I-129	1.57×10^{7}	3.76×10^{3}	0.00	0.00	3.94×10^{4}	5.25×10^{4}	-
Cs-135	2.30×10^{6}	6.68×10^{4}	3.86×10^{1}	1.79×10^{3}	1.34×10^{6}	7.45×10^{5}	-
Cs-137	3.02×10^{1}	6.91×10^{9}	1.07×10^{6}	1.87×10^{8}	4.82×10^{10}	7.79×10^{10}	1.23×10^{11}
Sm-151	9.00×10^{1}	4.71×10^{8}	5.51×10^{5}	3.07×10^{8}	2.25×10^{9}	7.60×10^{7}	-
Eu-152	1.35×10^{1}	7.78×10^{9}	1.23×10^{11}	5.92×10^{7}	1.26×10^{8}	3.48×10^{9}	-
U-234	2.46×10^{5}	7.04×10^{5}	4.35×10^{5}	2.76×10^{7}	1.18×10^{7}	1.35×10^{5}	-
U-235	7.04×10^{8}	2.08×10^{4}	2.02×10^{4}	1.26×10^{6}	2.45×10^{5}	0.00	-
U-236	2.34×10^{7}	0.00	1.02×10^{1}	0.00	1.51×10^{5}	1.85×10^{4}	-
U-238	4.47×10^{9}	4.68×10^{5}	4.40×10^{5}	2.79×10^{7}	6.04×10^{6}	9.24×10^{4}	-

Radionuclide	Half-life (y)	Aluminium	Concrete	Carbon Steel	Stainless Steel	Zircaloy	Contamination
Np-237	2.14×10^{6}	0.00	0.00	0.00	2.97×10^{4}	3.09×10^{4}	-
Pu-238	8.77×10^{1}	8.96×10^{7}	8.30×10^{8}	7.26×10^{2}	3.27×10^{8}	1.05×10^{9}	4.44×10^{8}
Pu-239	2.41×10^{4}	6.44×10^{7}	2.06×10^{7}	1.08×10^{8}	1.49×10^{9}	4.22×10^{8}	2.99×10^{9}
Pu-240	6.56×10^{3}	4.24×10^{7}	2.29×10^{1}	1.39×10^{5}	9.71×10^{8}	4.80×10^{8}	-
Pu-241	1.44×10^{1}	1.12×10^{9}	0.00	1.50×10^{4}	1.30×10^{10}	1.56×10^{10}	-
Pu-242	3.75×10^{5}	6.73×10^{5}	0.00	0.00	3.57×10^{5}	1.11×10^{7}	-
Am-241	4.32×10^{2}	1.36×10^{8}	0.00	0.00	1.88×10^{9}	1.80×10^{9}	4.47×10^{9}
Am-242m	1.41×10^{2}	3.37×10^{5}	0.00	0.00	7.91×10^{6}	3.39×10^{6}	-
Am-243	7.37×10^{3}	9.67×10^{6}	0.00	0.00	3.48×10^{5}	1.64×10^{8}	-
Cm-243	2.91×10^{1}	5.45×10^{5}	-	-	3.10×10^{5}	9.27×10^{6}	-
Cm-244	1.81×10^{1}	9.95×10^{8}	0.00	0.00	1.19×10^{6}	1.58×10^{10}	-
Be-10	1.51×10^{6}	1.26×10^{5}	0.00	0.00	5.14×10^{4}	5.62×10^{4}	-
Al-26	7.17×10^{5}	4.18×10^{6}	0.00	0.00	0.00	0.00	-
P-32	3.91×10^{-2}	3.20×10^{4}	1.47×10^{-1}	4.80×10^{1}	2.06×10^{3}	4.80×10^{5}	-
Si-32	1.32×10^{2}	3.15×10^{4}	0.00	0.00	1.76×10^{3}	4.80×10^{5}	-
Ar-39	2.69×10^{2}	2.73×10^{7}	3.28×10^{4}	6.97×10^{4}	5.85×10^{5}	1.80×10^{8}	-
Fe-55	2.74	8.77×10^{10}	7.84×10^{10}	1.73×10^{10}	3.15×10^{12}	1.79×10^{11}	4.59×10^{8}
Fe-60	1.50×10^{6}	7.25×10^{4}	0.00	0.00	1.80×10^{5}	1.74×10^{5}	-
Co-60m	1.99×10^{-5}	7.25×10^{4}	0.00	0.00	1.80×10^{5}	1.74×10^{5}	-
Kr-85	1.07×10^{1}	1.08×10^{8}	2.82×10^{4}	5.41×10^{6}	1.35×10^{9}	7.82×10^{8}	-
Rb-87	4.92×10^{10}	0.00	3.29×10^{4}	0.00	0.00	0.00	-
Y-90	7.31×10^{-3}	2.97×10^{9}	1.01×10^{6}	1.73×10^{8}	7.09×10^{10}	2.55×10^{10}	-
Nb-91	6.80×10^{2}	2.91×10^{4}	0.00	4.07×10^{5}	1.39×10^{7}	7.84×10^{6}	-
Mo-93	4.00×10^{3}	3.71×10^{6}	0.00	3.50×10^{7}	1.93×10^{9}	6.84×10^{8}	-
Ru-106	1.02	2.27×10^{1}	4.62×10^{-4}	9.79×10^{-2}	1.22×10^{2}	3.46×10^{2}	-
Pd-107	6.50×10^{6}	2.78×10^{4}	0.00	0.00	1.07×10^{5}	4.74×10^{5}	-
Ag-108	4.51×10^{-6}	2.98×10^{7}	3.44×10^{2}	7.34×10^{7}	6.73×10^{9}	1.08×10^{9}	-
Ag-109m	1.25×10^{-6}	3.00×10^{3}	2.61×10^{-7}	1.01×10^{2}	3.08×10^{4}	3.06×10^{5}	-
Cd-109	1.26	3.00×10^{3}	2.61×10^{-7}	1.01×10^{2}	3.08×10^{4}	3.06×10^{5}	-

Radionuclide	Half-life (y)	Aluminium	Concrete	Carbon Steel	Stainless Steel	Zircaloy	Contamination
Cd-113m	1.41×10^{1}	4.13×10^{7}	2.15×10^{1}	6.28×10^{8}	2.21×10^{9}	2.71×10^{7}	-
Sn-121	4.39×10^{1}	4.80×10^{7}	1.24×10^{2}	1.53×10^{6}	5.87×10^{7}	1.61×10^{11}	-
Te-125m	1.57×10^{-1}	6.53×10^{6}	3.79	2.62×10^{5}	6.14×10^{6}	2.22×10^{10}	-
Sb-126m	3.38×10^{-2}	5.66×10^{4}	3.32	0.00	3.71×10^{5}	6.86×10^{5}	-
Ba-133	1.05×10^{1}	1.02×10^{9}	1.57×10^{6}	0.00	1.37×10^{3}	1.19×10^{4}	-
Ba-137m	4.85×10^{-6}	5.86×10^{9}	1.01×10^{6}	8.50×10^{7}	4.55×10^{10}	7.37×10^{10}	-
Cs-134	2.06	5.57×10^{5}	2.89×10^{-3}	4.33	3.60×10^{5}	6.70×10^{6}	-
La-137	6.00×10^{4}	2.92×10^{5}	1.18×10^{1}	2.38×10^{5}	1.41×10^{7}	0.00	-
Pm-145	1.77×10^{1}	2.47×10^{8}	4.60×10^{3}	0.00	0.00	0.00	-
Pm-146	5.53	1.83×10^{5}	0.00	0.00	2.16×10^{2}	0.00	-
Pm-147	2.62	7.80×10^{6}	9.03×10^{2}	1.44×10^{6}	1.60×10^{8}	2.44×10^{7}	-
Eu-154	1.35×10^{1}	2.51×10^{10}	1.38×10^{6}	8.78×10^{5}	6.75×10^{8}	1.16×10^{9}	4.80×10^{8}
Eu-155	8.59	1.90×10^{9}	1.25×10^{4}	6.57×10^{4}	3.18×10^{7}	8.38×10^{7}	-
Tb-157	7.10×10^{1}	4.24×10^{7}	1.46×10^{3}	0.00	0.00	0.00	-
Tb-158	1.80×10^{2}	8.26×10^{6}	0.00	0.00	0.00	0.00	-
Ho-166m	1.20×10^{3}	3.73×10^{7}	0.00	0.00	0.00	0.00	-
Hf-182	9.00×10^{6}	0.00	0.00	0.00	2.69×10^{3}	4.44×10^{6}	-
Ta-182	3.13×10^{-1}	3.17×10^{2}	0.00	1.36×10^{-1}	2.93×10^{3}	4.44×10^{6}	-
Re-186	1.03×10^{-2}	2.33×10^{3}	0.00	6.63×10^{-1}	8.64×10^{3}	1.20×10^{6}	-
Re-186m	2.00×10^{5}	2.06×10^{3}	0.00	0.00	7.91×10^{3}	1.20×10^{6}	-
Pt-193	5.00×10^{1}	2.24×10^{6}	0.00	0.00	0.00	7.92×10^{8}	-
Tl-208	5.80×10^{-6}	3.13×10^{5}	1.13×10^{5}	3.26×10^{6}	4.98×10^{6}	0.00	-
Pb-205	1.53×10^{7}	2.79×10^{4}	0.00	0.00	1.26×10^{4}	2.53×10^{5}	-
Pb-209	3.71×10^{-4}	0.00	2.25×10^{2}	1.32×10^{4}	1.24×10^{6}	0.00	-
Pb-210	2.22×10^{1}	0.00	3.67×10^{1}	0.00	0.00	0.00	-
Pb-212	1.21×10^{-3}	9.11×10^{5}	3.14×10^{5}	9.69×10^{6}	1.38×10^{7}	1.90×10^{3}	-
Bi-210	1.37×10^{-2}	4.02×10^{1}	3.67×10^{1}	0.00	0.00	4.86×10^{2}	-
Bi-211	4.07×10^{-6}	0.00	2.96×10^{1}	7.68×10^{3}	1.97×10^{5}	0.00	-
Bi-212	1.15×10^{-4}	9.11×10^{5}	3.14×10^{5}	9.69×10^{6}	1.38×10^{7}	1.90×10^{3}	-

Radionuclide	Half-life (y)	Aluminium	Concrete	Carbon Steel	Stainless Steel	Zircaloy	Contamination
Bi-213	8.68×10^{-5}	0.00	2.25×10^{2}	1.32×10^{4}	1.24×10^{6}	0.00	-
Po-210	3.79×10^{-1}	4.02×10^{1}	3.67×10^{1}	0.00	1.02	4.86×10^{2}	-
Po-212	9.47×10^{-15}	5.84×10^{5}	2.01×10^{5}	5.81×10^{6}	8.87×10^{6}	0.00	-
Po-213	1.33×10^{-13}	0.00	2.20×10^{2}	1.29×10^{4}	1.21×10^{6}	0.00	-
Po-215	5.64×10^{-11}	0.00	2.96×10^{1}	7.68×10^{3}	1.97×10^{5}	0.00	-
Po-216	4.59×10^{-9}	9.11×10^{5}	3.14×10^{5}	9.41×10^{6}	1.38×10^{7}	1.90×10^{3}	-
At-217	1.02×10^{-9}	0.00	2.25×10^{2}	1.32×10^{4}	1.24×10^{6}	0.00	-
Fr-221	9.32×10^{-6}	0.00	2.25×10^{2}	1.32×10^{4}	1.24×10^{6}	0.00	-
Rn-220	1.06×10^{-4}	9.11×10^{5}	3.14×10^{5}	9.33×10^{6}	1.38×10^{7}	1.90×10^{3}	-
Ra-224	1.00×10^{-2}	9.11×10^{5}	3.14×10^{5}	9.32×10^{6}	1.38×10^{7}	1.90×10^{3}	-
Ra-225	4.08×10^{-2}	0.00	2.25×10^{2}	1.32×10^{4}	1.24×10^{6}	0.00	-
Ra-228	5.75	3.28×10^{4}	3.14×10^{5}	9.17×10^{6}	1.98×10^{6}	0.00	-
Ac-225	2.74×10^{-2}	0.00	2.25×10^{2}	1.32×10^{4}	1.24×10^{6}	0.00	-
Ac-228	6.99×10^{-4}	3.28×10^{4}	3.14×10^{5}	9.15×10^{6}	1.98×10^{6}	0.00	-
Th-228	1.91	9.11×10^{5}	3.14×10^{5}	9.21×10^{6}	1.38×10^{7}	1.90×10^{3}	-
Th-229	7.34×10^{3}	0.00	2.25×10^{2}	1.32×10^{4}	1.24×10^{6}	0.00	-
Th-230	7.54×10^{4}	0.00	3.15×10^{3}	9.66×10^{4}	2.59×10^{4}	0.00	-
Th-231	2.91×10^{-3}	2.08×10^{4}	2.02×10^{4}	1.26×10^{6}	2.45×10^{5}	0.00	-
Th-232	1.41×10^{10}	3.28×10^{4}	3.14×10^{5}	9.19×10^{6}	1.98×10^{6}	0.00	-
Th-234	6.60×10^{-2}	4.68×10^{5}	4.40×10^{5}	2.79×10^{7}	6.04×10^{6}	9.24×10^{4}	-
Pa-234	7.64×10^{-4}	0.00	7.03×10^{2}	4.33×10^{4}	9.66×10^{3}	0.00	-
Pa-234m	2.22×10^{-6}	4.68×10^{5}	4.40×10^{5}	2.79×10^{7}	6.04×10^{6}	9.24×10^{4}	-
U-232	6.89×10^{1}	8.52×10^{5}	0.00	1.33×10^{3}	1.15×10^{7}	1.84×10^{3}	-
U-233	1.59×10^{5}	1.52×10^{6}	5.72×10^{4}	8.26×10^{6}	3.13×10^{8}	0.00	-
U-237	1.85×10^{-2}	2.75×10^{4}	1.84×10^{-6}	3.69×10^{-1}	3.18×10^{5}	3.82×10^{5}	-
Am-242	1.83×10^{-3}	3.35×10^{5}	0.00	0.00	7.87×10^{6}	3.37×10^{6}	-
Cm-242	4.46×10^{-1}	2.77×10^{5}	0.00	0.00	6.51×10^{6}	2.79×10^{6}	-
Cm-245	8.50×10^{3}	1.14×10^{5}	0.00	0.00	0.00	1.83×10^{6}	-
Cm-246	4.76×10^{3}	3.64×10^{5}	0.00	0.00	0.00	5.25×10^{6}	-

b) Reference Inventory in other Rooms (Source: Porter (2024))

Radionuclide	Half-life (y)	Boiler Room (Bq)	Fueling Room (Fueling Machine Room) (Bq)	Turbine Room (Bq)	Generic Contamination* (Bq g^{-1})
H-3	1.23×10^{1}	1.76×10^{11}	2.80×10^{8}	1.97×10^{12}	5.37×10^{2}
C-14	5.70×10^{3}	9.99×10^{7}	9.21×10^{5}	8.15×10^{8}	2.40×10^{1}
Cl-36	3.01×10^{5}	1.10×10^{6}	0	7.47×10^{7}	5.19×10^{-3}
Co-60	5.27	1.51×10^{10}	8.46×10^{7}	1.09×10^{6}	9.92×10^{-4}
Ni-63	1.00×10^{2}	1.16×10^{10}	3.00×10^{8}	3.55×10^{7}	2.19×10^{-3}
Sr-90	2.88×10^{1}	1.88×10^{10}	3.51×10^{9}	1.44×10^{7}	3.72×10^{-3}
Tc-99	2.11×10^{5}	0	4.35×10^{6}	4.55×10^{6}	1.04×10^{-3}
Cs-137	3.02×10^{1}	1.13×10^{9}	6.18×10^{9}	4.18×10^{6}	1.41×10^{-2}
Eu-154	1.35×10^{1}	2.39×10^{8}	1.31×10^{7}	0	0
Eu-155	8.59	5.93×10^{7}	0	0	0
U-235	7.04×10^{8}	0	0	5.33×10^{6}	5.93×10^{-4}
U-238	4.47×10^{9}	0	0	7.66×10^{7}	9.58×10^{-3}
Pu-238	8.77×10^{1}	2.60×10^{8}	8.07×10^{7}	8.37×10^{6}	2.98×10^{-3}
Pu-239	2.41×10^{4}	2.70×10^{9}	3.21×10^{8}	2.99×10^{6}	6.60×10^{-4}
Pu-241	1.44×10^{1}	2.10×10^{10}	3.81×10^{9}	0	0
Am-241	4.32×10^{2}	2.86×10^{9}	4.47×10^{8}	4.31×10^{6}	2.34×10^{-4}

Note:

* In the PostSA TSD, generic contamination levels are applied to the concrete structure of the NPDWF in order to produce a total activity for modelling purposes.

Porter (2024) categorizes the vast majority of the waste inventory, by volume, as LLW. Based on the activation products within the reactor systems, a small volume (~ 389 m^3) is classified as ILW. CSA 292.0:19 (2019d) guidance (*General principles for the management of radioactive waste and irradiated fuel*) suggests limiting the amount of long-lived beta and/or gamma emitting radionuclides (C-14, Cl-36, Ni-63, Zr-93, & Nb-94) in LLW to an average of up to tens of kBq/g. Radionuclides such as C-14, Ni-63 and Zr-93 are present in the reactor system at concentrations exceeding this value. Although the surface contamination within systems includes long-lived alpha emitting radionuclides (e.g., U-235, U-238, Pu-239), these radionuclides are only present in very low residual amounts, thus the significant majority of the long-lived radionuclides are beta emitters.

As mentioned above, all nuclear fuel was previously removed from the NPD site. Therefore, there is no high-level waste remaining at NPDWF.

4.4.1.2 Existing Non-Radiological Inventory

The inventory of non-radiological contaminants is dominated by those typically associated with 50-year-old industrial facilities. This includes:

- Lead: from lead paint, lead bricks, and encased lead, such as poured or lead shot, previously used as shielding;
- Mercury: from instruments, such as thermometers;
- Asbestos: from pipe insulation, floor tiles and building cladding; and
- PCBs: all PCB-containing light ballasts will be removed prior to decommissioning. Negligible amounts of PCBs will remain in the NPDWF from residual contamination.

Riopel (2020) documents the current inventories and locations of hazardous materials in NPDWF, specifically lead, asbestos, PCBs and mercury. Information on these materials is summarized in Table 4.4-2 below. Riopel (2020) also discusses the expected location of these materials after the NPDWF decommissioning is completed.

The concentrations of PCBs in solids at NPD are below the regulatory limit of 50 mg/kg, and therefore PCBs are screened out as a contaminant of potential concern for atmospheric modeling in the DecomSA TSD.

If any PCBs above regulatory limits are discovered during decommissioning of the NPDWF, this waste would be deemed non-compliant and would be removed and dispositioned accordingly through CNL's Hazardous Waste processes.

Table 4.4-2 Reference Non-Radiological Inventory for NPDWF

Material	Inventory Description
Asbestos	Estimated 230 m^3, of which 165 m^3 is located in sealand containers outside of the main building of the NPDWF, and inside the fenced area, generated from previous asbestos abatement activities. Also present inside walls in above-grade structure (20 m^3), inside reactor vault (5 m^3), inside boiler room (30 m^3), and exterior transite panels (10 m^3).
Lead	There is lead paint throughout the NPDWF and there is also a significant quantity of lead associated with shielding, mainly in the Fueling Machine Room. The total quantity of lead present is estimated to be approximately 225 metric tonnes (approximately 170 tonnes of which is located in the Fueling Machine Room and New Fuel Room)
PCBs	There is potential for negligible amounts of PCBs to be present in paint and caulking in the NPDWF. Sampling and analysis of paint and caulking in the NPDWF indicates that PCB concentrations are below the regulated level of 50 mg/kg (McVeigh 2018a), and thus do not warrant further assessment. All PCB-containing light ballasts will be removed prior to the Decommissioning Execution phase.
Mercury	Estimated less than 0.01 kg residual contamination, located in the boiler room.

4.4.1.3 Generated Waste

In addition to the waste that is already present at NPDWF, further waste will be generated during the project. Some of these generated decommissioning wastes will be LLW and consist of common industrial items that have become contaminated with low levels of radioactivity during the grouting and demolition activities. This may consist of mops, rags, temporary floor coverings, floor sweepings, protective equipment and clothing as well as possibly hardware items which become expendable such as cameras or temporary lighting. These wastes will continue to be managed at the CRL Site in accordance with the Waste Management Plan for the NPD Closure Project (Riopel 2020). Localized remediation activities may also produce low level contaminated soils which may be emplaced into NPDWF for disposal.

The NPDWF currently generates on order of 10 m^3/y of LLW in the form of PPE or general consumables. Due to recent work to prepare for decommissioning (i.e. asbestos abatement and system characterization), this volume reflects to the volume of organic waste that may be disposed of during the Decommissioning Execution phase. For context, O.Reg 232/98 (Ontario 1998) includes requirements for gas generation assessment but the regulation applies for (municipal) waste disposal volumes of 40,000 m^3 or more.

Thus, the projected volumes are trivial, and the total radiological inventory will be negligible and bounded by the reference radiological inventory.

4.4.2 Waste Characterization

The reference inventories serve as the limit of radiological or non-radiological contaminants which may be grouted within NPDWF, as they have been demonstrated as meeting the appropriate acceptance criteria within the PostSA. The reference radiological inventory is based on field characterization work (e.g., McVeigh 2018a, and Psotka 2021) or by industry-accepted calculations (i.e., Edwards and Adams 2019).

The *Characterisation Plan for Nuclear and Conventional Hazards of the Nuclear Power Demonstration Waste Facility* (ORAU 2016) recommends investigations for all the site land areas as well as the NPDWF structures and remaining systems. The Characterisation Plan forms the basis for the succeeding studies by using data quality objectives (DQO) to establish the types of investigations required to address the impact of both radiological and chemical contaminants of concern to structures and land areas to ensure

that the type, quality, and quantity of data collected are adequate for the intended decision applications. The plan describes the sample collection and analysis protocols that were used in the performance of the characterization activities that contributed to the radiological and hazardous/designated substances inventory of the facility. The protocols ensure that appropriate samples are submitted to laboratories, analyzed with industry recognised methods and that analyses are reported with sufficient quality. In the case of the recent characterization of the facility, a combination of radiometric as well as other analytical techniques were used, e.g. in the identification of uranium isotopes in reactor pressure tube samples where inductively coupled plasma mass spectrometry (ICP-MS) was used as part of the analytical procedure to determine the radiological content.

The characterization plan (ORAU 2016) was executed, using methodologies and sampling designs intended to provide the data required to support the multiple characterization objectives, which included:

- Confirm the bounding reference inventory of the reactor and associated systems (i.e., primary heat transport and moderator systems). These characterization activities have been completed as part of the planning for decommissioning in order to provide confidence in the reference inventory used within the PostSA TSD (NMNTI 2017, McVeigh 2019 and Psotka 2021); and
- Identify the nature and extent of both radiological and non-radiological contamination within the building structure and other nuclear systems. Sufficient scoping level information was available to support the development of decommissioning plans and a statistical approach has been developed for further verification activities (McVeigh 2018a).

The NPD Closure Project completed sampling and laboratory analysis of the various reactor components, building structure and other nuclear systems as a waste verification activity to build confidence in the calculated inventory. The reactor sampling results, NMNTI (2017) were used to validate the activation products in various reactor material masses modelled by Smith (1988), Edwards (2017) and subsequently, Edwards and Adams (2019).

A composite total radiological inventory was derived by using the higher of the results for each component by radionuclide except in the case of tritium where the most reliable figure is used (see Appendix E of the PostSA TSD).

Generally, the measured waste inventory within NPDWF is significantly lower than the reference inventory used in the safety analysis due to the conservatisms used in the theoretical derivation.

4.5 Potential Project-Related Releases to the Environment

Routine operations, each phase of the project, and every activity within that phase, will have some releases to the environment. These releases may or may not have an effect on the environment; however, before the potential effects can be assessed, all potential releases must be identified. Table 4.5-1 below shows the expected types of releases to air (including noise), groundwater (GW) and surface water (SW), as well as the typical frequencies of these releases.

The release types listed in Table 4.5-1 do not include releases caused from accidents. Accidents and malfunctions, and the predicted effects associated with them, are discussed in Section 7 of the DecomSA TSD, and summarized in Section 9.12 below.

Table 4.5-1 Potential Project-Related Releases for each Phase and Activity

Decom. Phase	Associated Activities	Time frame	Pathway	Potential Release	Frequency
Decommissioning Execution	Assembly and operation of grout batch mixing plant	2026	Air	• Dust from movement of grout materials and machinery • Road dust from trucks • Greenhouse gas emissions (e.g., diesel emissions[1]). • Noise from assembly and operation of plant and machinery, and from trucks	Periodic
			GW	• No emissions expected	N/A
			SW	• Releases from washout pit[2]	Occasional
	Grouting of below-grade structures	2026	Air	• Dust from movement of machinery and movement of grout materials • Road dust from trucks • Greenhouse gas emissions (e.g., diesel emissions[1]). • Noise from machinery, and from trucks • Ventilation for curing the grout • Hydrogen release from a grout-aluminum reaction	Periodic
			GW	• No emissions expected	N/A
			SW	• Releases from washout pit[2]	Occasional
	Removal of above-grade structures and use as backfill	2027	Air	• Dust from demolition • Road dust from trucks • Potential release of asbestos from Transite cladding • Diesel and fuel emissions[1] • Noise from demolition and machinery	Periodic
			GW	• No releases expected	N/A
			SW	• Runoff from rain • Runoff from misting during demolition	Periodic

Decom. Phase	Associated Activities	Time frame	Pathway	Potential Release	Frequency
Decommissioning Execution	Installation of concrete cap and engineered cover	2027	Air	• Dust from movement of grout materials and machinery • Road dust from trucks • Greenhouse gas emissions (e.g., diesel emissions[1]). • Noise from operation of plant and machinery, and from trucks	Periodic
			GW	• No releases expected	N/A
			SW	• Releases from washout pit[2] • Releases from cleaning of equipment prior to release from site • Runoff	Occasional
	Final site restoration	2028	Air	• Dust from site restoration activities (machinery and deconstruction/ demolition) • Road dust from trucks • Greenhouse gas emissions (e.g., diesel emissions[1]). • Noise from machinery and trucks	Periodic
			GW	• No releases expected	N/A
			SW	• With mitigation measures in place, there should be no unmanaged runoff to the environment	N/A
Institutional Controls	Long-term care and maintenance, Facility performance during the Institutional Controls phase	>2028 (at least 100 years)	Air	• Negligible releases from maintenance and monitoring activities	Occasional
			GW	• Eventual release of dissolved contaminants • The alkaline plume study shows essentially no alkaline plume forming for at least 100,000 years post-closure.	Delayed and gradual
			SW	• Dissolved contaminants in groundwater may reach the Ottawa River • The alkaline plume study shows essentially no alkaline plume forming for at least 100,000 years post-closure	Delayed and gradual

Decom. Phase	Associated Activities	Time frame	Pathway	Potential Release	Frequency
Post-Institutional Controls	Facility performance during the Post-Institutional Controls phase.	>2128	Air	• Eventual releases through cap system	Delayed and gradual
			GW	• Eventual release of dissolved contaminants. • The alkaline plume study shows essentially no alkaline plume forming for at least 100,000 years post-closure	Delayed and gradual
			SW	• Eventual release of dissolved contaminants leached through groundwater migration • The alkaline plume study shows essentially no alkaline plume forming for at least 100,000 years post-closure	Delayed and gradual

Notes:

N/A – Not applicable, i.e., no release expected.

Periodic – occurring at regular intervals.

Occasional – occurring at infrequent intervals.

1 – Diesel emissions may originate from diesel generators, trucks and machinery.

2 – A wash out pit may be created to collect and settle water used in the grouting and capping cleaning process.

The main liquids identified for normal decommissioning operations are:

- wash water (produced from washing cement vehicles and sluices); and,
- any water potentially accumulated inside the NPDWF during grouting (from groundwater ingress or precipitation) or at the base of the ventilation stack (produced by precipitation) or by activities such as misting.

Any liquids generated by the NPD Closure Project will be handled as a non-routine discharge following approved CNL Environmental Protection processes (Matasich 2021). Any non-routine discharge will be reviewed against the acceptability criteria in (Matasich 2021), which outlines appropriate disposition routes depending on the analysis results.

4.6 Project-Related Employment

Based on the project activities discussed above, the employment benefits resulting from the project are likely to be minimal. During the Decommissioning Execution phase, approximately 20 CNL staff and 10 local contractors are expected to be on-site at any given time. During the Institutional Controls phase workers will only be on site during periodic staff visits. CNL has a human resources plan that includes the transitioning of NPD Closure Project staff to other Environmental Remediation Management (ERM) initiatives following completion of the project. Any follow-up monitoring or surveillance activities under institutional controls would require minimal staff that will be supported through periodic surveillance visits from CRL staff.

5 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

5.1 Factors to be Considered

As discussed in Section 3.5, the EA for the project is being conducted under *CEAA* (2012).

This EIS has been prepared in accordance with the methodology provided in the EIS Guidelines (CNSC 2016a). Scoping establishes the EA's parameters and focuses the assessment on relevant issues and concerns. The EA of the designated project must take into account the following factors, as listed in subsection 19(1) of *CEAA*:

a) the environmental effects of the designated project, including the environmental effects of malfunctions or accidents that may occur in connection with the designated project, and any cumulative environmental effects likely to result from the designated project in combination with other physical activities that have been or will be carried out;

b) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;

c) the significance of those environmental effects after mitigation (residual effects);

d) comments from the public that are received in accordance with the *CEAA*;

e) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;

f) the requirements of the follow-up program in respect of the designated project;

g) the purpose of the designated project;

h) alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such alternative means;

i) any changes to the designated project that may be caused by the environment;

j) the results of any relevant study conducted by a committee established under section 73 or 74 of the *CEAA*; and

k) any other matter relevant to the EA that the CNSC requires to be taken into account, in accordance with the *Nuclear Safety and Control Act* Pursuant to subsection 19(2) of the *CEAA*, the scope of the factors to be taken into account under paragraphs 19(1)(a), (b), (d), (e), (g), (h) and (j) is determined by the CNSC, as the responsible authority.

To implement the Government of Canada interim measure with respect to upstream GHG emissions, the CNSC may require consideration of these types of emissions in the scope of the EA. On March 19, 2016, a definition of upstream GHG emissions was published by ECCC in the Canada Gazette. The proposed definition of upstream includes "*all industrial activities from the point of resource extraction to the project under review."* The processes that are to be considered as upstream activities will vary by the type of resource and the nature of the project under assessment. CNL has prepared a GHG TSD to address this specific requirement.

5.2 Scope of Factors

5.2.1 Spatial & Temporal Boundaries

5.2.1.1 Spatial Boundaries and Scale

Spatial boundaries define the geographical extent(s) within which likely or potential environmental effects will be considered. There are typically three different spatial boundaries (i.e., study areas) that are used to represent the general spatial framework for assessing environmental effects in EAs:

- Site Study Area: The project footprint (i.e., where project activities would be undertaken including the project's proposed facilities, buildings and infrastructure);
- Local Study Area: The area existing outside the site study area boundary, where measurable changes to the environment resulting from the proposed activities from any phase of the project, either through normal activities, or from possible accidents or malfunctions, may be anticipated; and
- Regional Study Area: the area within which the potential effects of this project may interact with the effects of other projects, resulting in the potential for cumulative effects (CNSC 2016a).

Also, in accordance with the EIS Guidelines (CNSC 2016a), the application of these study areas can vary within each environmental component, to allow the full extent of likely effects to be considered. For example, the study areas for the surface water environment (which focus on the Ottawa River) will vary from the study areas for the Atmospheric Environment (which focus on the air surrounding the NPD site). Therefore, the specific spatial boundaries for each environmental component are described in their respective sections in the Baseline Characterization (Section 8 below). The study areas presented below are general ones that apply to several of the environmental components and will be referred to in Sections 8 and 9 below.

General Site Study Area

The general site study area includes the anticipated footprint of the project, which includes:

- areas within the NPDWF fenceline;
- the main road and transmission line;
- the surrounding paved areas, which may be used for laydown or other project-related activities;
- areas that will not necessarily be affected during decommissioning execution activities but will require work during the site restoration, e.g., due to prior contamination, (see Section 8.5.3); and
- the two landfills on the NPD site.

The Site Study Area extends 50 m into the Ottawa River, in order to capture the releases from the NPD site (for example, sub-surface Drain 1 discharges onto the shore of the Ottawa River. The site drainage systems are described in detail in Section 8.3.2.1. The general Site Study Area is shown in Figure 5.2-1.

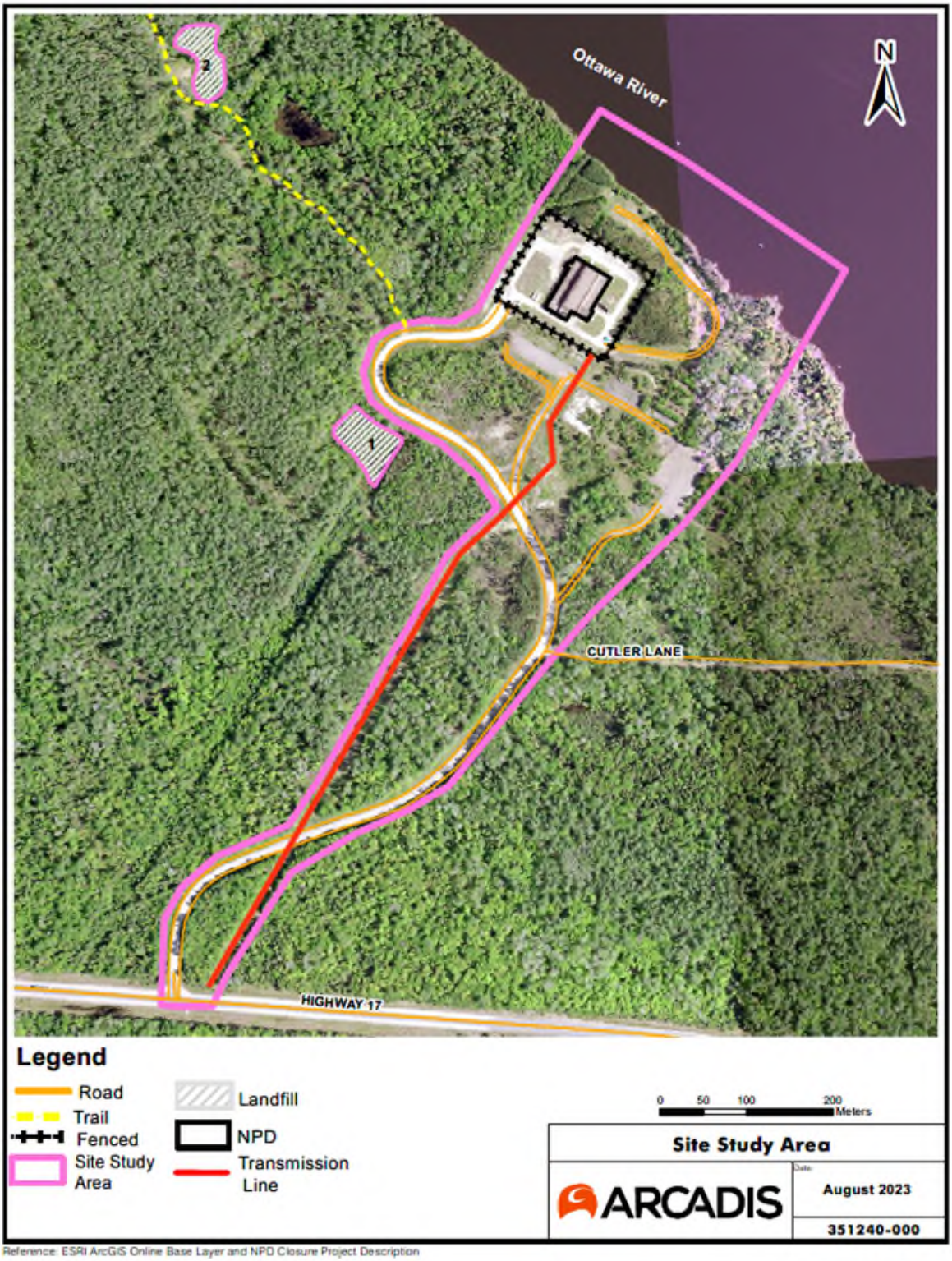
General Local Study Area

The general Local Study Area comprises the entire NPD property including the shoreline, and extends 50 m into the Ottawa River. The general Local Study Area is presented in Figure 5.2-2.

As per *the Generic Guidelines for the Preparation of an EIS*, the Local Study Area must include the area where measurable changes to the environment resulting from the proposed activities from any phase of the project, either through normal activities, or from possible accidents or malfunctions, may be anticipated. Early in the assessment process, the Local Study Area was chosen to be the NPD property as a convenient estimate of this area, with the intention of increasing the boundary if required, based on the results of the assessment. In Section 9 of the EIS, the assessment confirmed that there are no measurable effects for any environmental component beyond the Local Study Area. Although in some cases, there are modelled increased concentrations beyond the Local Study Area, e.g., Appendix F of the DecomSA TSD shows incremental concentration increases of certain air quality contaminants ($N0_2$, $S0_2$, TSP, etc.) which extend across the Ottawa River or to Highway 17, these changes are not in practice measurable/distinguishable from background values.

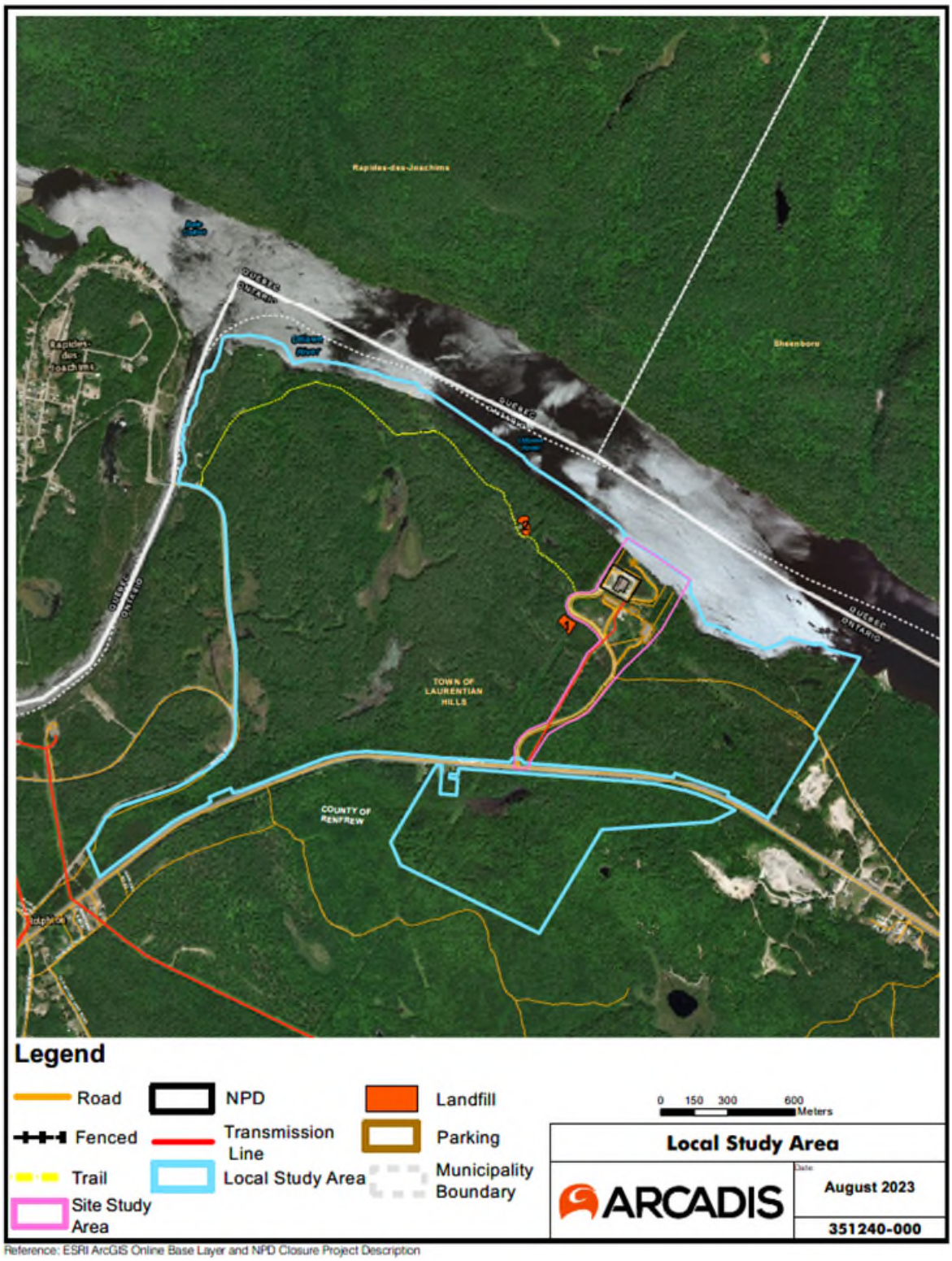
Highway 17 is excluded from the generic local study area as it is a major highway (the Trans-Canada Highway) with almost constant traffic, and has little to do with the facility/project. However, Highway 17 is considered as part of the Regional Study Area.

Figure 5.2-1 Site Study Area



Reference: ESRI ArcGIS Online Base Layer and NPD Closure Project Description

Figure 5.2-2 Local Study Area



In this EIS, to avoid repetition and for ease of interpretation, the Site and Local Study Areas are often examined together.

Regional Study Area

Due to the differences between the various environmental components, a general Regional Study Area has not been defined here. The Regional Study Area for each environmental component is presented in Section 8 (Baseline Characterization) below.

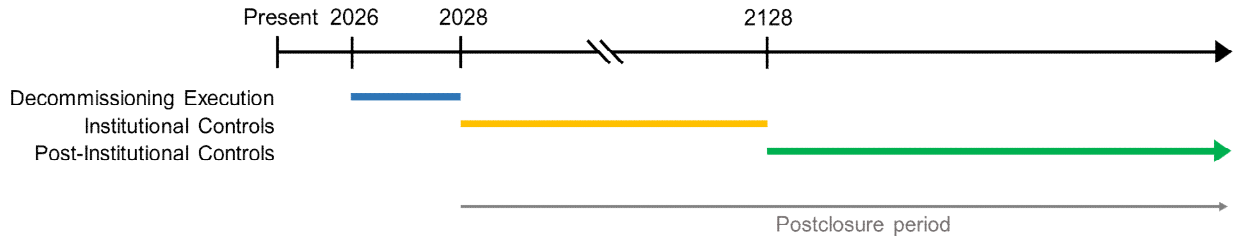
5.2.1.2 Temporal Boundaries and Scale

The temporal boundaries for the EA establish the timeframes for which the direct, indirect and cumulative effects are assessed. The following three phases were identified for the NPD Closure Project:

- **Decommissioning Execution**, which includes all activities associated with decommissioning including setup and operation of the grout batch mixing plant, grouting and demolition activities, installation of the concrete cap and engineered cover, as well as site restoration and demobilization.
- **Institutional Controls**, or a period of at least 100 years, but lasting as long as necessary (as determined by regulatory agencies) that follows the Decommissioning Execution phase. During this phase, long-term care and maintenance, oversight, and environmental monitoring would be performed by CNL in order to ensure that the disposal system performs as expected, that human safety is ensured until the short-lived nuclear wastes decay to below the acceptance criteria and that problems that may impact the long-term stability of the facility can be rectified.
- **Post-Institutional Controls**, is the period of time following the Institutional Control period, occurring after ~year 2128 and continuing indefinitely.

Figure 5.2-3 illustrates the temporal boundaries of the project. The timelines developed for the three phases are intended to be sufficiently flexible to capture the effects of the project activities. It is important to note that although the planning phase is considered a part of decommissioning, that it is not part of the EA scope.

Figure 5.2-3 Temporal Boundaries of the NPD Closure Project Phases (dates to be confirmed based on regulatory approvals)



5.2.2 Project-Environment Interactions

The specific link between a given project activity/component and a potential change to an environmental component/VC is called a project-environment interaction. The purpose of identifying project-environment interactions is to focus the effects assessment on those activities that may result in changes to the environmental components and VCs.

Project-environment interactions were developed by screening potential effects of project-related activities within each relevant component of the environment. Environmental components include media such as the atmospheric environment, resources such as surface water, and cultural aspects such as Indigenous interests. Environmental components are further sub-divided into environmental sub-components in order to capture all aspects of potential importance. For example, the aquatic environment was divided into sub-components such as aquatic habitat and aquatic biota.

Each project activity was considered individually in order to focus the effort of the assessment, and all for a more detailed screening of potential interactions. The list of project activities outlined in Section 7 of the Detailed Decommissioning Plan (Johnson 2022a) was utilized for this purpose. At this stage of the EA process, the identification of the potential project-environment interactions was based on the experience and professional judgement of technical specialists involved in the assessment. Where a plausible mechanism for project-environment interactions was identified, it was noted in the project interactions matrix (Table 5.2-1). Project-environment interactions are expanded upon in the EIS effects assessment (see Sections 9.x.3.1).

Table 5.2-1 Potential Project-Environment Interactions

	Project Works & Activities	Atmospheric		Surface Water	Aquatic		Geological and Hydrogeological			Terrestrial		Ambient Radioactivity	Human Health		Traditional Land and Resource Use	Indigenous Socioeconomic & Health			Socio-economic	
		Air Quality	Noise	Site Drainage & Water Quality	Aquatic Habitat	Aquatic Biota	Soil Quality	Groundwater Quality	Groundwater Flow	Terrestrial Habitat	Terrestrial Biota	External Gamma Radiation	Public Health	Worker Health	Traditional Land and Resource Use	Indigenous Socio-economic	Indigenous People	Indigenous Worker	Socio-economic Assets	Land Use
1.	**Decommissioning Execution: Grout Batch Mixing Plant**																			
1.1	Designate footprint, create access, temporary fencing (east side of main building).	◆	◆	◆						◆				◆	◆	◆		◆	◆	
1.2	Assign storage area for raw materials, ship in sand. Likely east side of licensed area.	◆	◆	◆	◆					◆				◆	◆	◆		◆	◆	
1.3	Set up mixing stations, hook up electrical power or diesel power.									◆				◆				◆		
1.4	Truck in necessary water supply or source water directly from river.	◆	◆		◆					◆				◆	◆	◆		◆	◆	
1.5	Provide slip pipe access to nuclear area.	◆	◆									◆		◆	◆	◆		◆	◆	
1.6	Construct washout pit. Lined excavation with water transfer. Likely near grout batch mixing plant.	◆	◆	◆						◆	◆			◆	◆	◆		◆	◆	
1.7	Level area for pumper.	◆	◆	◆						◆				◆	◆	◆		◆	◆	
1.8	Mix grout to required formula.	◆	◆											◆	◆	◆		◆	◆	
1.9.a	Truck grout to pumping station (20 trips per day).	◆	◆							◆				◆	◆	◆		◆	◆	
1.9.b	Alternatively set up pumping lines from mixing station to various areas around the main building.																			
1.10	Wash out cement truck sluice and pumper truck and slip pipes. (Daily)			◆		◆														
1.11	Sample and dewater the cleaning pit. Emplace sediments into voids in condenser room.	◆	◆	◆	◆									◆	◆	◆		◆	◆	
1.12	Demobilize grout batch mixing plant after cap installation.	◆	◆											◆	◆	◆		◆	◆	
2.	**Decommissioning Execution: Grouting of Below Grade Structure**																			
2.1	Room preparation (sealing of pipes, drilling of holes for grout passage and heat dissipation).											◆		◆		◆		◆	◆	
2.2	Systems Preparation Large Vessels.											◆		◆				◆		
2.3	Grout Fill Nuclear Area.	◆	◆							◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	

	Project Works & Activities	Atmospheric		Surface Water	Aquatic		Geological and Hydrogeological			Terrestrial		Ambient Radioactivity	Human Health		Traditional Land and Resource Use	Indigenous Socioeconomic & Health			Socio-economic	
		Air Quality	Noise	Site Drainage & Water Quality	Aquatic Habitat	Aquatic Biota	Soil Quality	Groundwater Quality	Groundwater Flow	Terrestrial Habitat	Terrestrial Biota	External Gamma Radiation	Public Health	Worker Health	Traditional Land and Resource Use	Indigenous Socio-economic	Indigenous People	Indigenous Worker	Socio-economic Assets	Land Use
3.	**Decommissioning Execution: Removal of Above Grade Structure**																			
3.1	Conventional heavy equipment knockdown of reactor hall.	◆	◆	◆	◆	◆	◆			◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
3.2	Sizing of material such as cutting steel beams or crushing masonry for fitting into void areas.	◆	◆	◆	◆	◆	◆			◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
3.3	Set up laydown area and perform clearance surveys on materials for possible recycle.	◆	◆	◆	◆		◆			◆		◆		◆	◆	◆		◆	◆	
3.4	Steel and rubble emplaced in condenser room.	◆	◆								◆	◆	◆	◆	◆	◆	◆	◆	◆	
3.5	Grout first level of demolition material in condenser room.	◆	◆								◆	◆	◆	◆	◆	◆	◆	◆	◆	
3.6	Steel and rubble emplaced in condenser pit.	◆	◆								◆	◆	◆	◆	◆	◆	◆	◆	◆	
3.7	Grout second level of demolition material in condenser room.	◆	◆								◆	◆	◆	◆	◆	◆	◆	◆	◆	
3.8	Steel and rubble in condenser room.	◆	◆								◆	◆	◆	◆	◆	◆	◆	◆	◆	
3.9	Grout third level of demolition material in condenser room.	◆	◆								◆	◆	◆	◆	◆	◆	◆	◆	◆	
3.10	Demolish block walls and inside walls around control room and change rooms.	◆	◆	◆	◆	◆	◆			◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
3.11	Collapse ceilings of furnace room and adjacent rooms.	◆	◆							◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
3.12	Emplace block wall rubble in furnace room or condenser room.	◆	◆								◆	◆	◆	◆	◆	◆	◆	◆	◆	
3.13	Remove recyclables from guard house.		◆												◆	◆			◆	
3.14	Demolish guard house and emplace in furnace room and adjacent rooms.	◆	◆	◆	◆	◆	◆				◆	◆	◆	◆	◆	◆	◆	◆	◆	
3.15	Grout furnace room and adjacent areas to ground level.	◆	◆								◆	◆	◆	◆	◆	◆	◆	◆	◆	
3.16	Demolish above grade portion of pressure relief pit. Fill with grout.	◆	◆	◆	◆	◆	◆			◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
4.	**Decommissioning Execution: Install Concrete Cap and Engineered Cover**																			
4.1	Concrete Cap (construct forms, install rebar, and pour, level and slope concrete).	◆	◆	◆					◆					◆	◆	◆		◆	◆	
4.2	Engineered Cover (ship in materials, layer and shape mound, install geotextile layer, grade property, install remaining earth layers and seed).	◆	◆	◆	◆				◆					◆	◆	◆		◆	◆	

	Project Works & Activities	Atmospheric		Surface Water	Aquatic		Geological and Hydrogeological			Terrestrial		Ambient Radioactivity	Human Health		Traditional Land and Resource Use	Indigenous Socioeconomic & Health			Socio-economic	
		Air Quality	Noise	Site Drainage & Water Quality	Aquatic Habitat	Aquatic Biota	Soil Quality	Groundwater Quality	Groundwater Flow	Terrestrial Habitat	Terrestrial Biota	External Gamma Radiation	Public Health	Worker Health	Traditional Land and Resource Use	Indigenous Socio-economic	Indigenous People	Indigenous Worker	Socio-economic Assets	Land Use
5.	**Decommissioning Execution: Final Site Restoration**																			
5.1	Site Restoration (install fencing, install monitoring wells if required, remediate areas impacted by decommissioning, washout pit, complete closure surveys).	◆	◆							◆ □					◆	◆			◆	
5.2	Demobilize Site (Remove temporary facilities, decontaminate equipment, remove power upgrades, poles and lines, return transformers).	◆	◆	◆	◆					◆ □				◆	◆	◆		◆	◆	
6.	**Institutional Controls: Long-Term Care and Maintenance**																			
6.1	Groundwater sampling.																			
6.2	Vegetation removal.																			
6.3	Road maintenance.																			
6.4	Fence maintenance.																			
6.5	Surface inspection of the engineered cover																			
6.6	Renaturalization.									□					□	□			□	□
6.7	Facility performance during the Institutional Controls phase.	◆		◆		◆		◆	◆		◆	◆	◆		◆	◆	◆		◆	
7.	**Post-Institutional Controls**																			
7.1	Facility performance during the Post-Institutional Controls phase.	◆		◆		◆	◆	◆		□	◆	◆	◆		◆□	◆□	◆		◆□	□

◆ Potential adverse interaction

□ Potential positive interaction

5.2.3 Constituents of Potential Concern

Constituents of potential concern (COPCs) are contaminants associated with the project that may pose a risk to the environment, based on current or predicted future concentrations in the environment. In the studies associated with this EA, all radionuclides for which data is available are considered COPCs. The selection of chemical COPCs was based on comparison of measured levels to existing criteria (i.e., a screening exercise) and by considering the hazardous substances that are known to be in the facility. Contaminants that are identified as COPCs are carried forward to the effects assessment (EIS Section 9). The radioactive and chemical inventory and generated waste are discussed in Section 4.4.1 above.

5.2.3.1 Radiological COPCs

The PostSA TSD discusses the radiological inventory and highlights dominant radionuclides. The majority of the radiological inventory within NPDWF is associated with reactor systems (calandria and pressure tubes), the biological shield, the primary heat transport system, and the moderator system. The radiological inventory has been developed using a cautious approach as outlined in Section 4.4.1 above. The inventory that has been associated with the reactor vault is $7.5x10^{13}$ Bq and the inventory associated with the boiler room (i.e., primary heat transport, moderator and other nuclear systems) is $2.5x10^{11}$ Bq. The top 5 dominant radionuclides present by total radioactivity in the overall facility are Ni-63, Co-60, H-3, Fe-55, and C-14 (see Table 4.4-1). All radionuclides for which data is available are considered COPCs.

5.2.3.2 Chemical COPCs

Typically, a chemical is identified as a COPC if it has a concentration in the environment (at the site) higher than a given criterion, which typically comes from a regulatory source (e.g., from Health Canada, the CCME or MOECC) or background concentrations. Additionally, COPCs are identified by taking into consideration hazardous substances that are known to be in the facility, and therefore are relevant to the project.

First, chemical COPCs were identified based on existing site conditions by screening the available constituent concentrations measured in the baseline environment against available criteria within each of the media (e.g., air, water, sediment, soil). The results of these comparisons, which are presented in detail in the Baseline Characterization (Section 8 below), are summarized in Table 5.2-2.

Table 5.2-2 Chemical COPC Screening, Based on Available Baseline Data (See Section 8 of this EIS)

Environmental Medium	Contaminant(s) Considered	Measurement Location	Applicable Criteria	Exceeds any of the Criteria?
Air	NO_2, SO_2, $PM_{2.5}$, Halocarbons	North Bay, Petawawa, NPD site	MOE 1-hour, 24-hour and annual average criteria. Canadian Ambient Air Quality Standards and National Ambient Air Quality Objectives. Sections 32 and 33 Federal Halocarbon Regulations, 2003 (bi-annual report for any halocarbon releases between 10 kg and 100 kg and immediate reporting to Environment and Climate Change Canada for halocarbon releases greater than 100 kg).	No. NO_2, SO_2, and $PM_{2.5}$ do not exceed air quality criteria. Halocarbon-containing equipment on the NPD site are air-conditioning units, refrigerators and water coolers. All of the halocarbon-containing equipment contain far below 10 kg of halocarbons. Therefore, the reporting requirements as per sections 32 and 33 of Federal Halocarbon Regulations 2003 do not apply. As part of the NPD Closure Project, all halocarbon containing equipment will be appropriately dispositioned by trained HVAC staff and will not be placed in the facility during in-situ disposal.
Soil	Several parameters	NPD site	MOE Guidelines Canadian Council of Ministers of the Environment (CCME) Soil Quality Guidelines.	A 2017 soil sampling campaign (Golder 2017b) found no exceedances of concern in areas outside the area that will be covered by the engineered barrier (See Section 8.5.3.1 for details). Therefore there are no chemical COPCs in soil.
Surface Water	Several Parameters	NPD site	CCME Canadian Water Quality Guidelines (CWQGs) (1999a) and MOE Background and Standard Values	As part of its 2018 Independent Environmental Monitoring Program (IEMP), the CNSC analyzed selected non-radiological parameters (copper, lead, mercury and cadmium) in the Ottawa River adjacent to the NPDWF. All results were below applicable benchmark values and CNSC screening levels, indicating no expected impacts on the public or the environment based on the 2018 results (See Section 8.3.4.1 for details). Therefore, there are no chemical COPCs in surface water. Samples of iron and zinc in MH-3 were found to exceed MOE and

Environmental Medium	Contaminant(s) Considered	Measurement Location	Applicable Criteria	Exceeds any of the Criteria?
				CCME guidelines; however, it is noted that MH-3 had no flow during the sampling campaign and there was a sample volume issue (Audet 2016).
		Upstream of NPD	CCME CWQGs.	Copper exceeded, however, these values were attributed to the natural leaching of rocks.
Sediment	Several metals	CRL reference and site locations	CCME Canadian Sediment Quality Guidelines (CSQGs) (2001) and MOE Guidelines for the Protection and Management of Aquatic Sediments in Ontario (1993).	The Phase II ESA (Golder 2017b) detected some minor metals exceedances in sediment (arsenic, copper, cadmium, chromium and nickel) however due to similar levels in upstream sampling locations, these exceedances are considered baseline conditions (See Section 8.3.5.1 for details). Therefore there are no chemical COPCs in sediment.
Groundwater	Several parameters	NPD site	Health Canada (2009) Drinking Water Standards and MOE Site Condition Standards for Use Under Part XV.1 of the *Environmental Protection Act* (2011).	The Phase II ESA (Golder 2017b) included a groundwater sampling campaign at 24 monitoring wells that had previously been installed on the NPD site. In addition to field measurement of general chemistry parameters, these samples were submitted for analysis of PHCs and Semi-VOCs. Analytical results for benzo[a]pyrene from one monitoring location adjacent to the NPDWF exceeded both MOECC Table 2 Standards and Health Canada Canadian Drinking Water Quality Guidelines; however, it is considered likely that this was due to disturbed sediment in the groundwater sample as a result of low groundwater yield in the well, which was pumped dry four times during the sample collection process (See Section 8.5.6.1 for details.). Therefore there are no chemical COPCs in groundwater.

In addition to the baseline screening exercise above, this assessment also identified COPCs by considering the hazardous substances that are known to be in the facility. As per the Project Description, this includes industrial chemicals, asbestos materials (such as pipe insulation, floor tiles and transite building cladding), lead-based paint, lead bricks and sheets, residual PCBs in paint and caulking (PCBs in fluorescent light fixture ballasts will be removed prior to decommissioning), and small quantities of mercury due to residual contamination (Titterington 2016).

Halocarbon-containing equipment on the NPD site are air-conditioning units, refrigerators, and water coolers. All of the halocarbon-containing equipment contain far below 10 kg of halocarbons. Therefore, the reporting requirements as per sections 32 and 33 of *Federal Halocarbon Regulations* 2003 do not apply. As part of the NPD Closure Project, all halocarbon containing equipment will be appropriately dispositioned by trained HVAC staff and will not be placed in the facility during in-situ disposal. The inventory of chemical contaminants (presented in Section 4.4.1) also discusses the possible presence of oils, due to a historical oil leak in the tile drains, which has since been remediated. However, petroleum hydrocarbon levels measured in groundwater at the NPD site were below MOE (2011) groundwater standards as well as Health Canada (2009) drinking water standards (see Table 5.2-2 above), and are therefore not retained as COPCs. Project-related GHG releases are estimated in EIS Section 9.2.3, and were found to be less than the annual reporting threshold.

Based on the above baseline screening (Table 5.2-2 above) and the hazardous substances identified in the facility, the following list comprises the chemical COPCs that are relevant for the NPD Closure Project:

- Asbestos;
- Lead;
- Mercury; and
- PCBs.

5.2.4 VCs

VCs, sometimes referred to in EAs as valued ecosystem components (VECs), are environmental, biophysical or human features that may be affected by a project and that have been identified to be of importance by the proponent, government agencies, Indigenous peoples, or the public. The value of a component not only relates to its role in the ecosystem, but also to the value people place on it. For example, it may have been identified as having scientific, social, cultural, economic, historical, archaeological, or aesthetic importance (*CEAA* 2012).

VCs are often thought of in terms of the aquatic and terrestrial environments where ecological features, individual species, or important groups of species may be identified. VCs also exist, however, for cultural and socio-economic environmental components such as heritage resources or hunting and trapping activities. In some cases, an environmental component will not have a VC; rather it will be a pathway, or a means for transfer of an effect to a VC in another environmental component. For example, in the atmospheric environment, air quality and noise act as pathways for the transfer of effects to VCs in other environmental components, such as biota in the terrestrial environment.

VC identification is based on the potential project-environment interactions in various environmental components, and the description of the existing environment. As the focal points of the EA study, it is important that the selected VCs represent meaningful receptors of the environmental effects that may be caused by the project. VCs are selected to account for the effect of the project on other species present. A summary of the methodology that was applied for selection of VCs is described below.

5.2.4.1 VC Selection Methodology and Process

Overall, the VC selection process involves:

1. Create master list of candidate VC species, by reviewing relevant reference documents and applying EA process and site knowledge. The main reference documents for VC selection were:

    - Proposed List of Valued Ecosystem Components for Public Consultation (Morin 2013);
    - Biodiversity Report (Morin and Carr 2015);
    - Results of Bat Surveys at NPD (Murrant 2016);
    - NPD Ecological Land Classification Report (ELC TSD);
    - MNRF Ottawa River Review (Haxton and Chubbuck 2002);
    - Atlas of the Breeding Birds of Ontario (BSC *et al*., 2006);
    - Songbird study for CRL (WSP 2023);
    - Ontario Reptile and Amphibian Atlas Program (ON 2016a); and
    - Ottawa River Background Study (Quebec Labrador Foundation 2005).

    From this, a consolidated master list of candidate VCs was produced. This list is presented in Appendix B. These candidate VCs include biota such as fish or birds, as well as abiotic qualities such as cultural and heritage sites, or socio-economic entities such as fishing.

2. Using the environmental components identified in the project interactions matrix (Table 5.2-1), VCs were selected for and assigned to each environmental component. Some environmental components were identified as pathways, meaning effects in that environmental component would affect VCs in other environmental components. For other environmental components, a VC (from the master list of candidate VCs in Appendix B) was selected and assigned. VC selection was based on the following criteria:

    - Presence and abundance (i.e., representation) in the relevant study areas;
    - Data availability (i.e., sufficient information must be available to allow an appropriate evaluation of effects);
    - Human health importance (i.e., the extent to which human health may be affected);
    - Ecological importance (i.e., the extent to which the growth or sustainability of non-human biota may be affected);

- Native species (i.e., those that have been well established in the area over a long time period);
- Degree of exposure (i.e., the extent to which the VC may be exposed to “stressors” associated with the project);
- Degree of sensitivity (i.e., the extent to which the VC may be sensitive to the “stressors” associated with the project);
- Conservation status (i.e., the extent to which the VC may be specifically protected by law, designated as rare, threatened, or endangered);
- Socio-economic importance (i.e., value of the VC as a commercial, recreational or subsistence resource; inherent aesthetic value);
- Traditional and current importance to Indigenous peoples;
- Cultural and heritage importance to society;
- Representative of various relevant habitats and other relevant species, including other candidate VCs known to be present at the NPD site; and
- Can be assessed via surrogate using an existing VC.

The list of VCs is presented in Table 5.2-3 below. The table includes an explanation of the selection rationale for each VC.

3. Provide opportunity for VC engagement. Once a draft VC list was developed, input was solicited from Indigenous, agency, and public stakeholders. The feedback received during the VC engagement was documented and is summarized in Sections 6.3 and 7.3.3, and includes discussion of VCs that were suggested for inclusion during the engagement process.

4. Update Draft VC List to address relevant comments. Provide rationale for any changes and excluded suggestions.

5. Produce Final VC List.

5.2.4.2 VC Identification

Table 5.2-3 below shows the VCs that were selected for each environmental component, based on the master list of candidate VC species (see Appendix B). The table also identifies pathways for the transfer of effects, as discussed above. Only *SARA* (2002) designations are listed for species in the table below. Although *SARA* was originally legislated in 2002, the species list is updated frequently based on recommendations from COSEWIC. Other SAR (i.e. SARO and COSEWIC) designations are listed in Sections 8.4 and 8.6. Note: Shaded cells represent pathways to VCs in other environmental components. Several VCs (e.g., Moose and gathering) were added in response to feedback received through Indigenous engagement. Please see Section 6.3 for details on VCs identified through Indigenous engagement, and Table 2.4 of the EcoRA which includes these VCs as ecological receptors.

Table 5.2-3 VCs and Pathways for the NPD Closure Project, by Environmental Component

a) Atmospheric Environment

Environmental Component	Pathway	Rationale
Atmospheric Environment	Pathway to human health	The effects on humans associated with changes in atmospheric conditions (radiological and chemical releases and concentrations) will be considered in the human health component.
	Pathway to non-human biota	The effects on non-human biota associated with changes in atmospheric conditions (radiological and chemical releases and concentrations) will be considered in the aquatic and terrestrial environmental components.
	Pathway to VCs in other environmental components	The effects on VCs in other environmental components associated with changes in atmospheric conditions (e.g. noise) will be considered in the applicable environmental components.

b) Surface Water Environment

Environmental Component	Pathway	Rationale
Surface Water Environment	Pathway to human health	The effects on humans associated with changes in site drainage and surface water quality (radiological and chemical releases and concentrations) will be considered in the human health environmental component.
	Pathway to non-human biota	The effects on non-human biota associated with changes in site drainage and surface water quality (radiological and chemical releases and concentrations) will be considered in the Non-Human Biota components.
	Pathway to VCs in other environmental components	The effects on VCs in other environmental components associated with changes in site drainage and surface water quality (e.g., water levels) will be considered in the applicable environmental components. These will include effects on Aquatic Environment and Terrestrial Environment VCs.

c) Aquatic Environment

Environmental Component	Sub-Category		VC	Effects Assessed		Rationale
				Habitat	Exposure	
Aquatic Environment	Aquatic Invertebrates		Benthic invertebrates		x	Macroinvertebrates occupy the sediment and are an important food source for benthivorous fish species. They are used to evaluate overall ecosystem health.
	Aquatic Vegetation		Aquatic vegetation (e.g., cranberries)		x	Represents a fundamental element of ecosystem health and function.
	Fish	Small	Emerald shiner		x	Numerically important pelagic forage species.
		Large	White sucker		x	Abundant benthivorous, bottom dwelling fish, an important component of that community with available data.
		Large	Lake sturgeon		x	THR (COSEWIC), END (SARO) Benthivorous, bottom-dwelling fish. Lake sturgeon has been subject to fishery exploitation in the past, before population declines. It is the largest, longest-living freshwater fish in Ontario. In the stretch of the Ottawa River near NPD, the lake sturgeon is more abundant than elsewhere in the river.

d) Geological and Hydrogeological Environment

In addition to serving as a pathway to human health, non-human biota and VCs in other components, specific VCs have also been identified for the Geological and Hydrogeological Environment.

Environmental Component	Pathway or VC	Rationale
Geological and Hydrogeological Environment	Pathway to human health	The effects on humans associated with changes in soil and groundwater conditions (radiological and chemical releases and concentrations, and noise) as well as groundwater flow and other physical parameters will be considered in the human health component.
	Pathway to non-human biota	The effects on non-human biota associated with changes in soil and groundwater conditions (radiological and chemical releases and concentrations, and noise) as well as groundwater flow and other physical parameters will be considered in the Non-Human Biota components.
	Pathway to VCs in other environmental components	The effects on VCs in other environmental components associated with changes in soil and groundwater conditions (radiological and chemical releases and concentrations, and noise) as well as groundwater flow and other physical parameters will be considered in the applicable environmental components. These include effects on Surface Water Environment, Aquatic Environment and Terrestrial Environment VCs.
	VC: Soil quality	Potential to affect the Geological and Hydrogeological environment, as soil quality may be affected during construction activities (e.g., release of contaminated particulate matter during removal of above-grade structure). Soil contamination may also occur during the Institutional Controls and Post-Institutional Controls phases, e.g., via surface water and irrigation.
	VC: Groundwater quality	Potential to affect the Geological and Hydrogeological environment, as groundwater quality will come into contact with contamination during the Institutional Controls phase (i.e., via contact with contamination) and Post-Institutional Controls phase (i.e., via contact with contaminants in the grouted structure).
	VC: Groundwater flow	Potential to affect the Geological and Hydrogeological environment during the Institutional Controls phase: groundwater flow will be affected in a localized area, as groundwater starts to enter the grouted structure.

e) Terrestrial Environment

Environmental Component	Sub-Category	VC		Effects Assessed		Rationale
				Habitat	Exposure	
Terrestrial Environment	Terrestrial Invertebrates	Soil Invertebrates			x	Soil-dwelling invertebrates (e.g. earthworm). Exposure from soil.
		Monarch butterfly		x	x	END (*SARA*), SC (SARO)– Monarchs are migrants and are sensitive to habitat fragmentation and disturbance. Found in the Site Study Area.
	Terrestrial Vegetation	Red Maple			x	Upland/wetland deciduous tree common at NPD.
	Berries	Berries (e.g., blueberries, raspberries, serviceberries, chokeberries)			x	Identified through Indigenous engagement.
	Fungi	Mushrooms			x	Identified through Indigenous engagement.
	Birds	Small-Medium, aerial	Chimney swift	x	x	THR (*SARA,* SARO) - migratory insectivorous bird. There is a chimney swift super roost in the ventilation stack at NPD which is in close proximity to site activities and may be impacted.
		Large, aerial	Bald eagle	x	x	Large raptor. Cultural and ecological importance. Previously, a nest was identified in the Local Study Area but is no longer present, the tree was blown down in a storm in 2021.
		Medium, ground-dwelling	Ruffed grouse		x	Ground-dwelling non-migratory omnivorous bird. Present at NPD.
		Medium, semi-aquatic	Mallard		x	The Ottawa River is in the heart of the Atlantic Flyway, and is an important stopover for migrating waterfowl such as the mallard. Regional presence.
		Large, semi-aquatic	Great blue heron		x	Large wading piscivorous (fish eating) bird. Great blue herons are sensitive to human disturbance. Regional presence. Great blue herons often return to their nesting colonies for many consecutive years, and are sensitive to habitat destruction or disturbance.
	Mammals	Small, insectivorous	**Little brown myotis** Eastern small-footed myotis Northern myotis Tri-colored bat	x	x	Bat species known to be present at NPD. All are listed as END under *SARA* and SARO except for eastern small-footed myotis which is unlisted, however this species is listed as endangered under SARO. While each listed species is a VC, the little brown myotis (in bold) is used as a surrogate for the others.

Environmental Component	Sub-Category		VC	Effects Assessed		Rationale
Terrestrial Environment	Mammals	Small, herbivorous	Meadow vole	x	x	Soil-dwelling, small herbivore. Burrowing is an important exposure pathway.
		Small, omnivorous	Short-tailed shrew		x	Abundant, mostly-carnivorous small mammal. Burrowing is an important exposure pathway. Sufficient data availability.
		Small, carnivorous	American mink		x	Small carnivorous mammal with both terrestrial and aquatic prey. Identified through Indigenous engagement.
			Northern river otter		x	Small carnivorous mammal feeding primarily on fish. Identified through Indigenous engagement.
			Short-tailed weasel		x	Sufficient data availability. Carnivorous small mammal No habitat impact is expected. Identified through Indigenous engagement.
		Medium, omnivorous	Red fox		x	Sufficient data availability. Omnivorous, medium-sized mammal. No habitat impact is expected. Identified through Indigenous engagement.
		Large, omnivorous	Black bear		x	Large terrestrial omnivore Cultural significance and public interest.
		Large, carnivorous	Eastern wolf		x	THR (*SARA*), THR (SARO) large terrestrial carnivore. Regional presence.
		Large, semi-aquatic, herbivorous	Moose		x	Identified through Indigenous engagement.
		Small-Medium, semi-aquatic	Muskrat		x	Aquatic piscivore/herbivore. Regional presence.
	Reptiles and Amphibians	Reptile	Blanding's turtle		x	END (*SARA*), THR (SARO) turtle has been sighted near the Local Study Area, and travels great distances over land.
			Eastern milksnake	x	x	SC (*SARA*), Not Listed (SARO) snake present at NPD.
		Amphibian	Green frog		x	The green frog is abundant and is present in wetlands at NPD.

Species at Risk Status (red denotes *SARA* listings):

SC – Special Concern (may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.)

THR – Threatened (likely to become an endangered species if nothing is done to reverse the factors leading to its extirpation or extinction.)

END – Endangered (facing imminent extirpation or extinction.)

f) Ambient Radioactivity

Environmental Component	Pathway	Rationale
Ambient Radioactivity	Pathway to human health	The effects on humans associated with changes in radioactivity in the environment will be considered in the human health component.
	Pathway to non-human biota health	The effects on non-human biota associated with changes in radioactivity in the environment will be considered in the Non-Human Biota health component.
	Pathway to VCs in other environmental components	The effects on VCs in other environmental components associated with changes in ambient radioactivity will be considered in the applicable environmental components.

g) Health

Environmental Component	Sub-Category	VC and Rationale
Human Health	Public health	Public: The general public could be exposed to health risk as a result of the project. The effects on humans associated with changes in atmospheric, surface water, geological and hydrogeological conditions (radiological and chemical releases and concentrations), and external gamma radiation are considered.
	Worker health	Worker: Workers could be exposed to health risk as a result of performing their duties relative to the project. The effects on humans associated with changes in atmospheric, surface water, geological and hydrogeological conditions (radiological and chemical releases and concentrations) and external gamma radiation are considered.

h) Traditional Land and Resource Use

Environmental Component	VC	Rationale
Traditional Land and Resource Use by Indigenous peoples	Trapping	Trapping of fur bearing animals was a traditional and modern-day land and resource use activity practiced by Indigenous peoples in the Ottawa Valley. Trapping is a licensed activity in Ontario on provincial land although trapping on private land is allowed. Fur bearing animals may include marten, beaver, otter, fox, mink, etc. Trapping is an activity that provides important links to cultural continuity and Indigenous ways of life, including but not limited to clothing, gifts. Trapping was specifically identified as a rights-based activity in REGDOC, 3.2.2 (CNSC 2022).
	Hunting	Hunting is a traditional and modern-day land and resource use activity practiced by Indigenous peoples in the Ottawa Valley. The hunting of large game involves deer, moose and elk but also possibly black bear. Small game includes waterfowl, rabbits, grouse, etc. Hunting is an activity that provides important links to cultural continuity and Indigenous ways of life. Hunting was specifically identified as a rights-based activity in REGDOC, 3.2.2 (CNSC 2022).
	Fishing	Fishing was a traditional and modern-day land and resource activity practiced by Indigenous peoples in the Ottawa Valley. The Kichi-Sìbì (Ottawa River) was and is still used for sport and subsistence fishing. Fish species targeted on the Kichi-Sìbì (Ottawa River) in the present likely include walleye, northern pike and smallmouth bass (AECL 2010). Historically, sturgeon, American Eel and possibly suckers would have also been an important part of the catch. Fishing was specifically identified as a-rights based activity in REGDOC, 3.2.2 (CNSC 2022).
	Gathering	Gathering is a traditional and modern-day land and resource use activity practiced by Indigenous peoples in the Ottawa Valley. The gathering of plants, berries, mushrooms, etc. is for subsistence, medicines, crafts and other purposes. Gathering is an activity that provides important links to cultural continuity and Indigenous ways of life. Gathering was specifically identified as a rights-based activity in REGDOC, 3.2.2 (CNSC 2022).
	Cultural Resources & Ceremonies	Indigenous peoples can place a high degree of value on specific sites of cultural, historical, archaeological, spiritual, social or ecological significance. These sites may have broader cultural significance related to the practice of formal or informal ceremonies and as places to connect to the lands and waters in a culturally and spiritually important way at or near these sites. The conducting of cultural ceremonies was specifically identified as a rights-based activity in REGDOC, 3.2.2 (CNSC 2022). This VC will assess whether any known sites of significance and the associated cultural ceremonies will be affected by the proposed undertaking.

i) Indigenous Socio-economic and Health

Environmental Component	Sub-Category	VC and Rationale
Indigenous Socio-economic Environment	Population and Demographics	Population and demography are one of the most common ways to describe a community.
	Economy and Employment	Most Nations, communities and organizations strive for improved employment and economic development opportunities.
	Housing and Infrastructure	Housing is a key concern of Indigenous peoples. Physical infrastructure within Nations and communities is often inadequate, dated and difficult to finance. Water infrastructure might be a concern.
	Indigenous Resident – Use and Enjoyment of Private Property	There may be Indigenous peoples who live within a few kilometers of the NPD site and might experience nuisance effects.
	Decision-Making	Indigenous Nations, communities and organizations often have a decentralized decision-making structure.
Indigenous Health	Indigenous People	Indigenous People may be exposed to health risk as a result of the project. The potential effects on humans associated with changes in atmospheric, surface water, geological and hydrogeological conditions (radiological and chemical releases and concentrations), and external gamma radiation are considered.
	Indigenous Worker	Indigenous workers may be exposed to health risk as a result of performing their duties relative to the project. The potential effects on humans associated with changes in atmospheric, surface water, geological and hydrogeological conditions (radiological and chemical releases and concentrations) and external gamma radiation are considered.

j) Socio-economic Environment

Environmental Component	VC	Rationale
Socio-economic Environment	Land Use and Planning Regime	The proposed project may allow for redesignation of some or all of the NPD property for another use during the Institutional Controls phase.
	Landscape and Visual Setting	The proposed project may affect the quality of views from the Ottawa River. It is not visible from Highway 17.
	Highway 17	Highway 17 is the main vehicular artery in the area. Project-related increases in traffic may affect capacity and safety of the Highway and represents a risk to human health and safety (e.g., accidents), as well as a risk to the natural environment (e.g., spills, wildlife mortality from increased volume, sensory disturbance from increased noise, increased emissions).
	Walleye	Socio-economic importance as a sportfish.
	White-tailed deer	Socio-economic importance as a game species.
	Residents – Use/ Enjoyment of Property	There may be disruption to use and enjoyment of property because of nuisance-related effects (e.g., dust, noise, traffic) during the Decommissioning Execution phase for residents living in the Local Study Area. This includes residents potentially hunting/trapping on site.

6 INDIGENOUS ENGAGEMENT

6.1 Introduction

This section speaks to CNL's Indigenous engagement with respect to the proposed in-situ disposal of the NPD Reactor – the NPD Closure Project. This section has been updated and enhanced since the 2017 draft version of the NPD Closure Project EIS. It is intended to document the engagement between Indigenous Nations, communities and organizations and CNL with respect to the NPD Closure Project, in particular, interests, concerns and relevant mitigations, while meeting the requirements outlined by the CNSC REGDOC-3.2.2 (CNSC 2022).

This section of the EIS is divided into four major subsections, which are described below:

- **Section 6.1 – Introduction**: This section outlines the structure of Section 6 and generally describes how CNL is working with Indigenous peoples to include Indigenous Knowledge, interests and perspectives in the EIS for the NPD Closure Project.
- **Section 6.2 – Engagement**: This section:
  i. Describes Indigenous engagement by Indigenous Nation, community or organization.
  ii. Summarizes key interests and concerns of Indigenous Nations, communities and organizations.
  iii. Demonstrates how CNL verified that it correctly understood and recorded each interest and/or concern.
  iv. Provides CNL's response on each interest and concern.
  v. Describes what changes to the EIS or EA process have been implemented in response to interests and concerns.
  vi. Provides a status of addressing each interest/concern and includes next steps for interests and concerns that are ongoing.

  This section documents the key engagement with Indigenous peoples on the NPD Closure Project that has occurred. CNL is committed to providing opportunities for Indigenous peoples to continue to be involved in the EA process for the NPD Closure Project and beyond the scope of this project. CNL is working with interested Indigenous Nations, communities and organizations to develop a mutual path forward in verifying feedback and addressing interests and concerns through commitments with each community or as may otherwise be appropriate.
- **Section 6.3 – VCs**: This section describes Indigenous-specific VCs. It also describes how comments from Indigenous peoples on VCs are addressed in VC selection and throughout other parts of the EIS.
- **Section 6.4 – CNL's Long-Term Relationship with Indigenous peoples**: This section describes CNL's long-term approach to working with Indigenous peoples.
- **Section 6.5 – Continued Engagement Activities:** This section describes CNL's planned engagement with Indigenous peoples as the NPD Closure Project progresses.

6 Indigenous Engagement

Section 6 of the EIS is supported by CNL's NPD Closure Project IER, which is a TSD to this EIS (IER TSD). The IER TSD was recently updated in 2024 and covers engagement up until March 31, 2024. The IER TSD outlines CNL's approach to Indigenous engagement to support the EA process for the proposed NPD Closure Project in accordance with CNSC's REGDOC-3.2.2 Indigenous Engagement (CNSC 2022). The IER TSD is a more detailed version of Section 6 that provides additional information and context on CNL's engagement activities for the NPD Closure Project – which are summarized and incorporated in this EIS. The IER TSD remains a living document that will continue to be updated as engagement continues.

In accordance with REGDOC-3.2.2, the scope of the IER TSD includes:

- identification of Indigenous peoples (identified through discussions with the CNSC);
- Indigenous engagement activities that have taken place up to the date of writing and a proposed schedule for interim reporting on these activities to the CNSC; and,
- the plan on how CNL has and will continue to engage with Indigenous peoples.

CNL also enhanced the scope of the IER TSD by adding the following:

- a section demonstrating compliance with regulatory requirements;
- an enhanced summary of each identified Indigenous Nation, community or organization to demonstrate CNL's understanding of the historical, legal, socio-economic, traditional use and other characteristics, including documenting (where available) their interests in the Ottawa Valley and in the vicinity of the project;
- a section providing a discussion and summary of the engagement results;
- a section on VCs pertaining to Indigenous peoples;
- a description of Traditional Land and Resource Use within the vicinity of the project;
- a summary of the assessment of the impact on Traditional Land and Resource Use due to the NPD Closure Project;
- a description of Indigenous Socio-economic and Health within the vicinity of the project;
- a summary of the assessment of the impact of the project on Indigenous Socio-economic and Health, including a description of an Indigenous receptor; and,
- a section describing CNL's approach to long-term relationships with Indigenous peoples.

With these enhancements, CNL has a more comprehensive document that provides information in a single report that supports Section 6 of this EIS.

After the filing of the EIS, CNL will continue to engage with Indigenous peoples regarding the NPD Closure Project as well as more broadly about CNL-managed sites and other projects. CNL is working towards developing long-term relationships with Indigenous peoples on whose traditional territory CNL operates and with those who have territory and modern-day interests near CNL operations. Consistent with the Government of Canada's approach to reconciliation, CNL is working closely with AECL, a federal Crown corporation and owner of the NPD site, to engage and build long-term relationships with Indigenous peoples

on matters beyond the scope of this EIS, and the EA and licence amendment for the NPD Closure Project. Engagement with regard to Indigenous interests has demonstrated that Indigenous peoples are also interested in fostering such long-term relationships with CNL and AECL.

As the parties involved see their relationships as evolving and beyond the scope of a single regulatory project such as the NPD Closure Project, discussions regarding long-term relationships and on specific aspects of projects will be ongoing before, during and after the CNSC Commission hearing for the NPD Closure Project. Due to the ongoing nature of these discussions and relationships, CNL intends to provide an updated IER TSD as part of the Commission Member Document package in support of the CNSC Commission hearing on the NPD Closure Project. The IER TSD will document the up-to-date engagement and discussions with Indigenous Peoples related to the NPD Closure Project.

6.2 Engagement

Engagement opportunities with Indigenous peoples provide valuable input to help enrich the EA process. This section summarizes CNL's Indigenous engagement objectives, and includes a brief description of the Indigenous Nations, communities, and organizations that CNL has engaged with, the methods adopted to meet engagement objectives, engagement activities that have been undertaken as of March 31, 2024, feedback received as of March 31, 2024, and future engagement activities. As of March 31, 2024, CNL has verified (or attempted to verify) the interests and concerns of identified Indigenous Nations, communities and organizations. In many cases CNL has also verified the resolution of these concerns and/or laid out the next steps. This includes formulating commitments to address outstanding interests and concerns. The revised draft EIS and IER TSD also incorporate responses to CNSC's request for further information on engagement and verification of Indigenous content in the revised draft EIS.

This EIS summarizes CNL's engagement with Indigenous Nations, communities and organizations as the proponent of the NPD Closure Project. In some cases, AECL participated with CNL and the Indigenous Nation, community or organization in engagement activities related to the NPD Closure Project. AECL's participation is documented in the IER TSD and where required in relation to CNL's activities, in this EIS.

Table 6.2-1 below quantitatively describes and summarizes the broader Indigenous engagement activities undertaken for the NPD Closure Project related to this EIS as of March 31, 2024. The table is intended to demonstrate two key points:

- CNL has utilized a wide assortment of engagement methods including information sharing, formal two-way dialogue, provision of support to detailed investigative studies, provision of capacity funding, and the consideration of long-term relationship agreements. The engagement activities in the table below reflect the increasing degree of engagement.
- CNL has reached out to and/or engaged all Indigenous Nations, communities and organizations found in the table below. Each Indigenous Nation, community and organization has their own specific expectations for the type and depth of engagement on the project. CNL has listened to the preferences of each Indigenous Nation, community and organization and has adapted its engagement activities accordingly.

Table 6.2-1 Identified Indigenous Nations, Communities and Organizations Engagement and Involvement

Identified Indigenous Nations, Communities and Organizations	Comments submitted via EA (2016 Project Description or 2017 Draft EIS)	CNSC Participant Funding Issued	MOUs & Contribution Agreements[3] (CNL Funding)	TKLUS or Other Studies	Comments on the 2020 or 2021 Revised Draft EIS	Long-Term Relationship Agreement
Algonquins of Ontario (AOO)	• Comments on the Project Description • Comments on the 2017 Draft EIS	YES	MOU (2018) Contribution Agreement (2019)	• Algonquin Knowledge and Land Use Study (AKLUS)	None received	Discussion paused
Algonquins of Pikwàkanagàn First Nation (AOPFN)	None received	YES	Contribution Agreement (2020)	• AKLUS • Diet and Harvest Study • Culture and Rights Study • Alternative Means Assessment	YES (2020)	Signed (2023)
Métis Nation of Ontario (MNO)	• Comments on the 2017 Draft EIS	YES	MOU (2018)	• MNO TKLUS	None received	Drafted
Algonquin Anishinabeg Nation Tribal Council (AANTC)	• Comments on the 2017 Draft EIS	YES	Discussion paused	None received	None received	-
Kebaowek First Nation (KFN)	None received	YES	Framework Agreement (2022)	None received	YES (2021)	-
Kitigan Zibi Anishinabeg (KZA)	• Comments on the 2016 Project Description	Not requested	-	None received	YES (2021)	-

[3] CNL has also funded community engagement meetings with Indigenous Nations, communities and organizations outside of formal agreements.

Identified Indigenous Nations, Communities and Organizations	Comments submitted via EA (2016 Project Description or 2017 Draft EIS)	CNSC Participant Funding Issued	MOUs & Contribution Agreements[3] (CNL Funding)	TKLUS or Other Studies	Comments on the 2020 or 2021 Revised Draft EIS	Long-Term Relationship Agreement
Alderville First Nation	None received	Not requested	-	None received	None received	-
Curve Lake First Nation	None received	Not requested	Contribution Agreement (2021)	None received	YES (2020)	-
Hiawatha First Nation	None received	Not requested	Contribution Agreement (2023)	None received	None received	-
Mississaugas of Scugog Island First Nation	None received	Not requested	-	None received	None received	-
Chippewas of Rama First Nation	None received	Not requested	-	None received	None received	-
Chippewas of Georgina Island First Nation	None received	Not requested	-	None received	None received	-
Beausoleil First Nation	None received	Not requested	-	None received	None received	-
Algonquin Nation Secretariat	None received	Not requested	-	None received	None received	-
Wolf Lake First Nation	None received	Not requested	Capacity Funding Agreement (2022)	None received	YES (2021)	-
Barrier Lake First Nation	None received	Not requested	-	Not requested	None received	-
Timiskaming	None received	Not requested	-	Not requested	None received	-
Anishinabek Nation	None received	Not requested	-	Not requested	None received	-

Note:
MOU = Memorandum of Understanding

6.2.1 Objectives

CNL's engagement activities seek to understand the interests and concerns of Indigenous Nations and communities while also building awareness and understanding of NPD Closure Project activities. CNL seeks to reach a mutual understanding of the potential effects of NPD Closure Project activities on the environment and any potential negative impacts on Aboriginal and/or treaty rights including, but not limited to, rights to trap, hunt, fish, gather, or harvest as well as the access to lands for perform cultural and spiritual activities.

CNL's engagement approach strives for collaboration with Indigenous Nations, communities and organizations to share information; identify opportunities to collaborate; understand concerns and issues, and potential impacts of a project on Aboriginal and/or treaty rights and opportunities for participation; and work together to address these through incorporating Indigenous Knowledge Systems, values and perspectives when considering avoidance and mitigations strategies.

Regulatory requirements related to these activities are summarized in Section 2 of the IER TSD. *CEAA*, 2012 provides a clear description of the environmental effects on Indigenous peoples that are to be taken into account. CNSC *REGDOC-3.2.2* (CNSC 2022) provides more detailed information and sets out the "requirements and guidance for licensees" with respect to engagement.

As the CNSC *REGDOC-3.2.2* provides specific requirements and guidance on consideration of rights and activities (i.e., hunt, trap, fish, gather or conduct ceremonies), results of CNL's engagement are specifically addressed in the IER TSD and this EIS. Section 8.9 of the EIS and Section 6.1 of the IER TSD describe traditional land and resource use, based on Traditional Knowledge available through existing studies and provided to CNL directly by Indigenous Nations, communities and organizations.

Additional CNSC requirements that are to be addressed or considered with respect to Indigenous peoples are found in Appendix A.3.8 of CNSC REGDOC-2.9.1 *Environmental Principles, Assessments and Protection Measures* (CNSC 2020a) and the CNSC's Generic Guidelines for the Preparation of an Environmental Impact Statement (Generic EIS Guidelines; CNSC 2016a). These requirements are summarized in Table 2-1 of the IER TSD. Key requirements identified in Table 2-1 generally relate to identifying community perspectives and/or information associated with:

- VCs identified for the NPD Closure Project;
- spatial and temporal boundaries used in this EIS;
- adverse impacts to potential or established Aboriginal and/or Treaty rights;
- potential positive or negative effects of the NPD Closure Project on the natural environment, community socio-economic conditions/elements, community health and diet, traditional and current land and resource use (e.g., hunting, trapping, fishing and gathering), and physical and/or cultural heritage features;
- the mitigation suggested in the EIS with respect to potential effects;
- Indigenous treaties and litigation associated with the NPD site;

- traditional Indigenous knowledge associated with the NPD site; and
- the NPD Closure Project Indigenous engagement process.

On March 8, 2017, the CNSC released a Record of Decision addressing expectations on the scope of factors to be assessed in the EAs of three CNL designated projects under *CEAA*, 2012, including the NPD Closure Project. Pursuant to Section 19 of *CEAA*, 2012, the CNSC determined the project scope for the EA must include the factors mandated in paragraphs 19(1) (a) to (h) of *CEAA*, 2012, with no additional factors. The Record of Decision also set out that the EA (and thus, this EIS) must consider the CNSC's Generic EIS Guidelines (CNSC 2016a) with respect to information and requirements for identifying VCs and spatial and temporal boundaries, and engaging Indigenous peoples and the public on these key points. See Appendix A of the IER TSD for a copy of the Record of Decision.

CNL's Indigenous engagement objectives include, without limitation:

- **Build awareness and mutual understanding** by supporting and facilitating opportunities for mutual learning, including current and traditional use, and values and perspectives on nuclear decommissioning, environmental remediation and radioactive waste management and demonstrate CNL's long-term commitment and approach to safe and responsible management of AECL's radioactive waste and decommissioning liabilities (e.g., through project and site monitoring activities).
- **Share information on the project including the potential effects on the environment**. This includes developing meaningful, user-friendly information and communication products for Indigenous Nations, communities and organizations, and providing accessible and current information on project activities.
- **Seek input and feedback from Indigenous Nations, communities and organizations** regarding project related activities, and traditional and current uses of the land surrounding the NPD site. Initiate early and meaningful two-way communication channels between CNL and Indigenous Nations, communities and organizations to determine the best methods for sharing information and to provide opportunities for Indigenous peoples to provide input on project considerations including design, the EA and IES process, and assessment of impacts.
- **Develop long lasting relationships with Indigenous Nations, communities and organizations** to support continued involvement in the project, CNL's broader operations, and reconciliation. This will extend beyond the scope of the EA and EIS process for NPD.
- **Meet or where possible exceed all regulatory-based communication and engagement requirements** and facilitate engagement that reflects agreements between the parties, and that takes into account the interests, needs and schedule of each Indigenous Nation, community or organization.

In addition, CNL applied CNSC's guidance on engaging with Indigenous Nations, communities and organizations and appropriate methodologies for assessing effects and impacts on Indigenous peoples and their rights, notwithstanding that a determination of impacts to rights is a Crown responsibility, which will be carried out by CNSC staff through a Rights Impact Assessment (RIA).

To meet these objectives, CNL has developed specific strategies to increase the effectiveness of its Indigenous engagement outreach. These strategies include:

- presenting information in easy-to-understand formats using plain language (e.g., webinars, infographics, one-pager summary documents);
- engaging technical experts to communicate information through a variety of formats;
- accomplishing all required activities in a timely manner;
- providing various means for Indigenous Nations, communities and organizations to access information (i.e., presentations, infographics, site tours, website information, community visits, etc.);
- providing support and capacity funding for meaningful and timely engagement and the development of longer-term relationship agreements with Indigenous Nations, communities and organizations; and
- supporting Indigenous Nations, communities and organizations' review of the EIS documentation to validate that CNL has documented their interests and concerns accurately.

Over the course of the EA for the NPD Closure Project, CNL has evolved in its approach to Indigenous engagement and grown its relationship with several Indigenous Nations, communities and organizations both in the context of the project and CNL's broader operations. The way CNL meets and measures these objectives is evolving to match the unique engagement with each Indigenous Nation, community and organization as the relationships develop. CNL is working with Indigenous Nations, communities and organizations to verify that the information that is recorded in the EIS, especially their interests and concerns and any traditional knowledge that has been shared, is captured appropriately from the perspective of each Indigenous Nation, community and organization. CNL is also working with Indigenous Nations, communities and organizations to continue to address ongoing interests and concerns. These efforts and the validation efforts are further described in Section 6.2.4 of this EIS.

6.2.2 Identified Indigenous Nations, Communities and Organizations

A proposed list of Indigenous Nations, communities and organizations with a potential interest in the NPD Closure Project was identified by CNL and included in the IER TSD. Identification of communities was based on discussions with the CNSC, through CNL historical relationships and through the use of publicly available sources of information including:

- Indigenous Nation, community and organization websites;
- the Aboriginal and Treaty Rights Information System (ATRIS) (Government of Canada 2020); and
- Crown-Indigenous Relations and Northern Affairs Canada First Nation community profiles.

The proposed list was based on the identified potential or established Indigenous Nations, communities and organizations based on the proximity of their communities, treaty areas or unceded traditional territories to the NPD site, as well as those that expressed interest in the NPD Closure Project or CNL's activities who may have rights or interests in the project as summarized in Table 6.2-2, which distinguishes between rights bearing and non-rights bearing Indigenous Nations, communities and organizations. The inclusion of

specific communities considers the nature of the established and / or claimed rights based on a preliminary assessment of existing and available information. As such, the working list is subject to change based on information and dialogue with the identified Nations, communities and organizations.

Table 6.2-2 Identified Indigenous Nations, Communities and Organizations

Indigenous Nations and Communities that have established or asserted treaty and/or Aboriginal rights	Indigenous Nations, communities and organizations that have interests
The NPD Closure Project is situated on land that are the treaty lands and/or traditional territories of: • Algonquins of Pikwàkanagàn First Nation (AOPFN) • Barriere Lake First Nation • Timiskaming First Nation (TFN) • Wolf Lake First Nation (WLFN) • Métis Nation of Ontario (MNO) • Kitigan Zibi Anishinabeg (KZA) • Kebaowek First Nation (KFN) • Williams Treaties First Nations o Alderville First Nation o Beausoleil First Nation o Chippewas of Georgina Island First Nation o Chippewas of Rama First Nation o Curve Lake First Nation o Hiawatha First Nation o Mississaugas of Scugog Island First Nation	NPD Closure Project is situated on lands that are of interest to: • Algonquin Anishinabeg Nation Tribal Council (AANTC) • Algonquins of Ontario (AOO) • Anishinabek Nation • Algonquin Nation Secretariat

The IER TSD provides background information on these Indigenous Nations, communities and organizations with a potential interest in the NPD Closure Project and includes, where possible, reference to each individual community's elected council, geographic location, population, and associations or memberships. The IER TSD will be updated as these communities and organizations provide additional information and continue engagement related to the NPD Closure Project. The information summarized in this EIS reflects information available to CNL as of March 31, 2024.

CNL has undertaken a verification process (as outlined in Section 6.2.4) with the identified Indigenous Nations, communities and organizations. Where an Indigenous Nation, community or organization has not responded to CNL, CNL continues to follow-up as opportunities still exist for their involvement in the project. CNL also welcomes engagement from those Indigenous Nations, communities and organizations who have not engaged with the NPD Closure Project up to this point. The ongoing updates will be incorporated into the IER TSD, as it is a living document. CNL will continue to follow-up on engagement with all identified and interested Indigenous Nations, communities and organizations.

CNL has offered and provided capacity funding to Indigenous Nations, communities and organizations to support participation in the EA process.

6.2.3 Engagement Methods

Section 6.2.4 describes the engagement that CNL has undertaken with the identified Indigenous Nations, communities and organizations (as outlined in Section 6.2.2): AOPFN; MNO; Kitigan Zibi Anishinabeg (KZA); Kebaowek First Nation (KFN), Williams Treaties First Nations (WTFN), including Alderville FN; Beausoleil FN; Chippewas of Georgina Island FN; Chippewas of Rama FN; Curve Lake FN; Hiawatha FN; and Mississaugas of Scugog Island FN; AANTC; AOO; Anishinabek Nation; and Algonquin Nation Secretariat; including Barriere Lake FN; Timiskaming FN (TFN); Wolf Lake FN (WLFN). CNL recognizes the importance of seeking direction from the Indigenous Nations, communities and organizations on how they want to engage on this project. CNL also recognizes and respects that each Indigenous Nation, community and organization is unique and may have different approaches, needs, and interests for engagement on this project.

Various engagement methods were designed to communicate information to and encourage input from identified Indigenous Nations, communities and organizations, while fulfilling CNL's corporate and regulatory objectives. CNL engages in ways that are highly diverse and vary based on expressed community need and desired methods. Engagement includes general information sharing, focused community meetings and workshops, and other activities as part of long-term relationship building. In Section 6.2.4, these activities are described for each community. General engagement methods are summarized in Table 6.2-3.

In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions and provided online platforms for virtual meetings, project updates and virtual open houses with Indigenous Nations, communities and organizations. CNL will continue to utilize multiple methods to continue to engage with Indigenous Nations, communities and organizations.

While this EIS focusses on engagement related to the NPD Closure Project, CNL recognizes that the establishment of long-term relationship agreements (LTRAs) with Indigenous Nations, communities and organizations will help facilitate engagement and develop relationships.

Table 6.2-3 Project-specific Engagement Methods

Engagement Method	Example Activities
Project Specific Agreements, MOU and Long-Term Relationship Meetings and Negotiations	• Project-specific agreements (i.e. Memoranda of Understanding (MOUs), contribution agreements or engagement frameworks with the AOO, the MNO, Curve Lake FN, Hiawatha First Nation, KFN, Wolf Lake First Nation and the AOPFN): o Provision of funding to assist in resource capacity development; o Capacity assistance, as appropriate, such as basic costs to support meetings such as hall rental or production of print materials, in-kind access to the technical expertise of CNL staff, reimbursement for some expenses to participate in engagement activities such as site visits, tours; o Provision of funding to assist in technical reviews of project documents; o Provision of funding for Indigenous led studies; o Peer review studies and engagements with Indigenous organization consultants and staff; o Work plan development to formalize engagement processes with communities and/or organization representatives. • Broader relationship discussions with CNL.
Project Specific Meetings and Workshops	• Virtual and/or in-person meetings/workshops with Indigenous Nation, community or organization representatives to discuss the project and potential effects; • Community meetings/open houses; • Presentations to Indigenous Nation, community and/or organization representatives upon request; • Targeted community initiatives; • Workshop attendance and cultural awareness training; • Technical meetings to provide an opportunity to discuss more detailed technical information concerning the NPD Closure Project; • Site visits and facility tours.
Specific Communications Activities and Information Sharing	• Letters to Indigenous Nation, community and organization representatives (accompanied by follow-up calls); • Email correspondence and/or phone calls; • Distributing the IER; • Distributing copies of maps, technical studies or reports upon request; • Providing written response to comments, questions and concerns on the draft EIS; • Webinars and online meetings; • Project notifications and newspaper advertisements; • ESC meetings and meeting information (for ESC member communities); • Public information sessions, including display materials and handouts; • Media notifications/releases; • Webpage content; • Site visits and participation in National Indigenous Peoples Day; • Participation and presentation at Indigenous Youth Summit; • NPD site visits and facility tours; • Indigenous ceremony on site.

6.2.4 Engagement

The following section describes the engagement that CNL has undertaken with the AOO; the AOPFN; MNO; the AANTC; KZA; KFN, the WTFN; Algonquin Nation Secretariat; including Barriere Lake First Nation, TFN and WLFN, and the Anishinabek Nation.

6.2.4.1 Introduction

Formal notification of the NPD Closure Project in the form of a letter was sent to all identified Indigenous Nations, communities and organizations in July 2016. The letter provided information about the NPD Closure Project and provided mechanisms for comments and/or questions. Follow-up outreach (i.e., phone contact) was conducted with recipients to confirm receipt of the NPD Closure Project information and to ascertain the preferred means for ongoing contact.

Throughout the NPD Closure Project, CNL has evolved project engagements to meet Indigenous feedback. CNL has regularly sent correspondence to all identified Indigenous Nations, communities and organizations including project updates and invitations to all routine public engagement events. These invitations and updates are included in the IER TSD, but are not referenced in the EIS as they are not key engagements.

Engagement activities have varied and are at the discretion of the various communities and subject to community availability, as illustrated in the record of engagement for each community (Section 6.2.4.X.1 where X represents each community's subsection in Section 6.2.4). As the NPD Closure Project and the EA process for the project progresses, the IER TSD will be updated and maintained as a living document capturing any additional engagement activities undertaken and progress made on engagement issues.

There was cross over in many cases in engagement activities for the NPD Closure Project and CNL's NSDF Project, given the geographic proximity and original timelines of each project. As such, engagement that addresses both projects is also noted here so as to report the discussions in their original context. Examples of correspondence and meeting materials are provided in the appendices of the IER TSD and all records of meeting presentations can be provided upon request.

The Indigenous Nations, communities and organizations included in Table 6.2-1 are described in this section and in more detail in Chapter 3 of the IER TSD. These sections also describe the rationale for the inclusion of the various communities. Figure 6.2-1 below shows the home location (reserve or office) of the communities in relation to the NPD site.

More frequent and meaningful engagement has generally occurred with Indigenous Nations, communities and organizations that are located closer to the NPD site, have populations living closer to the NPD site, and, as identified by the communities and organizations themselves, have larger numbers of individuals practicing traditional activities near the NPD site.

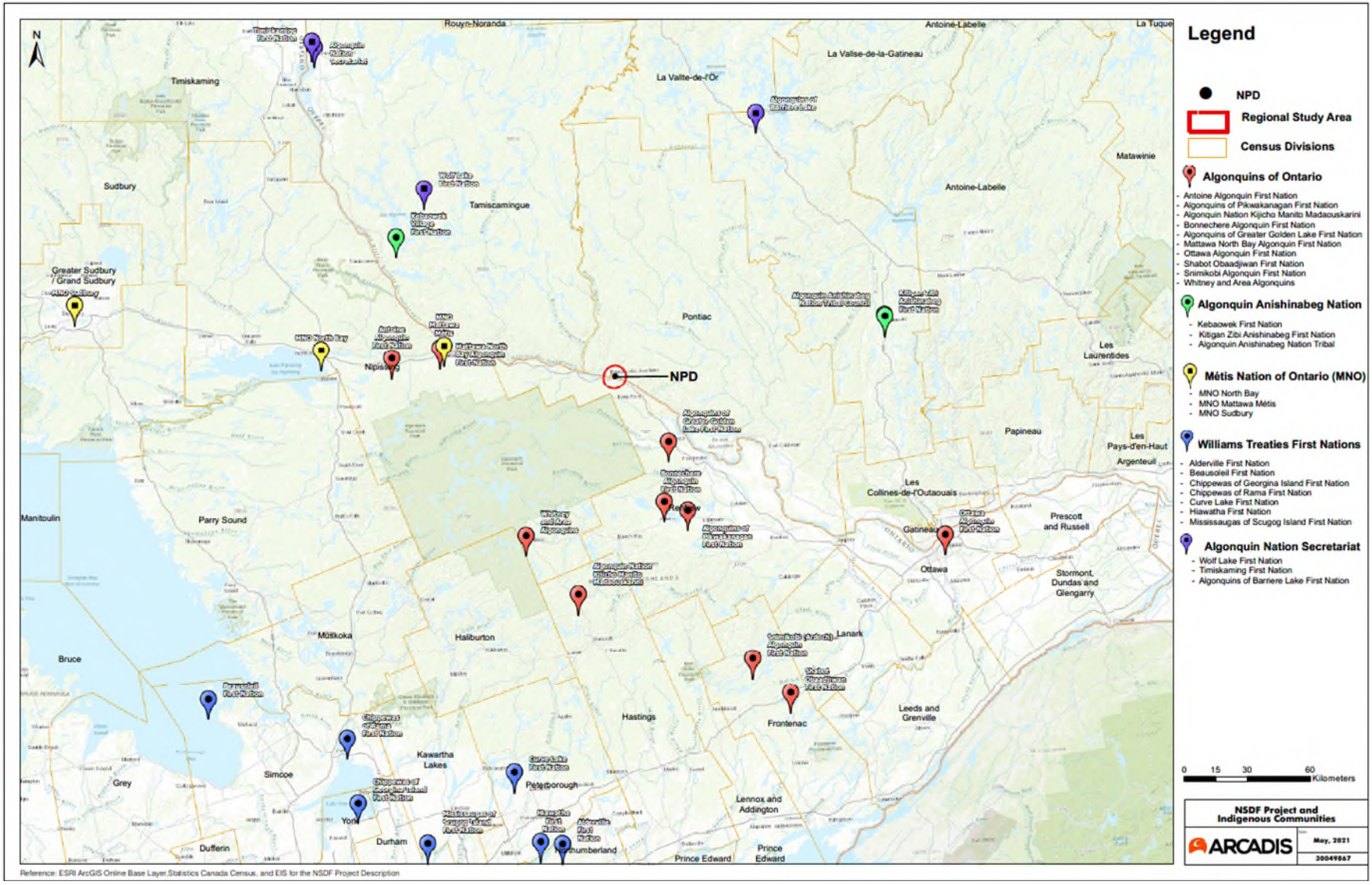
Appendix C of this EIS includes a record of engagement, a mapping of how the key interests and concerns relate to detailed feedback and input from Indigenous Nations, communities or organizations, and tables summarizing the key interests and concerns of each Indigenous Nation, community or organization (*Tables of Interests and Concerns*). The *Tables of Interests and Concerns* were updated and enhanced for this

revised draft EIS and are intended to describe in more detail the interests and concerns raised by each Indigenous Nation, community or organization, including CNL's response, relevant sections of the EIS that address these interests, changes to the EIS or EA process, status of the interest or concern and next steps. The interests and concerns have been gathered from a variety of sources including (but not limited to):

- comments on the 2017 draft EIS submitted as part of the formal comment period for the NPD Closure Project EA,
- written submissions to CNL including targeted technical comments and comments on the 2020 and 2021 revised draft EIS,
- questions, comments, concerns and interests raised during engagement activities such as meetings, tours, and correspondence, and,
- results and recommendations from traditional knowledge and other studies.

In January 2022, the CNSC informed CNL that the December 2021 EIS submission was incomplete. The CNSC staff directed CNL to revise the *Tables of Interests and Concerns* for clarity. CNL developed simplified *Tables of Interests and Concerns* along with tables which map how these simplified tables relate to detailed input and feedback from the Nations, communities and organizations. The repackaged tables were shared in Spring 2022.

Figure 6.2-1 Indigenous Nations, Communities and Organizations in Relation to the NPD Site



A list of the Appendix C sub-appendices and tables is shown below:

Appendix C.1
- Table C-1 AOO Record of engagement
- Table C-2 Mapping of key interests and concerns to detailed input from the AOO
- Table C-3 AOO Key interests and concerns

Appendix C.2
- Table C-4 AOPFN Record of engagement
- Table C-5 Mapping of key interests and concerns to detailed input from the AOPFN
- Table C-6 AOPFN Key interests and concerns

Appendix C.3
- Table C-7 MNO Record of engagement
- Table C-8 Mapping of key interests and concerns to detailed input from the MNO
- Table C-9 MNO Key interests and concerns

Appendix C.4
- Table C-10 AANTC Record of engagement
- Table C-11 Mapping of key interests and concerns to detailed input from the AANTC
- Table C-12 AANTC Key interests and concerns

Appendix C.4.1
- Table C-13 KFN Record of engagement
- Table C-14 Mapping of key interests and concerns to detailed input from the KFN
- Table C-15 KFN Key interests and concerns

Appendix C.4.2
- Table C-16 KZA Record of engagement
- Table C-17 Mapping of key interests and concerns to detailed input from the KZA
- Table C-18 KZA Key interests and concerns

Appendix C.5
- Table C-19 WTFN Record of engagement
- Table C-20 AFN Record of engagement
- Table C-21 CLFN Record of engagement
- Table C-22 HFN Record of engagement
- Table C-23 Scugog Island FN Record of engagement
- Table C-24 Chippewas of Rama FN First Record of engagement
- Table C-25 Chippewas of Georgina Island FN Record of engagement
- Table C-26 Beausoleil FN Record of engagement
- Table C-27 Mapping of key interests and concerns to detailed input from the WTFN
- Table C-28 WTFN Key interests and concerns

Appendix C.6
- Table C-29 Algonquin Nation Secretariat Record of Engagement

Appendix C.6.1
- Table C-30 Wolf Lake First Nation Record of Engagement
- Table C-31 Mapping of key interests and concerns to detailed input from Wolf Lake First Nation
- Table C-32 Wolf Lake First Nation Key interests and concerns

Appendix C.6.2
Table C-33 Timiskaming First Nation Record of Engagement
Appendix C.6.3
Table C-34 Algonquins of Barriere Lake Record of Engagement
Appendix C.7
Table C-35 Anishinabek Nation Record of Engagement

This information is also presented in Appendices of the IER (each Indigenous Nation, community or organization has a dedicated appendix).

Engagement with individual Indigenous Nations, communities and organizations is not at the same stage. Some Indigenous Nations, communities and organizations became engaged early on with NPD Closure Project, often on highly specific topics while other communities have only more recently shown an interest in the NPD Closure Project. As well, some communities may have engaged on some interests and concerns early on but only more recently on others. As such, CNL has had significant discourse and formal exchange of comments and responses to some communities on some interests and concerns with results having been incorporated into the EIS while with other communities the engagement is not as advanced.

With all Indigenous Nations, communities and organizations, in addition to seeking the information on Indigenous interests required by the CNSC and *CEAA*, 2012, CNL developed and adapted its engagement activities according to the unique interests, information needs and concerns of the communities. CNL provides a brief description of each Indigenous Nation, community or organization and then the engagement is described under the following headings:

- **Engagement.** This subsection summarizes the engagement CNL has had with the Indigenous Nation, community or organization in a narrative summary to illustrate the development of the relationships between the Indigenous Nations, communities and organizations and CNL related to the NPD Closure Project. More context and further information on engagement activities with each community can be found in Appendices of the IER TSD. This subsection also discusses the engagement related to verification.
- **Feedback.** This subsection describes the specific topics of interest or concern each Indigenous Nation, community or organization has identified through a number of input pathways including: comments on the draft EIS (2017, 2020 and 2021), comments on other technical documents, traditional knowledge studies, during engagement activities like meetings, and in correspondence. Each bullet point represents a general theme of the interest/concern identified by the respective Indigenous Nation, community or organization. This section corresponds to Column 2 (Key Interests and Concerns) of the *Table of Interests and Concerns*.
- **Summary Discussion of Interests and Concerns.** This subsection addresses each of the interests and concerns identified under the Feedback subsection. CNL has also provided a narrative discussion that describes the interest or concern raised, a summary of CNL's response to the interest/concern and discussions on the topic.

  This section corresponds to Column 3 (interest/concern) and Column 4 (impacts on the EIS) of the *Tables of Interests and Concerns*.

- **Verification.** CNL is working with communities to verify that their interests and concerns have been accurately accounted for and addressed through either verbal or written confirmation from the Indigenous Nation, community or organization. Verification ensures that the way in which CNL has addressed (or responded to) the Indigenous Nation's, community's or organization's interests or concerns has either been accepted, or in cases where CNL is unable to fully address interests or concerns, this is understood and acknowledged by the Indigenous Nation, community or organization.

  Based on the CNSC's guidance, as well as practices commonly employed in EIS work by other proponents, verification includes:

  - Consolidating all interests and/or concerns raised to confirm accuracy in reporting and tracking. This has been done through sharing the summary of *Table of Interests and Concerns* with each Indigenous Nation, community or organization.
  - CNL provided the *Tables of Interests and Concerns* to all communities and organizations that have voiced feedback related to the NPD Closure Project and requested confirmation (1) that CNL had captured accurately the interests and concerns, and (2) where possible, that the Indigenous Nation, community or organization was satisfied with how the interests or concerns have been addressed by CNL. Where this satisfaction was not expressed, the *Table of Interests and Concerns* reflects the status of the issue and identifies next steps.
  - Providing a summary of how an interest or concern has led to an EIS change, and/or where the topic is discussed in the EIS; and providing an opportunity to review the consolidated material in the context of the EIS. Where applicable this has been done through sharing drafts of specific sections of the EIS where traditional knowledge has been incorporated or directing to specific sections that have been changed due to a particular interest/concern.
  - Responding to all comments on the 2017 draft EIS, the 2020 draft EIS and/or 2021 draft EIS and sharing responses to the respective Indigenous Nation, community or organization. In some cases, the interest/concern has been resolved. However, there may also be instances where there is a difference of opinion and the Indigenous Nation, community or organization may deem the response by CNL unsuitable or unacceptable. In these cases, an acceptable verification is the acknowledgement and understanding of the differing positions of CNL and the Indigenous Nation, community or organization.
  - Where direct submissions or comments from specific Indigenous Nations, communities and organizations were received, including targeted technical comments on the 2017 draft EIS and comments on the 2020 and 2021 revised Draft EIS, CNL has provided written responses to the Indigenous Nations, communities and organizations, indicating where changes have been incorporated in the EIS.
  - CNL requested feedback from all identified Indigenous Nations, communities and organizations on assumptions CNL had made in the EIS with respect to traditional land use around the NPD site. CNL has incorporated information from traditional land use and knowledge studies that have been completed by the AOO, the AOPFN and the MNO and has asked these

organizations and communities for verification that the studies are accurately reflected in this EIS.

- CNL has provided a summary of commitments that CNL has made to the respective Indigenous Nation, community or organization during NPD Closure Project engagements, to seek confirmation that they are accurately recorded from the Indigenous Nation, community or organization.

- **Next Steps.** This subsection describes the key next steps for engagement both from a relationship building and EA perspective. Within the verification framework, some issues go beyond the scope of the NPD Closure Project and/or there remains a difference of opinion on certain concerns. CNL is listening and attempting to meaningfully respond to and address, if possible, all interests and concerns raised. This section corresponds to the last column of the *Table of Interests and Concerns.*

As part of this EIS and its engagement with Indigenous Nations, communities and organizations, CNL has been as explicit as possible in indicating and demonstrating whether issues or concerns are related to the NPD Closure Project, what issues are broader CNL issues and what issues are beyond the scope of CNL or this EA. CNL recognizes that there is a complex history associated with CNL's and various Crown operations in the Ottawa Valley, however, the NPD Closure Project is not the forum in which to resolve this history. CNL is committed to engagement with Indigenous Nations, communities and organizations on the NPD Closure Project and CNL's broader operations in the Ottawa Valley.

6.2.4.2 Algonquins of Ontario

The Algonquins of Ontario (AOO) is an organized collective of Algonquin communities assembled to enable a unified approach to reaching a settlement over a comprehensive land claim including an area of over 3.6 million hectares (ha) within the Kichi-Sìbì (Ottawa River) and Mattawa River watersheds in eastern Ontario (AOO *et al*., 2016). The area that is the subject of the Algonquin Land Claim in Ontario includes the National Capital Region, all of Renfrew County and most of Algonquin Park. The AOO is comprised of ten Algonquin communities located within the Ottawa Valley: Antoine Algonquin Nation; AOPFN; Algonquin Nation Kijicho-Manito Madaouskarini; Bonnechere Algonquin First Nation; Algonquins of Greater Golden Lake First Nation; Mattawa/North Bay Algonquin First Nation; Ottawa Algonquin First Nation; Shabot Obaadjiwan First Nation; Snimikobi (Ardoch) (Beaver Creek) Algonquin First Nation; and Whitney Area Algonquins. Sixteen Algonquin Negotiation Representatives (ANRs), serving three-year terms represent these communities. The ANRs are comprised of the AOPFN Chief and Council (six Councilors) along with one representative from each of the other Algonquin communities listed above. The NPD site is located within unceded Algonquin traditional territory. The AOO have asserted existing Indigenous rights and title throughout unceded Algonquin traditional territory, including the NPD site. This land claim is currently under negotiation by the AOO and the Governments of Canada and Ontario. See Figure 6.2-2 below of the AOO Settlement Boundary. A fuller description of the AOO can be found in Chapter 3 of the IER TSD.

Figure 6.2-2 Algonquins of Ontario (AOO) Settlement Boundary

Source: Government of Canada, 2020 (with addition of project location)

In 2018, the AOO, AECL and CNL signed a tri-partite MOU to guide dialogue between the parties on matters of mutual interest. More specifically the MOU was intended to be a vehicle to work towards the development of an LTRA amongst the parties. The MOU identified the need for both a Technical Group to deal with the NPD Closure Project and a Long-Term Relationship Group that would advance an LTRA amongst the parties. The MOU broadly identified potential topic areas for the LTRA. Over 2019 and 2020, the AOO, AECL and CNL developed a Terms of Reference and work plan for the LTRA. The LTRA is intended to cover such topics as: AOO involvement in environmental and cultural monitoring and stewardship; employment / training; contracting; communications; consultation; etc. The LTRA is intended to cover the interests of all three parties with respect to both the CRL and NPD sites as well as other further projects and/or initiatives across the AOO Settlement Area. The LTRA discussions are relevant to NPD as it is expected that certain project specific initiatives and commitments will be implemented or realized through this agreement. Since 2020, discussion on the LTRA have not progressed. CNL, AECL and AOO are still working together on the NPD Closure Project and other projects, but LTRA discussion have not been prioritized. CNL is willing to work with the AOO on an LTRA and are currently working towards signing an NPD Project Specific Contribution Agreement.

6.2.4.2.1 Engagement

Table C-1 in Appendix C.1 includes a summary of key engagement activities (such as vital information sharing on interests between AOO and CNL and other engagements that are aligned with the requirements of *CEAA* 2012) that have occurred with AOO on the NPD Closure Project as of March 31, 2024. A complete list of engagement activities can be found in Appendix J (Table J-1) of the IER TSD. CNL has also provided a narrative summary of engagement with the AOO.

Relationship-building and Developing Agreements

CNL first reached out to representatives with the AOO in June 2016, after receiving a copy of the AOO's comments on the Project Description for the NPD Closure Project, with an invitation to meet and discuss the project. Engagement activities with the AOO commenced in August 2016 after receipt of the CNL NPD Closure Project introductory letter sent in July 2016.

In August 2016, CNL hosted AOO Consultation Office and technical staff for a meeting at the CRL site and the NPD site, including a Chimney Swift viewing at the NPD ventilation stack. Late 2016 and early 2017 included discussions on archaeological liaison participation at the NPD site as well as sharing documents of interest to the AOO, including a biodiversity report, the safety analysis, environmental reports, archaeological information, aerial photos and topographical maps of the NPD site.

In the spring of 2017, CNL and the AOO met on two separate occasions. The AOO Consultation Office staff and the ANRs met with CNL in April to discuss future engagements on the project. In June, CNL hosted the ANRs to the CRL and NPD sites. Also in June 2017, an information session for AOO community members was held in Pembroke. This included a project overview as well as an opportunity for one-on-one discussions with technical NPD Closure Project team members. More than 8,000 AOO community members were sent the invitation by mail and approximately 15 community members attended the information session.

In November 2017, CNL shared the NPD Closure Project draft EIS and invited the AOO to participate in the public and Indigenous comment period following the draft EIS submission. In late 2017, CNL shared the NPD Closure Project IER with the AOO and requested community input and feedback for incorporation into the project. The AOO submitted 70 comments to the CNSC on the draft EIS in early 2018. CNL provided access to all technical support documents to assist with this review. Discussions on these comments and how CNL is addressing them have been an ongoing part of engagement with the AOO since 2018, with the AOO responding to dispositions with further clarifying comments and questions and CNL working to provide more information.

CNL and the AOO started discussions on developing a Memorandum of Understanding (MOU) in early 2018, which included multiple meetings and email correspondence resulting in a signed MOU in July 2018. The MOU set the platform for AOO, AECL and CNL to enter into discussions on an LTRA. The MOU identified the need for both a Technical Group to deal with the NPD Closure Project and a Long-Term Relationship Group that would advance an LTRA amongst the parties. The MOU broadly identified potential topic areas for the LTRA. Over 2019 and 2020, the AOO, AECL and CNL developed a Terms of Reference and work plan for the LTRA, which intended to cover such topics as: AOO involvement in environmental and cultural monitoring and stewardship; employment/training; contracting; communications; consultation; etc. The LTRA is intended to cover the interests of all three parties with respect to both the CRL and NPD sites as well as other further projects and/or initiatives across the unceded Algonquin traditional territory. The LTRA discussions are relevant to NPD as it is expected that certain project specific initiatives and commitments will be implemented or realized through this agreement. Since 2020, discussion on the LTRA has not progressed. CNL, AECL and AOO are still working together on the NPD Closure Project and other

projects, however LTRA discussions have not been prioritized. CNL is willing to work with the AOO on an LTRA.

Throughout 2018 and 2019, CNL evolved project engagements to meet Indigenous and stakeholder feedback. This included the development of a regular routine of Indigenous and stakeholder engagement events, such as the bi-monthly Breakfast Briefings and quarterly webinar updates. In early 2020, due to the COVID-19 pandemic, CNL combined the bi-monthly Breakfast Briefings and quarterly webinars into a bi-monthly webinar update on the NSDF Project. The AOO received invitations to all engagement activities and have attended select events to date.

Upon request, the NPD Closure Project provided an update to the AOO's Planning and Environmental Working Group in September 2019 to share updates on the project and engagement, as well as clarify remaining steps. In particular, this meeting addressed the specific areas of follow-up the AOO had identified to CNL in the May 2019 letter. These were: alternative means, future land use (site restoration), EA Follow-up Program, value components, archaeological assessment, PostSA, and site characterization. All questions were verbally addressed at the meeting.

The majority of the meetings in 2020 between the AOO and CNL focused on LTRA discussions. In May 2020, CNL shared a preliminary version of the 2020 revised draft EIS and an updated IER and indicated an interest in meeting with the AOO. The AOO replied to the May 2020 letter in July 2020. This letter enclosed the AOO responses to the CNL's Table of Interests and Concerns; AOO comments and recommendations on Indigenous Socio-economic and Health Sections; identification of VCs for Consideration; AOO comments and recommendations on the draft follow-up monitoring plans (environmental, effluent and groundwater); AOO comments and recommendations on derived release limits and AOO comments and recommendations on the Environmental Site Assessment. This letter also identified the need for capacity to complete a technical review of the draft EIS. CNL sent a reply to the AOO's comments in September 2020. During the latter part of 2020 and into 2021, the AOO and CNL exchanged correspondence on the NPD project.

In October 2021, the AOO and CNL meet to discuss how to prioritize the work plan for the NPD Closure Project and the NSDF Project. A path forward to verify the AOO's interests and concerns for the NPD Closure Project was also discussed and the AOO agreed to review the interests and concerns by the end of November. During the later months, the AOO and CNL continued to discuss the AOO's interest and concerns. In 2021 and early 2022, due to focus on the NSDF Project, final EIS submission and acceptance by the CNSC in July 2021 and subsequent hearings engagement on the NPD Closure Project was limited.

In 2022, the AOO and CNL began to have monthly Working Group meetings on the NPD Closure Project and continues to discuss the Table of Interests and Concerns. Into 2023, CNL and the AOO have maintained regular communications and ongoing engagement activities to address AOO specific questions and concerns about the project (Section 6.2.4.2.1 of the EIS). As well, to ensure meaningful participation throughout the EA, the AOO and CNL have a work plan and budget in place. CNL has been invited to attend ANRs meetings, and the AOO attended a site tour at NPD in the summer of 2023.

In 2024, CNL and the AOO started discussions on developing an NPD Project Specific Contribution Agreement, which includes a workplan for the full year. CNL anticipates signing of the Agreement in early 2024.

Algonquin Knowledge and Land Use Study (AKLUS)

The AOO identified the need and requested funding for an AKLUS to allow Algonquin traditional knowledge to be collected. The CNSC and CNL provided separate supplemental funding to the AOO to support an Algonquin Knowledge and Land Use Study (AKLUS), which commenced in 2019. CNL provided an NPD Closure Project overview presentation in June 2019 at the AKLUS Workshop in Deep River, ON. In December 2020, CNL received the final report from the AOO AKLUS. In May 2021, CNL shared draft subsections of the EIS (8.9 and 9.9) with the AOO, which had been further updated, to verify that the information from the AKLUS has been appropriately incorporated. In September 2021, CNL shared responses to the recommendations in the AOO AKLUS with the AOO and indicated an interest in continuing discussions on the inclusion of AKLUS content in the EIS. The AOO assessed the adequacy of the AKLUS recommendation responses in December 2021 and AOO and CNL met in January 2022 to discuss the responses. CNL shared the most up to date AKLUS recommendation responses with the AOO in February 2023. At the May 2023 Working Group meeting, CNL and the AOO reviewed each of the AOO's recommendations and identified draft commitments that were proposed to address the recommendations.

Comments on the Draft EIS

Following up on earlier dialogue through correspondence on the draft EIS comments, CNL and the AOO's Planning and Environmental Working Group met in September 2019 to share updates on the project and engagement. This meeting discussed which comments from the AOO had been resolved as well as the path forward on further addressing the outstanding AOO comments on the NPD Closure Project draft EIS, which had not been satisfactorily addressed (or addressed at all) in the responses CNL had sent in January 2019.

In May 2020, CNL sent a letter to the AOO enclosing a revision of the draft EIS, as well as the updated IER TSD to seek input on the draft EIS and the IER TSD. As well, this letter outlined the status of issues brought forward by the comments on the draft EIS and indicated an interest in a meeting between the AOO and CNL. The AOO responded to this letter in July 2020, sharing comments on the outstanding issues.

Later in the year (September 2020), CNL shared a complete and comprehensive set of dispositions to all 70 of the AOO registry comments on the draft EIS. The AOO acknowledged receipt of CNL's dispositions.

In order to ensure new AOO consultation staff had access to up-to-date correspondence, in January 2023, CNL resent all technical responses prepared by CNL that address AOO comments. This included the draft EIS comments and July 2020 technical response to assist AOO. The AOO confirmed receipt. At this time CNL does not expect any further feedback from AOO on the EIS comment responses. Instead, the parties are focusing on a short list of outstanding areas of interest and the refinement of commitments.

Summary of Interests and Concerns

In June 2021, CNL shared a draft *Table of Interests and Concerns,* seeking to verify this summary and where possible the resolution of interests and concerns with the AOO. The AOO responded to this indicating a need for an updated budget and work schedule to enable the AOO's participation in the remaining aspects of the EA for the NPD Closure Project. The AOO provided this updated budget and work schedule in August 2021 and CNL sent a letter accepting it in August 2021. In parallel to this, CNL followed up with the AOO between July and September of 2021, seeking confirmation that CNL had accurately summarized the interests and concerns of the AOO on the NPD Closure Project. CNL indicated their intention to submit the revised EIS in the fall of 2021 and that any additional input on the content from the AOO would be required by August 2021. The AOO indicated that this deadline was not achievable and CNL agreed to delay their submission of the revised draft EIS to enable the AOO to provide feedback on the *Table of Interests and Concerns*. The AOO provided feedback in November 2021 which CNL used to improve its description of the AOO's interests and concerns. With the incorporation of the feedback, CNL understands this *Table of Interests and Concerns* (presented in Appendix J of the IER) is inclusive of all interests identified by the AOO. More recently, CNL has developed a simplified *Table of Interests and Concerns* (Table C-3 in Appendix C.1), and a table which maps how this simplified table relates to detailed input and feedback from the AOO (Table C-2 in Appendix C.1). Feedback from the CNSC to CNL in January 2022 resulted in revisions and repackaging of the summary *Tables of Interests and Concerns*. CNL shared the updated table with the AOO in early April 2022. In May 2022, the AOO confirmed consistency between the spring 2022 version of the *Table of Interests and Concerns* and the December 2021 version that was previously verified by the AOO. In May 2022, AOO advised CNL that they had no further comments on the NPD EIS *Table of Interests and Concerns*. Due to the importance of the summary *Table of Interests and Concerns* and the AOO's input on verifying its completeness and accuracy, CNL shared the most updated version of this table with the AOO in May 2023. CNL noted the updates to the *Table of Interests and Concerns*, primarily related to the recent progress made discussing outstanding issues. Specifically, CNL had made updates to its response to the interest/concern and the status of the concern. The AOO confirmed receipt in May 2023, and in July 2023, AOO and CNL held a working-level meeting to review and revise together collaboratively updated the status of each interest and concern and next steps in a workshop in July 2023. Updated tables were shared back to AOO in July 2023.

The AOO Key Interests and Concerns are the result of collaborative development through the Working Group, with validation of the status and next steps occurring at the Working Group level through focused discussions in June and July of 2023. Note that validation of the interests and concerns was already achieved with the AOO in May 2022. Regular ANR meetings have not been occurring since March of 2023 and therefore the updates have not been reviewed and vetted by the ANRs. CNL and the AOO continue to work together, the Working Group will bring the updates to the ANR Table for validation. Overall, CNL has continued to make positive steps forward with the AOO and have completed some of the next steps that were identified together.

Commitments

In May 2021, CNL shared a preliminary list of draft commitments as well as draft subsections of the EIS (8.9 and 9.9) with the AOO to initiate verification discussions. The AOO followed up in June 2021, sharing that the AOO were creating a work plan to support participation in the remaining aspects of the EA process for the NPD Closure Project. In August 2021, the AOO provided a work plan and budget to enable the AOO's meaningful participation in the NPD EA, which CNL accepted later the same month. In November 2021, the AOO and CNL discussed a work plan to move forward with the AOO's participation in the EA process for the NPD Closure Project, including a path forward to develop a final set of commitments, which will be submitted in a commitments report, as part of the final EIS package. At the beginning of October 2022, CNL sent a letter to the AOO. The letter provided a project update and the engagement status with the AOO, CNL requested using the list of commitments from April 2022 moving forward. CNL and the AOO discussed the next steps for addressing commitments at the November 2022 Working Group meeting. At the May 2023 Working Group meeting CNL and the AOO reviewed each of the AOO's recommendations and identified commitments already made to address the recommendation. The discussion resulted in a joint to decision to simplify the commitments list into themes. Through collaboration at the Working Group level, both the AOO and CNL acknowledge the progress made so far to develop and progress actionable commitments. This demonstrates an ongoing commitment to progress relationship-building between CNL and the AOO.

Work Plan Development and Coordination of Engagement

In November 2021, the AOO and CNL discussed a work plan to move forward with the AOO's meaningful participation in the EA process for the NPD Closure Project. CNL and the AOO have a prioritized schedule of continued engagement on the NPD Closure Project. Between January and November 2022, capacity constraints within the AOO prevented progress against the work plan. Subsequently in November 2022, monthly Working Group meetings resumed, providing CNL and the AOO the opportunity to work together again. The work plan was updated in November 2022 with a focus on the next 6-month period to reflect the AOO's interest in certain topics and availability of third parties. This work plan remains evergreen and will be adjusted as the capacity, needs and interests of the AOO evolve. In July 2023, CNL and AOO updated the workplan to extend to the end of 2023. At the February 2024 working group meeting, CNL and the AOO discussed an NPD Project Specific Contribution Agreement with an accompanying workplan, extending to the end of 2024. As of March 2024, the agreement and workplan are being drafted. During the February 14, 2024, meeting, CNL and the AOO continued to work together to update the NPD workplan and budget to enable AOO activities of interest for the NPD Closure Project.

6.2.4.2.2 Feedback

The AOO provided feedback on the original Project Description in 2016 and formal comments on the 2017 EIS (CNL also coordinated open houses for all AOO members in 2017 and 2019). Beyond those interests and concerns raised through the formal EA process, including written comments submitted to the CNSC, the AOO also brought forward a number of interests and concerns through direct engagement with CNL. This included interests and concerns identified in the AOO AKLUS, correspondence (including correspondence on specific VCs), comments provided on technical documents (including the three draft follow-up monitoring plans) and through discussion during meetings. These more detailed and specific

comments are summarized in the Mapping Table (Table C-2 of Appendix C.1) showing how they have been rolled up to the key interests, described in detail in Section 6.2.4.2.3 Summary Discussion of Interests and Concerns, as well as in the *Table of Interests and Concerns*, Table C-3 of Appendix C.1.

The Summary of AOO Key Interests and Concerns are the result of collaborative development through the Working Group, with validation of the status and next steps occurring at the Working Group level through focused discussions in June and July of 2023. Note that validation of the interests and concerns was already achieved with the AOO in May 2022. Regular ANR meetings have not been occurring since March of 2023 and therefore the updates have not been reviewed and vetted by the ANRs. As soon as regular ANR meetings resume, taking into consideration the priorities and availability of the ANRs, the Working Group will bring the updates to the ANR Table for validation.

Algonquin Knowledge, Land and Resource Use and Cultural Impacts. The AOO identified the need and requested funding for an AKLUS to allow Algonquin traditional knowledge to be collected. The AOO identified that Algonquin knowledge needed to be incorporated in the EIS; they voiced concerns that the project may impact on ability to practice traditional activities; there was concern about safety of harvested and gathered foods, concern about the lack of AOO-specific mitigation measures and monitoring program and also about the risks of impacts to ancestral values from long-term nuclear waste storage.

Unceded Algonquin Traditional Territory. The AOO made the request that a statement be placed in the Project Description acknowledging NPD is in unceded Algonquin traditional territory.

Alternatives. The AOO expressed concern about the suitability of in-situ disposal and concern that the EIS does not provide enough information on the alternatives to in-situ disposal.

Archaeology and Cultural Heritage. The AOO expressed concerns about the impact of the project on features of cultural importance.

Accidents & Malfunctions. The AOO identified the need for CNL to ensure that it has contingency plans in place to deal with extreme weather and other natural hazards that may impact or damage the NPD facility. The AOO have concerns about the long-term integrity of the concrete facility (exterior walls and foundations) and are concerned about who will be responsible if environmental events (such as earthquakes) affect the facility over the long-term.

Engagement. CNL engages with the AOO communities through the ANR representation. This is the process that has been indicated by the AOO to CNL. The AOO also requested both AECL and CNL enter into negotiations to establish an LTRA.

EA Process and Methodology. The AOO raised questions and concerns on EA methodology and process including: identification of potential project-environment interactions; interests in additional cumulative effects analysis; and concerns about the methodology for determination of significance of adverse residual effects.

End State, Site Restoration and Future Use of the Lands. The AOO wants to ensure they are engaged on end state, site restoration and future land use of the NPD site. They have also indicated interest in participating in site restoration activities. Also related to end state and future use of the lands, AOO has

concerns about potential impacts to the Kichi-Sìbì (Ottawa River) shoreline, the impact of future socio-political changes on land use and the long-term liability of the site beyond decommissioning.

Environmental Effects and Mitigation Measures. The AOO is concerned about potential impacts to the Kichi-Sìbì (Ottawa River) shoreline, fish, wildlife and plants.

Indigenous Health. It is important to the AOO that the Algonquin lifestyle is accurately reflected when modelling impacts (predicted radiation doses) to AOO citizens.

Monitoring. The AOO is seeking to be involved in activities related to environmental and cultural heritage stewardship and monitoring. Further, the AOO identified interest in reviewing CNL's draft monitoring plans, the AOO had recommendations and requests for additional monitoring and were concerned about the process by which changes to the monitoring plan design and implementation are communicated.

Protection of the Kichi-Sìbì (Ottawa River). The AOO has expressed via various mechanisms the importance of protecting the Kichi-Sìbì (Ottawa River), and has raised concerns about the potential for contamination to reach the Kichi-Sìbì (Ottawa River) and surrounding environment.

Protection of Flora and Fauna. The AOO is concerned about potential impacts to habitat and biota and ensuring suitable follow-up program elements are incorporated to measure potential impacts. The AOO have also identified several Species at Risk that are of interest to their members (e.g., lake sturgeon, chimney swifts and other avian SAR).

Socio-economic. The AOO identified that CNL's EIS was missing an assessment of Indigenous socio-economic conditions and effects as well as VCs through which to assess this environmental component. The AOO is also concerned that the monitoring plans do not include measures to assess effects to the Indigenous socio-economic environment. The AOO is also seeking to discuss opportunities for employment and/or procurement.

Technical. The AOO provided specific technical comments on: emissions (noise, dust, air), cement (and natural analogues), the grout batch mixing plant; EcoRA methodology, the terrestrial study area and the Derived Release Limits (DRLs).

VCs. The AOO indicated they wished to be engaged and provide input into VC selection. Further, they expressed concerns regarding the limited VCs selected for the NPD Closure Project.

6.2.4.2.3 Summary Discussion of Interests and Concerns

This Summary Discussion of Interests and Concerns is taken from the *Table of Interests and Concerns* (Table C-3 of Appendix C.1) and is CNL's understanding based on written submissions (to the CNSC and to CNL) and oral discussions with the AOO. CNL has made its best efforts to document the position the AOO has taken on each interest/concern while acknowledging that the AOO may articulate the perspective somewhat differently.

The key interests and concerns discussed in this Section were derived from various engagements with the AOO (Table C-1 of Appendix C.1) as described in Section 6.2.4.2.1 of this EIS.

Algonquin Knowledge, Land and Resource Use, and Cultural Sites

In their review of the NPD Project Description and the 2017 draft EIS, the AOO identified the need for traditional knowledge to be incorporated into the NPD Closure Project EA. As such, both the CNSC and CNL provided financial capacity to the AOO to undertake an AKLUS. The AOO shared this study with CNL in December 2020. Through the AKLUS report the AOO identified several specific interests and concerns related to Algonquin Knowledge, land and resource use and cultural sites, for instance, a request for funding of an Algonquin Country foods survey and monitoring program designed to monitor species harvested and gathered by Algonquins.

The NPD EIS has assumed traditional uses occur near the NPD site (e.g., the Kichi-Sìbì (Ottawa River), private land, accessible lands or provincial crown land outside the restricted/fenced area) and this assumption was confirmed by the AKLUS. The AOO expressed concerns over the impact of the NPD Closure Project on the capacity of Indigenous peoples to exercise their rights. However, because of the site access restrictions to the NPD site, traditional land and resource use is not permitted at the NPD site. The EIS has demonstrated there are no predicted adverse impacts from the project on the Site, Local, and Regional Study Areas. In its assessment, CNL concludes that no adverse residual effects on traditional land and resource use are expected (Section 9.9.3.5).

CNL provided the AOO with the sections of the EIS that have been updated to reflect the AKLUS for AOO review. CNL shared the updated sections where AKLUS information has been incorporated with the AOO in May 2021.

CNL had a focused discussion with the AOO that included an overview of how the Indigenous receptor is modelled in CNL's long-term safety assessment. This discussion is helping to build confidence that harvesting and gathering of foods is safe both now and in the future. Confidence in the safety of the NPD site and surrounding environment is key to resolving the AOO's outstanding concerns related to Algonquin Knowledge and land and resource use. As of January 2024, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed commitments AOO-1 - Socio-Economic Considerations, Monitoring and Mitigations AOO-4 - Site Visit and Survey Work, AOO-5 - Participation in monitoring and sharing of results and AOO-10 - Ongoing Collaboration. The details of these commitments are included in Section 6.2.4.2.5 below.

Acknowledgement of Unceded Algonquin Traditional Territory

In the AOO's comments on the 2016 Project Description, the AOO requested that CNL, through the NPD Closure Project's EIS, should acknowledge that the NPD site is located in the unceded Algonquin traditional territory.

CNL acknowledges that the NPD site is located in the unceded Algonquin traditional territory. This was stated in the 2017 draft EIS in Sections 3.1 and 8.9.2. The following quote was also added to Section 6.2.4.2 above: "*The NPD site is located within unceded Algonquin traditional territory. The Algonquins of Ontario have asserted existing Indigenous rights and title throughout unceded Algonquin traditional territory, including the NPD site."* In May 2019, the AOO accepted that CNL had acknowledged the unceded Algonquin traditional territory in the draft EIS. CNL considers this issue resolved as CNL has since made

this language change in the 2023 revised draft EIS. CNL understands the AOO will need to review the final EIS to confirm this issue has been addressed. Next steps, including the AOO's technical reviews, are discussed in Section 6.2.4.2.5 below.

Alternatives

Through their review of the 2017 draft EIS, the AOO expressed an interest in alternative means to manage the waste liability at NPD. The AOO was concerned about the suitability of in-situ disposal as a permanent disposal solution for NPD and specifically identified concerns around whether CNL's AMA met the requirements of *CEAA*, 2012. The AOO expressed that CNL did not provide sufficient discussion of alternatives to in-situ disposal in the 2017 draft EIS. The AOO requested that CNL provide a quantitative assessment of the impacts of each alternative means on VCs to address their concerns. CNL has added a quantitative assessment of alternatives, which would support the understanding of the radiological and other safety risks to each alternative option (e.g., projected radiological dose, industrial safety risk). These were detailed in the AMA TSD and summarized in the EIS. CNL has expanded the discussion of alternative means in the EIS and provided the AOO with additional information regarding the suitability of in-situ disposal for NPD.

To support resolution of this concern, in November 2022, CNL shared the AMA with the AOO, as well as the hyperlink to CNL's webinar on alternative means and recent posters on the topic. The Working Group had a focused discussion in December 2022 on the AMA. As a follow up, CNL gave a presentation on the AMA to the ANR at the February 2023 Infrastructure Working Group. The presentation walked through the alternatives considered, CNL's evaluation of alternatives and the AOO's comments on alternative means for NPD. Following the presentation and question period, CNL was thanked by the AOO for providing the informative presentation. Along with information provided by CNL, the AOO also asked their consultant to provide summary remarks about CNL's AMA. CNL has received no further comments on this topic and believes that it has resolved the AOO's outstanding concerns in this area.

As of July 2023, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed commitment AOO-10 - Ongoing Collaboration. The details of this commitment are included in Section 6.2.4.2.5 below.

Archaeology

Since their review of the NPD Project Description in 2016, potential historical and archaeological artefacts at the NPD site has been of great interest to the AOO. This interest was reiterated in the comments on the 2017 draft EIS and came up in the AKLUS report's recommendations, as follows: funding for further archaeological assessments across the NPD property, protection of areas of archaeological potential during project decommissioning, the development of a stop-work process and the development of a sustainable archaeological research program.

To address this interest, CNL shared a summary of the Phase I Archaeological Assessment; this is also included in Section 8.11.4 of the EIS. In addition, a description of Indigenous Cultural Resources and Ceremonies has been included in Section 8.9. Section 9.9.3.2 in the EIS describes proposed mitigation measures that will be employed if undocumented archaeological resources are discovered during NPD

Closure Project activities. The revised draft EIS has incorporated AOO archaeological interests as reported by the AOO in the AKLUS. CNL's support for the AKLUS also helped address this interest by facilitating the collection of traditional knowledge related to cultural resources.

As of July 2023, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed commitment AOO-3 – Cultural Protection. The details of this commitment are included in Section 6.2.4.2.5 below.

Accidents and Responses

In their review of the 2017 draft EIS, the AOO voiced concerns about whether CNL has prepared effective contingency plans for extreme weather and natural hazard scenarios that may impact or damage the NPD facility. The AOO highlights that such incidents are expected to increase in frequency and intensity as a result of climate change, so proper contingency planning is crucial. In the event of a natural hazard (e.g., flood, ice storm, hurricane, tornado, earthquake), there is potential for radiological and non-radiological contaminants from the NPD facility to be released to the environment, in particular to the Kichi-Sìbì (Ottawa River).

The AOO requested that CNL provide more detailed information regarding its contingency planning for extreme weather and natural hazard contingency planning, and a more detailed discussion of the potential impacts of flooding and the types of releases that would occur if the NPD facility was inundated. To address this concern, CNL has responded in writing to the AOO's comments, outlining where and how such events have been assessed.

The NPD site has an Emergency Procedure that will remain in place and be updated as required throughout the Decommissioning Execution and Institutional Controls phases of this project. This procedure focuses on the prevention, mitigation of, preparedness for, response to, and recovery from a wide range of abnormal and emergency conditions including fires, floods, hazardous spills, loss of power, earthquakes, and tornados. The Emergency Procedure also defines the actions of specific staff/roles in such events. Following any of these emergency events, as soon as it is safe for staff to do so, site and facility condition will be evaluated, and any necessary actions will be taken to make repairs. The NPD Emergency Plan is developed and maintained in accordance with CNL's company-wide Emergency Preparedness Program that has been accepted to meet the CNSC's requirements (under REGDOC-2.10.1 - Nuclear Emergency Preparedness and Response).

AOO specifically expressed concern about the integrity of the NPDDF in the event of natural disasters. CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above-ground natural hazards and extreme temperature change throughout all project phases (Decommissioning Execution, Institutional Controls and Post-Institutional Controls), and concludes that these events will have no undue effects on people or the environment around the site. The DecomSA and PostSA TSDs examine a range of scenarios that encompass the potential impacts from extreme weather and natural hazards. In all cases, CNL has communicated to the AOO that the predicted doses from these events were estimated to be below the relevant dose criteria (i.e., the NPD disposal site will maintain its safety features within its expected life cycle). The potential natural disasters to which NPD may be exposed are elaborated in Section 8.12 of the EIS, while a summary of the effects of the environment on the project is discussed in Section 9.14. The

safety of the NPDDF is reflected in the facility's in-design mitigation measures to contain and isolate NPD's waste inventory (Section 4.1).

As of July 2023, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed commitment AOO-10 - Ongoing Collaboration. The details of this commitment are included in Section 6.2.4.2.5 below.

Engagement

The AOO expressed interest in being involved with the NPD Closure Project EA as early as 2016 and have continued to express this interest through comments on the 2017 draft EIS and demonstrated involvement with additional technical reviews and the development of the AKLUS report. In particular, the AOO have requested continued engagement using best practices and have requested a commitment from CNL and AECL to discuss future use and ownership of the NPD property. Further, the AOO have also brought forward an interest in AOO-specific engagement plan.

To meet this interest, CNL and the AOO have maintained regular communications and ongoing engagement activities to address AOO specific questions and concerns about the project (Section 6.2.4.2.1 of the EIS). As well, to ensure meaningful participation throughout the EA, the AOO and CNL have a workplan and budget in place covering activities for 2022 and 2023.

Since 2020, discussion on the LTRA has not progressed. CNL, AECL and AOO are still working together on the NPD Closure Project and other projects, however LTRA discussions have not been prioritized. The LTRA discussions are relevant to the NPD Closure Project as it is expected that certain project specific initiatives and commitments will be implemented or realized through this agreement. CNL is willing to work with the AOO on an LTRA. In the interim CNL and the AOO are working to sign a Project Specific Contribution Agreement to facilitate the AOO's continued participation in the EA process.

As of July 2023, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed commitment AOO-10 - Ongoing Collaboration. The details of this commitment are included in Section 6.2.4.2.5 below.

Environmental Assessment Methodology and Process

In their review of the 2017 draft EIS, the AOO voiced concerns about potential project-environment interactions, determination of significance of adverse residual effects and cumulative environmental effects as a result of the NPD disposal activities.

CNL has responded to all of the AOO's comments on the 2017 draft EIS and understands the AOO will be providing further feedback on these comments. At a high level, the dispositions point to various EIS sections, such as Section 9.13, which provides the process for evaluating cumulative effects and the assessment of cumulative effects for the NPD Closure Project. In response to AOO's request that CNL employ a lower threshold for determination of significant adverse residual effects, CNL proposes a workshop with the AOO to review the methodology for determining significance of effects.

As of July 2023, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed commitment AOO-10 - Ongoing Collaboration. The details of this commitment are included in Section 6.2.4.2.5 below.

End State, Restoration and Future Use of the Lands

In their review of the 2017 draft EIS and in conjunction with their concerns about traditional land use, the AOO expressed great interest in site restoration and land transfer agreements. The key interests and concerns expressed include: engagement and consultation on the site restoration plan; AOO participation in site restoration and long-term monitoring activities; potential impacts to the Kichi-Sìbì (Ottawa River) shoreline and to fish, wildlife and plants; and the impact of future socio-political changes on land use. The topics of future land use and site restoration as well as end state have been the subject of or have been discussed in at least eight engagement activities with AOO since the submission of the Project Description in 2016 (including meetings, site tours, and information sessions). CNL also shared the Environmental Site Assessment for NPD with the AOO to provide additional details on the assessment of current conditions at the NPD site, supporting and informing the discussion on site restoration. The AKLUS report also identified interests and concerns related to end state, site restoration and future use of the land, including a request for involvement in follow-up monitoring and restoration work.

To address these interests and concerns, CNL provided draft and updated dispositions to address AOO comments on the general plans for restoration and end state with reference to Section 4.3.1.9 of the revised EIS and the Environmental Site Assessment for NPD.

While future land use is linked to the NPD Closure Project, it is not a requirement of the EA that the future land use be determined at this time. These topics may be included in future LTRA discussions with the participation of AECL as the owner of the NPD site. CNL will be sharing a draft site restoration plan with the AOO in the summer of 2024.

The landowner, AECL, is also committed to engagement and consultation with Indigenous Nations, communities, and organizations, such as AOO, on future end state and land use. The potential land options will not be fully determined until the NPD Closure Project EA and license amendment process proceeds further.

As of July 2023, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed commitments AOO-2 – Restoration Planning and AOO-4 - Site Visit and Survey Work, AOO-5 - Participation in monitoring and sharing of results and AOO-10 - Ongoing Collaboration. The details of these commitments are included in Section 6.2.4.2.5 below.

Environmental Effects and Mitigation Measures

In their review of the 2017 draft EIS and in conjunction with their concerns about traditional land use, the AOO expressed concerns about potential impacts to Kichi-Sìbì (Ottawa River) shoreline and to fish, wildlife and plants.

In discussions with AOO, CNL agreed that protection of the Kichi-Sìbì (Ottawa River) shoreline and fish, wildlife, and plants is important. The EIS demonstrated there are no predicted adverse impacts from the project on the Kichi-Sìbì (Ottawa River) shoreline or on any fish, wildlife or plants. Effects to the shoreline are evaluated in the EIS as part of the Surface Water Environment discussion. There will not be any changes to or disturbance of the Kichi-Sìbì (Ottawa River) shoreline from NPD Closure Project activities. The EIS does not predict any adverse residual effects on the Surface Water Environment (Section 9.3.3.5).

The EIS also does not predict any adverse residual effects on the aquatic environment (Section 9.4.3.3) or the terrestrial environment (Section 9.6.3.3) resulting from potential emissions during the NPD Closure project.

CNL has developed mitigation measures and monitoring plans for the protection of the Kichi-Sibì (EIS Sections 9.3.3.2 and 12.3) and for the protection of flora and fauna (EIS Sections 9.4.3.2 and 9.6.3.2 and 12.3). Follow-up monitoring for the NPD Closure Project will include monitoring of environmental components that the AOO has identified as important.

Confidence in the safety of the NPD site and surrounding environment is key to resolving the AOO's outstanding concerns related to environmental effects and mitigation measures. As of July 2023, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed commitments AOO-2 – Restoration Planning, AOO-4 - Site Visit and Survey Work, AOO-5 - Participation in monitoring and sharing of results and AOO-10 - Ongoing Collaboration. The details of these commitments are included in Section 6.2.4.2.5 below.

Indigenous Health

In their comments on the 2017 EIS, the AOO expressed concern that the Algonquin lifestyle be accurately reflected when predicting radiation doses to AOO citizens. In response, CNL's PostSA, issued in March 2020, included a Potential Exposure Group consisting of a family of self-sufficient Indigenous receptors in the NPD Area. The exposure profile in the postclosure period was developed based on a traditional Indigenous lifestyle, pre-European contact (SENES 2014). This lifestyle results in a very cautious dose estimate than that based on current-day lifestyle, where some food is store-bought and likely not from the contaminated area. The predicted peak dose to an Indigenous receptor (from the 3rd iteration PostSA) is 0.0004 mSv/yr which is 500 times less than the dose criterion. The analysis demonstrates that the impact on the public, Indigenous and the environment is negligible.

In April 2023, CNL made a presentation to the Working Group summarizing how the Indigenous lifestyle is evaluated through the PostSA TSD looking specifically at how an Indigenous person might interact with the land and biota at and surrounding the NPD site.

Confidence in the safety of the NPD site and surrounding environment is key to resolving the AOO's outstanding concerns related to Indigenous Health. AOO involvement in monitoring activities will help to promote confidence in verifying EIS predictions. As of July 2023, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed

commitment AOO-10 - Ongoing Collaboration. The details of this commitment are included in Section 6.2.4.2.5 below.

Monitoring

Since the submission of the Project Description in 2016, the AOO have continuously expressed interest in CNL's Environmental Protection Program including direct involvement in environmental monitoring at CNL sites and a role in cultural heritage stewardship and monitoring. In their review of the 2017 draft EIS, the AOO commented on several aspects of environmental monitoring: monitoring plans for groundwater, monitoring of the terrestrial environment and monitoring effects on traditional land and resource use. CNL provided dispositions in January 2019 and September 2020. In July 2020, the AOO provided technical comments on the follow-up monitoring plans, which identified more specific interests and concerns related to monitoring including a request that CNL undertake annual sediment monitoring and the inclusion of effectiveness monitoring of SAR mitigation measures in the environmental follow-up monitoring plan at the CNL-wide or corporate level.

CNL has committed to involving Indigenous Nations, communities and organizations in its monitoring programs.

At the project level, follow-up monitoring for the NPD Closure Project will include monitoring of environmental components critical to the AOO and is outlined in Section 12 of the EIS. The finalization of the follow-up monitoring plans will incorporate feedback from the AOO.The topic of monitoring remains on the work plan for further discussion in 2023 and is a key area for commitments. CNL will continue to engage with the AOO regarding NPD-specific environmental monitoring and cultural heritage stewardship.

As of July 2023, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed commitments AOO-1 – Socio-economic Considerations, Monitoring and Mitigations, AOO-4 - Site Visit and Survey Work, AOO-5 - Participation in monitoring and sharing of results and AOO-10 - Ongoing Collaboration. The details of these commitments are included in Section 6.2.4.2.5 below.

Protection of the Kichi-Sìbì (Ottawa River)

The AOO expressed that the protection of the Kichi-Sìbì (Ottawa River) is of high priority throughout engagement with CNL. The AOO have consistently voiced their concern over the proximity of the NPD disposal site to the Kichi-Sìbì (Ottawa River) and the risk of release of radiological and other hazardous wastes into the river through surface water discharge. The AOO AKLUS reported great concern for loss of connection to the land and waters of the Kichi-Sìbì as well as water use and potential contamination to its tributaries and ecological components.

CNL's commitment to protect the Kichi-Sìbì (Ottawa River) is reflected in its in-design mitigation measures to contain and isolate NPD's waste inventory (Section 4.1) and the NPD EIS does not predict any adverse residual effects on the surface water environment encompassing the Kichi-Sìbì (Ottawa River) (Section 9.3.3.5). In order to effectively address this concern, CNL is engaging with AOO community members and the AOO staff and their consultants regarding the results of the NPD EIS with respect to the

protection of the Kichi-Sìbì. CNL has provided information on in-design mitigation measures that will ensure discharges do not cause adverse environmental effects to the Kichi-Sìbì (Ottawa River). Based on AOO feedback, CNL has updated and expanded mitigation measures for the protection of surface water (Section 9.3.3.2 in the EIS) and the incorporation of an improved definition of the requirements for a washout pit (Section 4.3.1.3).

As of July 2023, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed commitments AOO-1 – Socio-economic Considerations, Monitoring and Mitigations, and AOO-10 - Ongoing Collaboration. The details of these commitments are included in Section 6.2.4.2.5 below.

Protection of Flora and Fauna

The AOO have expressed the importance of flora and fauna to their communities, culture and Aboriginal Rights through the comments on the 2017 draft EIS and in the AKLUS report. In response to AOO concerns over species at risk at the NPD site, CNL has updated the EIS to include additional mitigation measures to ensure the protection of species such as milkweed (important habitat for monarch butterflies), migratory birds, bats, chimney swifts and milksnakes (Section 9.6.3.2). Furthermore, CNL has revised the EcoRA TSD to include a clearer description of the method with which risk is assessed for ecological receptors. The EIS continues to predict no undue effects on biota. No residual effects for the terrestrial environment are predicted (Section 9.6.3.5). Predictions made in the EIS will be verified through environmental monitoring as detailed in the NPD Follow-up Program.

As of July 2023, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed commitments AOO-4 - Site Visit and Survey Work, AOO-5 - Participation in monitoring and sharing of results and AOO-10 - Ongoing Collaboration. The details of these commitments are included in Section 6.2.4.2.5 below.

Socio-economic

Several of the AOO's comments on the 2017 draft EIS were related to socio-economic and well-being interests, and the lack of Indigenous-focused socio-economic and well-being information and assessment in the EIS. The AOO's concern is that CNL does not acknowledge the linkages between ecological, human health, well-being and socio-economics as inter-connected impacts on the AOO. This was also an interest that came through in the AKLUS report, with a specific recommendation for the development of a socio-economic accommodation plan. The AOO also expressed concern that the 2017 draft EIS did not discuss employment or procurement opportunities for the AOO.

In order to address AOO concerns over the lack of discussion of Indigenous socio-economic interests in the EIS, CNL has added Sections 8.10 and 9.10 in the EIS which discuss Indigenous Socio-economic and Health interests. Section 8.10 characterizes current Indigenous socio-economic and health conditions, and Section 9.10 assesses the potential effects of the project on these components. These sections aim to include the interests of Indigenous Nations, communities and organizations, such as the AOO, in the consideration of the potential impacts of the NPD Closure Project. For example, Section 9.10.1.2 of the EIS describes the interactions of the Indigenous Socio-economic environment and the NPD Closure Project in

order to determine potential effects (direct and indirect) and mitigation measures as appropriate. CNL has revised the EIS to include economics and employment as VCs under the Indigenous Socio-economic component. Section 9.10.3 of the EIS discusses the potential economic and employment opportunities that may result from the project, and how CNL plans to make these opportunities available to the AOO and other Indigenous Nations, communities and organizations. This topic does extend beyond the scope of the NPD Closure project and may be a topic of mutual interest as part of future LTRA discussions.

The EIS has demonstrated that there are no off-site ecological effects predicted as a result of the NPD Closure Project (e.g., as in the case for terrestrial and aquatic environment as well as ambient radioactivity), therefore there are no pathway linkages to socio-economic VCs and thus further assessment is not required. As sociological aspects such as socio-economics and health demographics will evolve and change over time, CNL is committed to maintaining communication around this interest throughout the different phases of the NPD Closure Project.

In renewed communications late in 2022 and into 2023, the AOO have indicated an interest in obtaining economic benefits from the NPD Closure Project and CNL in general. CNL and the AOO have also discussed the need for a socio-economic study. Budget and timeline for this study are still being finalized however the study has significant potential to inform monitoring activities and additional mitigations for the project. It is expected that completion of the study will resolve AOO's concern about a lack of current socio-economic data and its recommendations will support the resolution of other outstanding areas of interest and the refinement of commitments.

CNL is committed to improved economic participation and benefits for Indigenous peoples from its projects. In response to Call to Action #92 in the Truth and Reconciliation report to actively promote economic opportunity for Indigenous Businesses, CNL has developed an IRP Strategy, which has been endorsed by AECL. AECL, the federal Crown Corporation that provides oversight of CNL, has reviewed, and endorsed the strategy. CNL shared the IRP strategy with the AOO in March 2023. To ensure that CNL can begin to take a more active role in stimulating the Indigenous business sector in the future, the strategy became effective as of April 2023, and includes targets for 2023/2024. CNL recognizes that there will be ongoing opportunities to enhance its approach to reflect feedback from Indigenous Nations, communities and organizations. Discussions on employment and contracts/ procurement opportunities may be advanced within a future LTRA.

As of July 2023, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed commitments AOO-1 – Socio-economic Considerations, Monitoring and Mitigations, AOO-9 – Economic Participation and Benefit and AOO-10 - Ongoing Collaboration. The details of these commitments are included in Section 6.2.4.2.5 below.

Technical Aspects of the Environmental Assessment

In their review of the 2017 draft EIS, the AOO requested further clarification in order to understand technical aspects of the NPD Closure Project EA such as the operation of the NPD Closure Project (e.g., atmospheric emissions (noise, dust, air), cement to be used for grouting, the grout batch mixing plant, and DRLs). Direct dispositions were provided by CNL in response to these technical questions. Dispositions to the AOO's

comments included references to the EIS: the preferred location of the grout batch mixing plant with regard to the predicted effects on terrestrial vegetation or wetland is written in Section 4.3.1.2; mitigation measures for dust and noise are outlined in Section 9.2.3 of the EIS and in the follow-up monitoring plans; predicted residual effects on the aquatic and terrestrial environments from potential NPD Closure Project emissions are summarized in Section 9.4.3.3 and 9.6.3.3, respectively. In response to concerns about the cement to be used during NPD Closure Project activities, the EIS has been revised to include a comprehensive discussion of natural analogues (Section 4.1.2), including cement, and their relevance to the project. At their request, CNL has provided the AOO with a copy of the follow-up monitoring plans as monitoring plans for the NPD Closure Project are expected to address many of the AOO's concerns related to mitigation measures to prevent the exceedance of contaminants in the environment as a result of NPD Closure Project activities.

The AOO also shared comments on the draft follow-up monitoring plans in July 2020, which CNL will take into account for the final plans.

The AOO also provided specific technical comments on NPD's DRLs in July 2020, with a focus on ensuring that the critical receptor group used in the development of DRLs accurately reflects the Algonquin lifestyle. This concern is outside of the scope of the project. There will be no long-term effluent monitoring at NPD that will use the DRLs. Doses to receptors during the Post-Institutional Controls phase are assessed in the PostSA TSD. The PostSA TSD also assesses dose to an Indigenous receptor group. The assessment demonstrates that the impact on the public, Indigenous peoples and the environment is negligible.

As of July 2023, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed commitment AOO-7 – Details of the Batch Plant. The details of this commitment are included in Section 6.2.4.2.5 below.

Valued Components (VCs)

Throughout engagement activities, their comments on the 2017 draft EIS, the AKLUS report, and direct correspondence, including a letter in July 2020 identifying several specific VCs, the AOO indicated interest in what environmental VCs were described in the EA for the NPD Closure Project.

To address this, CNL incorporated the AOO's preliminary feedback to reflect the Algonquin VCs of cultural significance (e.g., wildlife habitat, vegetation, cultural sites, water travel routes, and hunting, harvesting and fishing areas) into Section 6.3.2, including Table 6.3-1 and Table 6.3-2 of the revised draft EIS. Some AOO VCs had not been previously included in the EIS while others were represented by other species that were already evaluated as VCs in the EIS. Tables 6.3-1 and 6.3-2 of the EIS highlight how VCs identified by AOO are represented by the species that are evaluated in the EIS.

Late in 2022, the Working Group identified that a simplified table incorporating all VCs from the AOO AKLUS mapping their inclusion in CNL's EIS was needed to assist AOO members confirming that all their identified VCs are considered in CNL's assessment. CNL agreed to create a VC summary table to better explain how AOO identified VCs are included, assessed, and protected (and protection verified) through the NPD

Closure Project. CNL and AOO agreed together on the layout and type of information to be included early in 2023 and in June 2023 CNL shared the complete VC summary table with the AOO.

As of July 2023, CNL understands that this concern is ongoing from the AOO perspective with resolution progressing through the implementation of agreed commitments AOO-6 – Valued Components and AOO-10 - Ongoing Collaboration. The details of these commitments are included in Section 6.2.4.2.5 below.

Summary

At present, this summary of interests and concerns is a consolidation of all the interests and concerns the AOO have brought forward on the NPD Closure Project. While CNL recognizes the AOO has concerns related to end state and future use of the lands, economic development and monitoring, CNL notes that aspects of these concerns go beyond the scope of this project. CNL will continue to document and share with the CNSC in CNL's subsequent IER any additional feedback provided by the AOO relative to end state and future use of the lands, economic development and monitoring.

The project-specific concerns raised by the AOO are considered in the context of the EIS. AOO and CNL have agreed to a set of commitments to address areas of outstanding concern. These commitments are summarized in Section 6.2.4.2.5. CNL will work to validate the interests and concerns as well as the commitments with the ANRs. The list of commitments will be included in CNL's commitment report which will accompany the submission of the final EIS. CNL will continue to respond to questions and concerns from the AOO, and refine commitments through its ongoing engagement efforts.

6.2.4.2.4 Verification

The AOO have provided several key inputs, identifying interests and concerns related to the NPD Closure Project including: comments on the Project Description (June 2016), comments on the 2017 draft EIS (February 2018), technical reviews on the Environmental Site Assessment and follow-up monitoring plans (July 2020), the AOO's AKLUS (December 2020) and feedback on VCs (within the EIS review, AKLUS and in July 2020 correspondence). To confirm CNL has adequately captured the AOO's interests and concerns, position and knowledge, the AOO and CNL underwent a verification process where CNL provided key documentation to the AOO for their review and feedback. Through this process, the AOO has reviewed and provided feedback on their *Table of Interests and Concerns*, list of VCs, the draft follow-up monitoring plans and the Environmental Site Assessment. While not all of the AOO's concerns have been mitigated by this process to date, CNL has made every effort to verify that the AOO's position, interests and concerns were adequately characterized. Through collaboration at the Working Group level, both the AOO and CNL acknowledge the progress made so far to develop and progress actionable commitments. Details of the interactions that formed the verification process between CNL and the AOO are captured in the IER TSD.

The Summary of AOO Key Interests and Concerns and the commitment list are the result of collaborative development through the Working Group, with validation of the status and next steps occurring at the Working Group level through focused discussions in June and July of 2023. Note that validation of the interests and concerns was already achieved with the AOO in May 2022. Regular ANR meetings have not

been occurring since March of 2023 and therefore the updates to the Interests and Concerns and the commitment list have not been reviewed and vetted by the ANRs. As soon as regular ANR meetings resume, taking into consideration the priorities and availability of the ANRs, the Working Group will bring this information to the ANR Table for validation.

6.2.4.2.5 Next Steps

CNL's commitments within the "Next Steps" column of the *Table of Interests and Concerns* in Appendix C.1, are reflective of the feedback CNL has received to date in the EA process from the AOO's technical review of the 2017 draft EIS, AOO's supplementary technical comments on socio-economics, environmental site assessment and derived release limits, AOO feedback on the draft follow-up monitoring plans, the AOO AKLUS as well as the AOO comments and recommendations which accompanied the AKLUS. The Working Group have agreed on the following commitments:

AOO-1 – Socio-economic Considerations, Monitoring and Mitigations

Provide capacity to the AOO to undertake a socio-economic study with results captured in a subsequent revision of the IER.

Study recommendations will be implemented in CNL's project plans after collaborative review by CNL and the AOO. CNL and AOO will identify opportunities to improve CNL's monitoring and mitigations to ensure traditional knowledge is incorporated and that interdependencies between ecological, socio-economic, community and cultural health are recognized.

AOO-2 – Restoration Planning

CNL will collaborate with AOO to ensure that the site restoration plan incorporates in its design traditional values, habitat protection and replanting species of cultural significance (e.g., medicines) as appropriate.

CNL to coordinate a tri-party discussion (AOO, AECL, and CNL) about future access to the NPD site including the exclusion zone (undisturbed forested lands that surround the facility).

AOO-3 – Cultural Protection

CNL is committed to joint review by CNL, AOO and mutually respected 3rd party subject matter experts (SME) of company and project specific cultural protection procedures/activities with AOO against best practice and consideration of Indigenous Knowledge. If needed a project specific cultural protection plan is developed to address any gaps identified.

AOO-4 – Site Visit and Survey Work

Provide an opportunity to and support pre-decommissioning site visit(s).

Provide capacity for a baseline plant inventory survey.

AOO-5 – Participation in Monitoring and Sharing of Results

CNL is committed to involve all interested Indigenous Nations, communities and organizations in the NPD Closure Project Follow-up Monitoring Program.

On an annual basis, CNL and AOO will review together environmental monitoring results from the NPD site. CNL can share results with the AOO annually through to the end of the Institutional control period.

AOO-6 – Valued Components

CNL will continue to engage with the AOO on the topic of Valued Components (VCs) as long as there is interest from the AOO.

At the AOO's request, CNL has shared a VC mapping table that provides the intersection of VCs identified through the AOO AKLUS with the VC's used in CNL's assessment.

AOO-7 – Details of the Batch Plant

CNL is committed to providing the construction details for the batch plant wash-out pit to the AOO once they are available and will review together with AOO to understand any concerns.

AOO-9 - Incorporation of AKLUS Results - COMPLETE

CNL will incorporate results from the Algonquin Knowledge and Land Use Study (AKLUS) into the revised draft EIS.

AOO-9 – Economic Participation and Benefit

CNL is committed to improved economic participation and benefits for Indigenous peoples from its projects. CNL recognizes that there is an opportunity to improve in this area. CNL will continue working with the AO to improve systems that support economic participation and benefits.

CNL will review together with AOO the scope and activities for the NPD project and share contracting and employment opportunities.

AOO-10 – Ongoing Collaboration

CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities).

Beyond these commitments which are actioned in the work plan for the Working Group, the following additional next steps have been agreed:

- CNL and AOO will review together the technical topic responses and identify any remaining gaps. Resolution of any gaps identified will be a topic of a dedicated discussion at the Working Group level.

- CNL and AOO are continuing the Working Group and it is understood that work progressed through the Working Group may lead to refinements of commitments in the future.
- The Working Group will present new information to the ANRs when there is an opportunity to do so.
- CNL is willing to work with the AOO on an LTRA.

The status of “ongoing” is based on collaboration at the Working Group level that acknowledges the progress made so far and demonstrates an ongoing commitment to progress relationship-building between CNL and AOO through actionable commitments. It recognizes that resolution is progressing well and that concrete steps (a focused work plan developed collaboratively at the Working Group) are in place to move the concern to fully resolved. The Working Group want this to be recognized as a positive descriptor of status.

The IER TSD, as a living document, will include any updates related to the progress of these next steps at the time of submission of the final EIS and prior to the Commission Hearing process.

6.2.4.3 Algonquins of Pikwàkanagàn First Nation

The AOPFN primary residential reserve is located in the Ottawa Valley on the southeast shore of Golden Lake where it flows into the Bonnechere River, in Renfrew County, Ontario. AOPFN has a total registered population of slightly under 3,000 with the majority living off-reserve. The Reserve was established through a Crown patent in 1873 following several petitions from the community, formerly known as Golden Lake Indian Reserve No.39. The AOPFN have linguistic traditions in the Algonquin language. The First Nation is governed by an elected council comprised of a Chief and six Councillors. AOPFN is a sovereign entity that retains title to the land and resources and although the Algonquin Land Claim is currently being negotiated through the AOO, AOPFN upholds the sacred responsibility to the land, is an independently governed, First Nation with Treaty and Aboriginal rights associated with that standing. A fuller description of the AOPFN can be found in Chapter 3 of the IER TSD.

CNL had been engaging with the AOO until 2020, when AOPFN identified that the proper channel for engagement by CNL on the NPD Closure Project was through the AOPFN Consultation Coordinator, and AOPFN needed to be engaged as an independent First Nation for the NPD Closure Project as well as other CNL designated projects. From then on, CNL engaged with AOPFN separately from the AOO to address the AOPFN request for deep and meaningful engagement with its members throughout the EA process.

6.2.4.3.1 Engagement

Table C-4 of Appendix C.2 below includes a summary of key engagement activities that have occurred with AOPFN on the NPD Closure Project as of March 31, 2024. A complete list of engagement activities can be found in Appendix C (Table C-1) of the IER TSD. CNL has also provided a narrative summary of engagement with AOPFN.

Relationship-building and Development of Agreements

The AOPFN were introduced to the proposed project prior to the submission of the Project Description for the NPD Closure Project in December 2015, when CNL hosted the AOPFN to the CRL site. This meeting included a tour and a presentation featuring the NPD Closure Project.

In July 2016, CNL sent the AOPFN a letter to formally introduce the proposed NPD Closure Project, which included a request for community input on any potential adverse impacts from project activities. This was followed by a second letter in November 2016 which inquired about AOPFN asserted rights and traditional activities. The AOPFN sent a letter to CNL in January 2017 acknowledging receipt of letters and advised CNL of the AOPFN's negotiations with the federal and provincial government on the settlement of their land claim. The AOPFN's letter also indicated an interest in meeting later in 2017 and that the AOPFN is opposed to projects in their territory that could be detrimental to their lands and resources. CNL followed-up on the AOPFN meeting request from the January 2017 letter and were informed in June 2017 that the AOPFN did not want to meet at this time and that ANRs were included in AOO engagement activities. In June 2017, AOPFN ANRs visited the NPD site.

In November 2017, CNL shared the draft EIS, as well as the IER TSD, and invited the AOPFN to participate in the public and Indigenous EA comment period and community input and feedback on the draft EIS and IER TSD. The AOPFN did not submit comments on the 2017 draft EIS through the EA process and CNL did not receive any feedback from the AOPFN on the IER TSD at that time.

Throughout 2018 and 2019, AOPFN ANRs continued to be included in AOO engagement activities. As well, the representative from AOPFN with the seat on the CNL ESC received regular updates on the project through the ESC.

It came to CNL's attention, through the engagement that occurred in 2020, that while the AOPFN had received information on the project prior to 2020, AOPFN did not have a full understanding of the processes in the EA or resources and capacity needed to provide responses and/or comments.

In March 2020, CNL received a letter from the AOPFN inviting CNL to provide a project overview/update at a community meeting in April 2020. This meeting was postponed one week later due to the COVID-19 pandemic. After receiving the March 2020 letter, discussions commenced between AOPFN and CNL on the AOPFN's interest in both the NSDF Project and the NPD Closure Project, and in the AOPFN's interest in direct engagement with CNL, not through the AOO. The AOPFN indicated an interest in providing comments on the revised draft EIS for the NPD Closure Project and requested this document in addition to a number of key technical support documents, which CNL provided.

In May 2020, CNL sent a letter to the AOPFN following up on recent communications and made inquiries for AOPFN specific information.

CNL initiated discussions with the AOPFN on establishing a specific contribution agreement to support AOPFN's participation in the EA process for both the NSDF Project and the NPD Closure Project. Contribution agreement meetings started in June 2020 and the contribution agreement was signed in September 2020. The contribution agreement included funding for Traditional Knowledge studies,

specifically an AOPFN AKLUS Report, a Diet and Harvest Study and a Culture and Rights Study, as well as support for meetings/discussions on the comments received on the revised draft EIS and engagement activities leading up to the hearing on the project. Engagement was enabled through the creation of a Working Group with representatives of the AOPFN and CNL, to discuss and work on particular areas of interest and through meetings with the Algonquin Advisory Committee (AAC), which is made up of AOPFN community members.

CNL continued to keep AOPFN updated about the EA process at meetings, through emails and by letters. A November 2022 letter provided an update on the NPD Closure Project and included an updated engagement status section to reflect next steps discussed at the October 2022 Working Group meeting. AOPFN replied to the letter by identifying an updated draft list of priorities for engagement with AOPFN for the NPD Closure Project.

In 2022, CNL, AECL and AOPFN began to negotiate a LTRA. The LTRA would encompass all aspects of the relationship between the parties, including, without limitation, engagement efforts on the NPD Closure Project. The LTRA was signed in 2023, and includes, without limitation, as matters of mutual interest, (1) logistical support for the development of an AOPFN guardian program to enable stewardship and monitoring at and in the vicinity of the AECL sites and (2) risk communication re: the health of country foods, medicines and waters at, and in the vicinity of, AECL sites in the territory that AOPFN asserts unceded traditional territory and (3) opportunities for meaningful engagement to recognize, characterize and as necessary accommodate for potential historic harms. The LTRA is intended to address concerns and interests that are at a corporate level or are geographically broader than the NPD Closure Project.

In May 2023, AOPFN Knowledge Keepers completed the fourth seasonal inventory visit (spring) at the NPD site. The previous inventory dates include August 2022 (summer), October 2022 (fall) and March 2023 (winter). The purpose of these field visits was to allow AOPFN to identify cultural and environmental values that are present at the NPD site prior to authorization to proceed by the CNSC for the NPD site closure. CNL staff assisted with environmental data collection, supported species identification, and answered questions regarding the NPD Closure Project and biodiversity monitoring as requested. CNL received the AOPFN's NPD Seasonal Surveys Implications Letter and the four (4) associated seasonal survey reports at the end of May 2023. Using the findings and recommendations from AOPFN's site-wide inventory, CNL looks forward to working with AOPFN to ensure that mitigations are in place to protect terrestrial and aquatic biota that are important to AOPFN.

Working Group and Algonquin Advisory Committee Meetings

From September 2020 through to March 2024, the Working Group met frequently, engaging on specific focused topics related to the participation of the AOPFN in the project and broader LTRA discussions, including discussions on community feedback through studies, the incorporation of AKLUS Diet and Harvest Study and Culture and Rights Study information into the EIS, the AOPFN's interests and concerns in the project, as well as the development of commitments. The AOPFN AAC, which is comprised of AOPFN community members, also met with CNL on the NPD Closure Project three times. Meeting topics were determined by the AOPFN and focused on the following: a general project overview, interests and concerns and alternatives. During the summer of 2022 the master engagement schedule, which outlines

the proposed topics for Working Group meetings, was updated. In December 2022, CNL welcomed AOPFN Working Group members for a tour of the NPD facility. The tour was an opportunity for deeper engagement between the NPD project team and Working Group members. CNL takes direction from AOPFN on the topics of priority for discussion and Working Group meetings are the primary mechanism for continued engagement.

Comments on the Revised Draft EIS

In November 2020, CNL responded to each of the AOPFN comments on the 2020 revised draft EIS. After this, in November and December 2020, CNL and AOPFN had two Working Group meetings to discuss the AOPFN comments in detail to ensure CNL's understanding and adequacy of responses. In December 2020, following the second Working Group meeting on the NPD Closure Project comments, AOPFN provided responses in writing to CNL's dispositions of the AOPFN comments on the 2020 revised draft EIS. CNL sent updated responses addressing the feedback in December 2022. CNL indicated what changes were made to the EIS as a result of the feedback. AOPFN sent additional feedback on the CNL responses in April 2023. Work continues between CNL and the AOPFN to address some outstanding questions, ensure the *Table of Interests and Concerns* encompasses remaining concerns from AOPFN and finalize commitments using the recent feedback provided by AOPFN.

Algonquin Knowledge and Land Use Study

In October 2020, CNL received the AOPFN's report on the AKLUS which included general mitigation and accommodation measures to apply to the NPD Closure Project in response to study participant concerns. CNL has worked to incorporate information from the AKLUS into this revision of the EIS. In August 2021, the AOPFN provided a review of Sections 8.9 and 9.9, which CNL used for additional improvement of these sections and the AOPFN provided a review of this revised section again in October 2021. In February 2023, CNL responded to the AOPFN's implications and recommendations from the AKLUS, Culture and Rights Study, and Diet and Harvest Study, which the AOPFN shared in August 2021. CNL shared how the information and Traditional Knowledge shared by AOPFN through the studies has been integrated into the EIS. The studies and ongoing meetings with AOPFN Working Group members has deepened CNL's understanding of the AOPFN's unique community values and views on the NPD facility and closure project and its potential impacts on traditional land and resource use and, Algonquin rights, as well as health and well-being.

Commitments

In May 2021, CNL provided a preliminary table of commitments to the AOPFN made through engagements and comment responses for the NPD Closure Project. The AOPFN provided feedback on these commitments in August 2021, and in September 2021, CNL shared updated draft commitments based on AOPFN feedback. It should be noted that AOPFN is seeking commitments that will apply to whatever final decommissioning plan is adopted; not specifically for the currently proposed in-situ proposal. The AOPFN and CNL met in October 2021 and November 2021 to continue discussions on the commitments related to the NPD Closure Project. The AOPFN and CNL continued to meet throughout 2022 and 2023 to finalize commitments. During the meetings held in October and December 2022 on commitments, there was discussion about what commitments will remain project-specific and what commitments could be addressed

with the signing of a LTRA. CNL worked to incorporate AOPFN feedback into the language of the commitments. At the December 2022 Working Group meeting, AOPFN specifically requested feedback on what CNL is ready to commit to and what commitments might be better suited to the LTRA discussion. CNL sent an update draft commitments list to AOPFN for review in December 2022. The February and May 2023 Working Group meetings both included continued discussion of commitments for the NPD Closure Project. In July 2023, CNL and AOPFN agreed on commitments that are covered by the LTRA.

Through 2023, CNL and AOPFN continued to revise the commitments list. In January 2024, AOPFN informed CNL that AOPFN would not be providing further comments on the commitments list. AOPFN and CNL note that there are elements of the table that the parties do not agree on. AOPFN and CNL have agreed on next steps, commitments and ongoing engagement and discussion to move toward resolution.

Summary of Interests and Concerns

In June 2021, CNL shared the *Table of Interests and Concerns* with the AOPFN. The AOPFN shared their written feedback on the *Table of Interests and Concerns* in early August 2021 and CNL provided an updated *Table of Interests and Concerns* in late August 2021. The AOPFN provided further review of the tables in 2021, which was incorporated into the summary table.

In January 2022, the CNSC informed CNL that the December 2021 EIS submission was incomplete. The CNSC staff directed CNL to revise the *Tables of Interests and Concerns* for clarity. CNL developed a simplified *Table of Interests and Concerns* (Table C-6 in Appendix C.2 of this EIS), and a table which maps how this simplified table relates to detailed input and feedback from the AOPFN (Table C-5 in Appendix C.2 of this EIS). The new table was shared with the AOPFN in April 2022 to confirm that the new table retained the AOPFN's interests and concerns. AOPFN shared back preliminary edits to the new table in late June 2022 but indicated that they would prefer to review the table closer to submission once it has been updated to capture ongoing engagement progress. CNL and AOPFN continued to discuss the table and its contents at the Working Group meetings.

Due to the importance of the summary table of interests and concerns and the AOPFN's input on verifying its completeness and accuracy, CNL shared the most updated version of this table with the AOPFN in May 2023. CNL noted the updates to the *Table of Interests and Concerns*, specifically CNL's response to the interest/concern and the status of the concern. At the end of June 2023, AOPFN provided feedback to CNL that several of their interests were inaccurately portrayed and that they wished to identify clearly what aspects of the interests and concerns remain outstanding. CNL has incorporated this feedback and returned an updated table to AOPFN in July 2023, for validation. In January 2024, AOPFN informed CNL that AOPFN would not be providing further comments on the public facing *Table of Interests and Concerns* for the filing of the revised draft EIS. AOPFN and CNL note that there are elements of the table that the parties do not agree on. This *Table of Interests and Concerns* is inclusive of all interests identified by AOPFN current to June 2024.

Additional Studies

As a part of the contribution agreement with the AOPFN, which was developed in 2020, the AOPFN agreed to complete two additional studies, beyond the AKLUS, to help grow understanding of the AOPFN's rights, interests and concerns related to the NPD Closure Project. Early in August 2021, the AOPFN provided the Diet and Harvest and Culture and Rights Study Reports as well as a letter outlining the implications of these studies. CNL is working with the AOPFN to ensure the information from these two studies is incorporated into the EIS. CNL and the AOPFN intend to continue to discuss the incorporation of this information for the final EIS submission package.

6.2.4.3.2 Feedback

The AOPFN shared feedback through comments on the 2020 revised draft EIS in July 2020 (and responses to subsequent disposition comments from CNL), as well as via the AOPFN AKLUS report on the NPD Closure Project, the Diet and Harvest Study, the Culture and Rights Study, a summary letter of implications from the three studies and during engagement meetings and correspondence throughout 2020 and 2021. Additionally, interests are derived from the AOPFN AMA, 2022 and 2023 Site Inventory visits, and regular engagement activities throughout 2022 and 2023. Note that most of the feedback from the AOPFN was brought forward from 2020 onwards as it was in the first part of that year that the AOPFN indicated a requirement to be directly engaged by CNL on the NPD Closure Project, as AOPFN is an independently governed First Nation, distinct from the AOO.

The interests and concerns from the AOPFN are briefly identified below, and described in detail in Section 6.2.4.3.3 Summary Discussion of Interests and Concerns and the *Table of Interests and Concerns* in Table C-6 of Appendix C.2.

Accidents and Malfunctions. AOPFN raised concerns about how accidents, malfunctions, natural disasters and effects of the environment, including climate change, on the NPD facility in the project case are considered and accounted for in the CNL assessment.

Alternatives. AOPFN raised several concerns with the Alternatives Assessment process, including but not limited to the lack of consultation on the assessment methodology, assessment criteria, and criteria weightings and the lack of participation of the AOPFN in the assessment. AOPFN also raised concerns about the in-situ disposal concept, including a lack of siting study, the reversibility of the in-situ disposal technique, consistency of in-situ disposal with international best practice, emphasis of financial factors in determining preferred alternative, and the effectiveness of retrofitting the current facility as opposed to constructing a purpose-built facility. The AOPFN AMA identified full removal as the preferred option and in-situ disposal as the least preferred strategy for decommissioning the NPDWF. See Section 4.2.4.7 for a summary of AOPFN's perspective on the Alternative Means.

Archaeology and Cultural Heritage. AOPFN identified the potential for deposited artefacts in the area of the NPD property related to pre-contact transportation corridors and highlighted the cultural value and significance of such artefacts. AOPFN also raised concerns regarding the impact of the project on the ability to culturally reconnect in the future to the NPD site.

Baseline Characterization. AOPFN raised questions about the baseline characterization of the project, the technical suitability of the site and in particular the absence of on-the-ground data collection by traditional knowledge holders, and lack of baseline data for species in the aquatic and terrestrial environments. AOPFN also disagrees with the use of the current baseline conditions and would prefer the project be assessed against a 'pre-NPD' site condition.

Engagement. AOPFN raised some concerns about the engagement and consultation process, including the need for more collaborative engagement and two-way dialogue. The AOPFN also expressed interest in developing a LTRA with CNL.

EA Process and Methodology. AOPFN raised some concerns about EA methodology and process issues such as: significance determination, cumulative effects, use of *CEAA,* 2012, and AOPFN participation in the assessment noting that the findings of the EIS in relation to certain VCs (especially traditional land and resource use, but also culture and Indigenous health) do not correlate to the findings of the three AOPFN studies.

End State, Site Restoration and Future Use of the Land. AOPFN raised questions about the closure end state of the lands and restoration plans and an expectation to be engaged in co-development of any such plans. AOPFN was also interested in the project timeframe (length of institutional controls) and the long-term liability of the site beyond decommissioning.

Environmental Effects and Mitigation Measures. AOPFN expressed concerns about invasive species management, specifically, how invasive species are managed if they are accidently introduced or are already present at the site.

Free, Prior and Informed Consent (FPIC). AOPFN expressed concerns about whether CNL and AECL will respect the AOPFN's right to FPIC in relation to the development of a permanent hazardous waste disposal facility at the NPD site.

Impacts on Rights. AOPFN raised a concern about potential Impacts on Rights with the results of the three AOPFN studies indicating a measurable impact on the long-term ability to harvest in the NPD area and an underestimation of the project's impacts on traditional land and resource use.

Indigenous Health. AOPFN raised some concerns on the scope of the health assessment not including consideration of Indigenous determinants of health. AOPFN is concerned that, in relation to human health, CNL has adopted a relatively narrow perspective on human health that is focused on biophysical impacts to human health, with little or no emphasis on other factors that influence Indigenous population health. This is particularly concerning to AOPFN because of the fear, stigma, and alienation felt by AOPFN members associated with the nuclear industry in general. This distrust may prevent or limit future exercising of Aboriginal and treaty rights by AOPFN members and will cause an impact to the well-being of AOPFN.

Long-term Safety. AOPFN raised concern about the about long-term site integrity of the NPD site.

Monitoring. AOPFN identified their expectation for involvement in future monitoring. AOPFN is seeking a co-development role in identifying indicators, thresholds, and responses for terrestrial wildlife, fish and fish habitat, traditional land and resource use, and water quality. AOPFN is also concerned that follow-up monitoring lacks a health component that would evaluate aspects of TLRU, culture and Indigenous health/well-being.

National Policy. AOPFN is concerned that the Government of Canada does not yet have a modern nuclear waste management policy in place and that a lack of coordinated planning in past to develop permanent facilities has resulted in a proposed facility in AOPFN territory that it has not consented to.

Protection of Flora and Fauna. AOPFN raised a number of biological concerns related to the protection of flora and fauna as part of its review of the revised draft EIS. These included concerns on: road mortality impacts, and impacts to Species at Risk and their habitat.

Protection of the Kichi-Sìbì (Ottawa River). AOPFN raised concerns related to the protection of the Kichi-Sìbì (Ottawa River) as part of its review of the revised draft EIS. These included concerns on: impacts to the riparian ecosystem, fish and fish habitat, species at risk and the Kichi-Sìbì.

Socio-economic. AOPFN raised concerns on the narrow spectrum of socio-economic issues discussed in the EIS.

Technical. AOPFN raised a number of technical concerns as part of its review of the revised draft EIS. These included concerns about dust and effluent discharges to the aquatic environment.

Traditional Knowledge, Land and Resource Use and Cultural Impacts. The AOPFN identified the need for traditional knowledge to be incorporated into the EIS and have raised concerns that CNL's estimation of no residual adverse effects on Indigenous land and resource use and culture does not correlate to the findings of the three AOPFN studies or inputs from the AOPFN Advisory Committee. Also, AOPFN is concerned that the traditional users themselves were not included in the effects assessment. Further, the AOPFN is interested in the preservation of and mitigation of impacts on cultural resources. AOPFN has also flagged that the study areas selected for traditional use VCs by CNL in the EIS differ from the study areas used by AOPFN in the AKLUS.

Valued Components (VCs). AOPFN expressed concerns that VCs identified by AOPFN knowledge keepers are not assessed in the EIS.

6.2.4.3.3 Summary Discussion of Interests and Concerns

This Summary Discussion of interests and concerns is taken from the Table of Interests and Concerns (Table C-6 of Appendix C.2) and is CNL's understanding based on written submissions (to CNL) and oral discussions with the AOPFN. CNL has made its best efforts to document the position the AOPFN has taken on each interest/concern while acknowledging that the AOPFN may articulate the perspective somewhat differently.

The key interests and concerns discussed in this Section were derived from various engagements with the AOPFN (Table C-4 of Appendix C.2) as described in Section 6.2.4.3.1 of this EIS.

Accidents and Malfunctions

In their comments on the 2020 revised draft EIS, at the AAC meeting in July 2021, and in their letter outlining the implications of the AOPFN studies, AOPFN raised concerns about how accidents, malfunctions, natural disasters and effects of the environment, including climate change, on the NPD facility are considered and accounted for.

The natural disasters which the NPD site may experience are discussed in Section 8.12. The potential effects from accidents and malfunctions are considered in Section 9.12 of the EIS, and the effects of the environment on the project is covered in Section 9.14. Additional details and a range of scenarios that encompass the potential impacts from accidents and malfunctions are examined in the DecomSA and PostSA TSDs. AOPFN has indicated that this issue remains outstanding and the parties have identified a path forward for further discussion. A meeting in October 2021 between CNL and the AOPFN AAC provided an opportunity for CNL to hear directly from AOPFN members about questions and concerns on the topic of “what-if” scenarios. CNL was also able to provide an overview of the TSDs noted above and the safety assessments and range of scenarios considered to evaluate the NPD facility under accident, malfunction and “what-if” scenarios.

CNL also notes that the NPD site has an Emergency Procedure that will remain in place and be updated as required throughout the Decommissioning Execution and Institutional Controls phases of the project. This procedure includes actions of specific staff/roles in the event of a wide range of emergency conditions including: fires, floods, hazardous spills, loss of power, earthquakes, and tornados. Following any of these emergency events, as soon as it is safe for staff to do so, site and facility condition will be evaluated and any necessary actions will be taken to make repairs. The NPD Emergency Procedure is developed and maintained in accordance with CNL’s company-wide Emergency Preparedness Program that has been accepted to meet the CNSC’s requirements (under REGDOC-2.10.1 - Nuclear Emergency Preparedness and Response).

CNL understands that this concern is outstanding from AOPFN’s perspective. The AOPFN is concerned that the proposed closure of the facility (grout, cap etc.) will make it very difficult to access the facility in the future to intervene with remedial action if the facility does not perform as expected. CNL’s technical assessment shows that accidents and natural hazards which could affect the facility will not result in undue effects on people and the environment. Further alignment on this concern is unlikely however CNL has made commitments that can potentially build confidence and trust in CNL’s assessment. Next steps that the AOPFN and CNL have agreed upon to address outstanding concerns are described in Section 6.2.4.3.5 below.

Alternative Means

In their comments on the 2020 revised draft EIS, the AOPFN expressed that they were not adequately engaged for the AMA and provided extensive feedback about the in-situ disposal method for decommissioning the NPD facility. In their EIS review, the AOPFN identified the following concerns with the alternative means process and in-situ disposal concept:

- The need for a detailed quantitative assessment of each alternative against the ALARA principle;
- A lack of consultation on the design of the alternatives assessment methodology;
- No participation of AOPFN in the assessment;
- No opportunity for AOPFN to engage on the criteria and weightings used in the assessment and concerns about specific criteria weightings, which do not align with AOPFN values;
- The need for a robust environmental effects assessment for each alternative;
- A lack of evidence supporting significant incremental risks related to off-site disposal;
- An AOPFN request for a multi-party reconsideration of alternatives;
- Lack of a siting study that demonstrates the site is technically superior and publicly acceptable;
- The lack of evidence that AOPFN is a willing host for a permanent hazardous waste disposal facility;
- The reversibility of the in-situ disposal technique and mitigation;
- Lack of consistency of in-situ disposal with international best practice and IAEA guidance;
- The length of the Institutional Control period and the reduction in confidence over time that monitoring will continue to be rigorous and adaptive management responses implemented;
- The design life of the disposal facility in relation to the hazard duration of the waste; and
- The effectiveness of retrofitting the current NPD facility as opposed to constructing a purpose-built facility.

CNL responded to the AOPFN comments and AOPFN provided feedback on these dispositions in writing in December 2020. In their dispositions, CNL referenced Section 3.2 of the 2020 revised draft EIS which explains how the in-situ disposal method is appropriate for the decommissioning of the NPD Facility and will safely isolate the contaminated systems and components in the below-grade structure (grout-filled). The EIS describes where CNL considered national and international standards and guidelines in its assessment of the in-situ disposal method as a feasible alternative to safely and securely decommission the NPD facility.

In their feedback and during two meetings, the AOPFN indicated that they do not accept CNL's disposition to address this concern. Further AOPFN has provided evidence in the Diet and Harvest Study, based on a survey of 228 AOPFN families, that in-situ disposal is the least preferred of the four technically and economically feasible alternative means to decommission the facility. AOPFN has recommended to CNL that further actions are required to revise the section of the EIS where the AMA information is located, including a meaningful effort to integrate AOPFN perspectives from the three studies and through the AAC, regarding in-situ disposal and other alternative means. AOPFN has also highlighted that the proposed in-situ disposal will constrain future uses of the site and that in-situ disposal has high potential to both perpetuate and exacerbate existing fears and stigma associated with the NPD site.

As identified in the *Table of Interests and Concerns*, in September 2021, CNL met with the AOPFN AAC to provide more detail and an opportunity to ask questions on the alternatives considered by the project, and about in-situ disposal. The AAC appreciated the opportunity to learn more about CNL's AMA approach to the NPD Closure Project. AOPFN has recommended to CNL that further actions are required to revise the section of the EIS where the AMA information is located, including a meaningful effort to integrate AOPFN perspectives from the three studies and through the AAC, regarding in-situ disposal and other alternative means. CNL agreed to fund an AOPFN AMA. CNL received the AOPFN AMA in April 2022. The AOPFN AMA included community perspectives on different alternative means to decommission the site. The AOPFN presented the findings from the AOPFN AMA at the September 2022 Working Group meeting. AOPFN shared the study methodology, preference findings, AOPFN conclusions and recommendations. AOPFN again stated their preference for full removal. CNL appreciated the opportunity for conversation around the key findings of the AOPFN AMA and at the December 2022 Working Group meeting CNL and AOPFN discussed the incorporation of the AOPFN AMA into the revised draft EIS. CNL and AOPFN agreed to update EIS Section 4.2.4.6 and include the full AOPFN AMA as an appendix. CNL drafted the updated section and shared with the AOPFN for review in February 2023. In early April 2023, AOPFN provided feedback and CNL sent back a revised version which AOPFN accepted in May 2023. AOPFN expressed disappointment in CNL’s responses and encourage CNL to commit to meaningful action to address the recommendations.

CNL's technical assessment shows that the in-situ design is appropriate for the hazardous timeframe of the contaminants and is consistent with national and international standards. As directed by the CNSC, the EA process for the NPD Closure Project, including the assessment of alternatives to conduct the project, has been conducted in compliance with *CEAA* (2012). Further, CNL has included the AOPFN AMA results within the EIS.

As of March 2024, CNL understands that this concern is outstanding from AOPFN’s perspective. AOPFN is concerned that the hazard will outlive the design life of the strategy and that contamination will be dispersed. AOPFN has identified that the willing host principle has not been followed for this permanent radioactive waste disposal facility. Further AOPFN remains concerned that doses from in-situ disposal are not ALARA and that occupational risks and financial considerations have been weighted too heavily in CNL’s assessment. AOPFN has also indicated a desire for a multi-party forum for selection and evaluation of alternatives. Further alignment on this concern is not possible; however through continued engagement at the Working Group and with the AAC, CNL hopes that the parties are able to find common ground on this topic.

Archaeology and Cultural Heritage

Within the findings of the AOPFN AKLUS and Culture and Rights Studies, the AOPFN highlights the significant cultural and historical importance of the Kichi-Sìbì and concerns about impacts to current and future values and use of the Kichi-Sìbì. The AOPFN AKLUS also highlights the potential for deposited artefacts in the area of the NPD property related to pre-contact transportation corridors. These archaeological sites and artefacts have deep cultural value and significance to the AOPFN. The archaeological assessment is included in Section 8.11.4 of this EIS along with proposed mitigation measures that will be employed should undocumented archaeological resources be discovered during the

project (Section 9.9.3.2). Based on the study results, CNL has also expanded its description of cultural aspects within Section 8.9 of the EIS. AOPFN is also seeking commitment from CNL to develop a chance find procedure to protect and preserve any artefacts. CNL and AOPFN will work together to develop specific project and corporate commitments that address archaeology and cultural heritage sites and CNL will seek verification that any outstanding concerns specific to the NPD Closure Project has been addressed.

CNL has committed to support development of a Cultural Protection and Commemoration Plan in relation to the NPD site and to involve AOPFN in any future archaeological programs at or around the NPD site. Further CNL has committed to work jointly with AOPFN to develop an NPD site specific chance find procedure and TLRU discovery plan. CNL's Commitments are summarized in Section 6.2.4.3.5.

Baseline Characterization

In their comments on the 2020 draft EIS, the AOPFN indicated an interest in the baseline characterization of environmental receptors at the NPD Closure Project site; specifically, the AOPFN were concerned about the presence, abundance, and potential breeding/nesting areas of benthic invertebrates and fish tissue, and other species. AOPFN also expressed concern that CNL did not conduct a comprehensive siting study for the proposed waste disposal facility. In order to address these concerns, CNL shared the results of baseline surveys of benthic invertebrates and fish habitat; which inform the follow-up monitoring plans for the NPD Closure Project. CNL also shared additional information about the geologic characterization that has been completed.

In November 2020, CNL provided draft dispositions to the AOPFN's comments on baseline characterization. The AOPFN provided feedback on these dispositions in writing and during two meetings in December 2020. In their feedback, the AOPFN indicated that they do not accept CNL's disposition regarding this concern, flagging, in particular, the lack of Algonquin Knowledge in the baseline characterization work to date and the lack of a comprehensive exercise to determine the suitability of the site to host a disposal facility. Through the contribution agreement, AOPFN and CNL have worked together to conduct site-wide Algonquin Knowledge Inventories at the NPD site in 2022 and 2023. AOPFN members generously shared their time and interest in biodiversity, and in turn CNL was able to share information on the nuclear industry and environmental monitoring. The time spent together in the field has proven to be very valuable to improve the relationship as well as to increase the available biodiversity data at the NPD site. Using the findings and recommendations from AOPFN's site-wide inventory CNL looks forward to working with AOPFN to ensure that mitigations are in place to protect terrestrial and aquatic biota that are important to AOPFN.

Through the completion of AOPFN's studies, they have indicated that they wish to see the project evaluated against a pre-NPD baseline and not the current baseline conditions at the site. CNL acknowledges that AOPFN disagrees with the use of the current baseline in its assessment of impacts on traditional land and resource use. In its assessment, CNL concludes that no adverse residual effects on traditional land and resource use are expected. CNL maintains the view that past disturbances, i.e., those that occurred during the pre-construction of the NPD facility, are not in scope. CNL notes that the proposed NPD Closure Project will improve the long-term environmental conditions and safety of the NPD site and surroundings, which

will be confirmed by Indigenous-led monitoring programs. The finding of CNL and AOPFN with respect to potential effects on traditional land and resource use differ.

CNL understands that the AOPFN's concern about the lack of a siting study remains outstanding and further alignment on this concern is unlikely. With respect to incorporation of Algonquin Knowledge into the baseline, the 4-season inventory for the area of the site potentially affected by the project has been completed. Using the findings and recommendations from AOPFN's site-wide inventory CNL looks forward to working with AOPFN to ensure that mitigations are in place to protect terrestrial and aquatic biota that are important to AOPFN. AOPFN is also seeking a more comprehensive inventory covering the entire NPD property. In response and to continue addressing AOPFN's concerns on this topic CNL has committed to supporting the AOPFN Guardian Program at the NPD site, supporting an AOPFN-led site inventory for the entire NPD property, and co-development of additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected. A more comprehensive lists of agreed commitments can be found in Section 6.2.4.3.5.

Engagement

Since its introduction of the NPD Closure Project, CNL has sought feedback from AOPFN about their traditional uses, rights, practices, and interests as the NPD Closure Project progresses through the EA. Prior to 2020, CNL understood that the AOPFN were being engaged through representation as a member of the AOO. However, in early 2020, the AOPFN requested to continue engagement independent from the AOO regarding the NPD Closure Project. In September 2020, a contribution agreement between the AOPFN and CNL was signed which will enable AOPFN to continue participating in the EA process for the NPD Closure Project. After reviewing CNL's dispositions to AOPFN's comments regarding consultation, engagement, and communications, AOPFN provided feedback in writing and during two meetings in December 2020. Through the Working Group, CNL continues to revise these dispositions and facilitate an ongoing open dialogue with the AOPFN.

Many of AOPFN's concerns regarding consultation are related to broader topics such as regulatory controls and federal requirements. During engagements activities, CNL understood that these concerns will need to be addressed beyond the NPD Closure Project. The LTRA addresses the AOPFN's interests in consultation, engagement, economic, future land uses, and environmental and cultural heritage stewardship and monitoring, among other things. The LTRA is intended to address CNL-wide concerns and interests of AOPFN at all CNL sites. Indigenous engagement related to broader CNL operations and other projects will be the subject of ongoing engagement activities facilitated by CNL.

AOPFN has identified that there are only some mechanisms from the LTRA which are applicable to NPD (i.e., the Guardian Program and Risk Communication Program). AOPFN has indicated that further collaborative assessment and negotiation of a project-specific agreement will be required for NPD as part of a consent seeking process between the parties, at the end of which AOPFN may or may not provide its free, prior and informed consent to the proposed in-situ project at NPD.

CNL has taken meaningful interim measures to improve its engagement with AOPFN. CNL has developed a deeper understanding of AOPFN's concerns related to the NPD Closure Project. We are committed to strengthening our relationship and continuing the journey forward, well beyond the project end date.

Through planned Working Group meetings, CNL will continue to discuss any concerns by the AOPFN specifically related to the NPD Closure Project. Section 6.2.4.3.5 below outlines next steps agreed upon between the AOPFN and CNL to continue to address outstanding interests.

EA Process and Methodology

In their comments on the 2020 draft EIS, the AOPFN expressed a concern regarding the methods used during the EA process, such as significance determination and cumulative effects. AOPFN prefers an assessment approach that is different than the *CEAA* (2012) method. CNL responded to these concerns by summarizing the cumulative effects assessment methodology used in the EIS which is required by *CEAA* (2012).

In their December 2020 feedback, the AOPFN indicated that CNL's disposition to comments related to significance determination and cumulative effects were inadequate. Subsequently, the AOPFN shared the findings and implications of three studies – the AKLUS, Diet and Harvest Study and Culture and Rights Study. The AOPFN studies suggest there are residual adverse effects potential across a larger number of VCs, including Indigenous land and resource use. CNL and AOPFN met and agreed to collaborate to incorporate AOPFN views within the EIS. This was an opportunity for AOPFN to directly integrate a summary of its differing perspective on impacts on traditional land and resource use (Section 9.9) and overall assessment findings (Section 11.1), into the revised draft EIS.

Through the Working Group meetings, CNL will continue discussions with AOPFN to determine how to adequately address outstanding concerns, including through forward commitments for involvement in monitoring, and to seek verification that this concern has been addressed. CNL understands that this concern is outstanding from AOPFN's perspective. AOPFN remains concerned that the project is evaluated against the current baseline site conditions and does not consider the damage caused by AECL's historic siting and operation of the site. AOPFN remains concerned that CNL has chosen to disregard the new IAA 2019 legislation, instead opting for the less rigorous expectations of *CEAA* 2012. The NPD EIS was revised to include a reference to the *IAA* transitional provisions for continuing the NPD Closure Project EA under *CEAA,* 2012 given that it was commenced under *CEAA,* 2012 before the *IAA* came into force in 2019 (Section 3.5 of the EIS). AOPFN remains concerned that their involvement in the assessment has been from the outside looking in and that AOPFN perspectives have had little to no influence on CNL's assessment findings.

Further alignment on this concern is unlikely however CNL is committed to continue engagement and establish commitments that will enhance confidence and trust in CNL's assessment. Next steps that the AOPFN and CNL have agreed upon to address outstanding concerns are described in Section 6.2.4.3.5 below.

End State, Site Restoration and Future Use of the Land

In their comments on the 2020 draft EIS, the AOPFN expressed interest in end state, site restoration, and future land use planning including a co-development role in end state planning and a concern related to the long-term liability of the site beyond decommissioning. CNL explained that Section 4.3.1.9 of the EIS includes the general plans for restoration and end state with respect to the NPD Closure Project. These concerns were also addressed during discussions between AOPFN and CNL at two meetings in 2020. CNL has committed to sharing the draft site restoration plan with the AOPFN once it is complete and AOPFN has identified their desire to be directly involved from the earliest stages in co-development of restoration plans.

Future land use and land transfer are discussion topics that require the participation of AECL as the owner of the NPD site. The AOPFN has voiced their concern that this EA is proposing a specific use of the land that may curtail the possibility of future use of portions of the NPD site and that the ability to use the land in the future is central to AOPFN's rights, culture and Indigenous land use. While future land use is linked to the NPD Closure Project, it is not a requirement of the EA that the future land use be determined at this time.

This concern remains outstanding with AOPFN seeking end state planning commitments that reflect AOPFN's expectation for collaborative governance and stewardship at the site. CNL has committed to seeking input from the AOPFN on the proposed in-situ disposal project end state, including AOPFN input on lands restoration of the disturbed areas, but understands that AOPFN would like a more substantial role in end-state planning. CNL will continue discussions with the AOPFN to determine how to adequately address outstanding concerns and to seek verification that this concern has been addressed.

Environmental Effects and Mitigation Measures

AOPFN is unclear how invasive species will be managed at the NPD site if introduced by vectors other than heavy equipment (e.g., by smaller vehicles, hand-held equipment, or people). It is also unclear what measures will be implemented to manage invasive species, should they be accidentally introduced or already present at the site.

In response to the AOPFN's questions on how invasive species (non-native plants, animals, aquatic life and micro-organisms that, when introduced outside of their natural environment, out-compete native species) will be managed at the NPD site, the CNL standard Management of Land, Habitat and Wildlife (Hawkins 2024) will be followed. CNL recognizes that when invasive species become established in a new habitat, they can disrupt the existing balance of the ecosystem. In some cases, the new species takes over, causing radical and irreversible changes to its new environment.

Aquatic invasive species are managed through prohibitions on import, transport, possession and/or release of aquatic invasive species as per the Aquatic Invasive Species Regulations. Activities conducted on different water bodies shall take into consideration the potential to spread aquatic invasive species.

Other methods used by CNL to minimize and manage the risks of invasive species spread and protect Canadian ecosystems can be found through the Canadian Food Inspection Agency (CFIA) as per the *Plant*

Protection Act. CNL is open to working collaboratively with the AOPFN to develop proposed mitigation measures to eliminate, reduce or control possible effects from invasive species.

This concern remains outstanding for AOPFN. CNL has committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected. CNL will continue discussions with the AOPFN to determine how to adequately address outstanding concerns and to seek verification that this concern has been addressed.

Free, Prior and Informed Consent (FPIC)

The AOPFN expressed concerns about whether CNL and AECL will respect the AOPFN's right to FPIC in relation to the development of a permanent hazardous waste disposal facility at the NPD site. The AOPFN has identified that it expects CNL and AECL to respect the AOPFN's right to be a Willing Host for any transition of this site from a nuclear research reactor site to a permanent hazardous waste disposal facility, and to respect the AOPFN's right to FPIC to any such proposal, as per Articles 29.2 of the UNDRIP.

CNL is committed to work towards consensus and consent, with an understanding that UNDRIP does not necessitate a veto in decision-making. As an initial next step CNL has committed to responding to each of the AOPFN Principles and Requirements related to Nuclear Sector Projects as outlined in Appendix 3 of the August 2021 Implications Letter to discuss how the proposed NPD Closure Project can satisfy or meet the intent of these principles/requirements, including through project commitments as appropriate. As of July 2023, this concern remains outstanding. CNL understands that this concern is outstanding from AOPFN's perspective as CNL has not committed to respect AOPFN's consent decision in relation to the NPD Closure Project. AOPFN has indicated that further collaborative assessment and negotiation of a project-specific agreement will be required for the NPD Closure Project as part of a consent seeking process between the parties, at the end of which AOPFN may or may not provide its free, prior and informed consent to the proposed in-situ disposal project at NPD. CNL has indicated its openness to begin discussing a project-specific agreement for NPD.

Impacts on Rights

In their comments on the 2020 draft EIS, in the results of the Culture and Rights Study and through engagement activities, the AOPFN expressed concerns that the development of the NPD Closure Project will adversely impact their asserted Indigenous rights. In its disposition to AOPFN's comments, CNL recognized (Table 6.2-1 in the EIS) that the NPD site is located within the AOPFN's traditional territory. However, the NPD EIS does not predict any adverse residual effects to Indigenous land and resource use (Section 9.9.3.5) because access to the NPD site boundaries is currently restricted from the public. In their feedback to this disposition, the AOPFN communicated that they did not accept this response and have noted both:

- that federal guidance on rights impact assessment holds that the proper way to characterize impacts on rights is to examine impacts not against a current, "damaged" baseline, but against a time when the right was reasonably practicable in the affected area; and

- that the technology chosen for decommissioning will have impacts on the future accessibility (and willingness to access) the site and to harvest resources at the site and in the surrounding area, for AOPFN members, which has implications for future rights practicability.

In addition, the AOPFN has noted that the EIS findings in relation to Indigenous land and resource use are not echoed in the findings of AOPFN's three studies, nor has the effects characterization in the revised EIS section on Indigenous land and resource use materially changed despite this new evidence being provided by the Indigenous peoples themselves.

The AOPFN shared the results and implications of the Culture and Rights Study in July 2021. The study finds that AOPFN culture and means of livelihood have been disrupted over time as a result of development throughout the unceded Algonquin traditional territory, impacting members' ability to exercise Aboriginal rights and interests. In particular, it finds that, within the Site and Local Study Areas for the NPD Closure Project, AOPFN rights have been substantially infringed upon due to lack of access, fear and stigma associated with Canada expropriating the site for a nuclear research facility in the 1960s. The study also finds that NPD Closure Project interactions could impact AOPFN harvesting and cultural continuity rights in the NPD site area due to permanent changes to the future condition of the land and resources by creation of an in-situ disposal facility, which will be reclassified as a permanent hazardous waste disposal facility. The AOPFN study finds that there are measurable impacts on long-term ability to harvest in the NPD area will result from the project as proposed. AOPFN is concerned that CNL has underestimated the project's impacts on traditional land and resource use, as well as culture and heritage resources, which are closely linked to impacts on AOPFN rights. The assessment by CNL considers the potential for biophysical interactions and impacts from the proposed project as measured against the current baseline conditions. CNL has not conducted an assessment of impacts on rights but has provided evidence in the EIS to support the conduct of a rights impact assessment by the Crown for this EA. CNL values the information provided by AOPFN in the studies and through other means of engagement, and while the views on assessment methodology differ, CNL has enabled the view of AOPFN to be clearly presented in this document. Any observations and experiences that AOPFN considers in their evaluation of impacts to rights will be taken into consideration by the Crown rights impact process.

CNL understands that this concern is outstanding from AOPFN's perspective as the EIS findings in relation to traditional land and resource use (which are closely related to impacts on rights) do not correlate to those from AOPFN's studies, and the related concerns that: a. AOPFN was not directly involved in the effects characterization or significance estimation process, and b. CNL has not provided evidence that its consultants working on effects characterization or significance estimation for traditional land and resource use, Indigenous culture, and Indigenous health and well-being, have expertise on these topics. CNL stands by its conclusion that the project will not interfere with traditional activities or have a negative impact on the biological resources on which they are dependent. CNL believes that they have addressed this concern based on the requirements of *CEAA* (2012). Further alignment on this concern is unlikely. AOPFN and CNL disagree on the EA methodology, the assessment of impacts to TLRU and on the preferred decommissioning alternative. Through continued engagement at the Working Group CNL hopes that the parties are able to find common ground on this topic.

CNL will continue to engage with the AOPFN to develop actions to address concerns which arise from AOPFN's studies while CNL defers to the results of the joint AOPFN-CNSC rights impact assessment for a conclusion on whether Aboriginal or Treaty rights are impacted by the project. The AOPFN's Culture and Rights Study is an important contribution of technical data and Indigenous knowledge that augments the overall body of information of interest and concerns that AOPFN has expressed through engagement. From the results of the Culture and Rights Study, CNL also recognizes that many concerns related to Indigenous rights will need to be addressed beyond the NPD Closure Project and may be addressed under the LTRA.

Through planned Working Group meetings, CNL will continue to discuss any concerns by the AOPFN specifically related to the NPD Closure Project. CNL will maintain open dialogue with the AOPFN to better communicate how their observations and experiences, interests and concerns have been considered in the EIS for the NPD Closure Project. CNL will seek verification that this concern has been addressed through ongoing engagements.

Indigenous Health

In their comments on the 2020 draft EIS and through engagement activities, the AOPFN identified concerns related to the impacts on Indigenous health as a result of the NPD Closure Project and the AOPFN requested support for a Diet and Harvest Study. CNL assessed the potential effects on Indigenous health from consumption of local food using a predictive model to estimate radiological dose exposure as summarized in the PostSA TSD. A self-sufficient group was chosen as the model receptors; this group was assumed to be adults and children who obtain all of their food through hunting and gathering using the area surrounding the disposal site, including the Kichi-Sìbì (Ottawa River). It is assumed that this self-sufficient group would have elevated consumption of fish and wild game compared to a local or urban population. The resulting predicted radiological dose to this group is well below the public dose limit; the EIS does not predict any adverse residual effects to human, including Indigenous, health (Section 9.8.3.5 and 9.10.3.5). The AOPFN expressed that they disagreed with CNL's assessment on the basis that there are other determinants of health that are important to the AOPFN including the avoidance of consuming traditional foods and lack of meaningful access to portions of AOPFN territory. AOPFN indicated that the EIS does not cover these Indigenous determinants of health or how the project may impact on them.

Through the contribution agreement signed in September 2020, CNL committed to funding a Diet and Harvest Study to validate the assumptions used in the 2020 revised draft EIS model which assessed the impacts of the NPD Closure Project on a self-sufficient Indigenous receptor. The Diet and Harvest Study was provided to CNL by AOPFN in the summer of 2021. It provides important information to evaluate the extent to which NPD Closure Project activities may impact Indigenous health. Previously, a lifestyle survey conducted by CNL was used to determine the residual effects of the NPD Closure Project on Indigenous health, but because the survey did not adequately represent the values and practices of Indigenous peoples, all reference to the lifestyle survey has been removed from the revised draft EIS. CNL is committed to continuing discussions with AOPFN regarding impacts on Indigenous determinants of health and to update the final EIS and/or subsequent IER TSD based on these engagements.

The perceptions and willingness to consume traditional foods can partially be addressed by an Indigenous-driven risk communication strategy for the NPD Closure Project which CNL has committed to support. CNL acknowledges the AOPFN have identified the key role of the country foods monitoring program in mitigating the concerns of the AOPFN. The country foods monitoring is not specific to the NPD Closure Project and is related to CNL's overall operations in the region, but AOPFN has indicated that it needs to be applied specifically to the NPD site given concerns about radioactive risks associated with country foods and waters specific to the NPD site. As attested by the outcome of previous engagements, CNL recognizes that these concerns will need to be addressed beyond the NPD Closure Project and may be addressed under the LTRA.

Through planned Working Group meetings, CNL will continue to discuss any concerns by the AOPFN specifically related to the NPD Closure Project including incorporation of Diet and Harvest Study results as they relate to overall community wellness.

CNL understands that this concern is outstanding from AOPFN's perspective, because to date, CNL has not revised its assessment of Indigenous human health in relation to the NPD Closure Project to adopt a more holistic evaluation of human health. CNL is committed to working with AOPFN to incorporate Harvest Aad Diet Study results as they relate to Indigenous health and overall community wellness in a subsequent revision of the IER TSD. Through continued engagement at the Working Group CNL hopes that the parties are able to find common ground on this topic. CNL wishes to continue discussions with AOPFN to better understand the community's perspective and values and any fears, or concerns associated with the NPD site and traditional use near the site. Next steps between AOPFN and CNL to continue to address outstanding concerns are described in Section 6.2.4.3.5 below.

Long-term Safety

Within the AKLUS report, AOPFN members identified concerns about long-term site integrity and monitoring, including the need for monitoring based on Algonquin principles. In the response to address this concern, CNL explained that the EIS assesses the probabilities and potential impacts to site integrity from natural hazards, flooding, seismic activity, and extreme temperature changes (in Sections 8.12 and 9.14) and that monitoring will continue for as long as necessary to verify the results of the assessment in the EIS.

CNL understands that this concern is outstanding from AOPFN's perspective, as the duration of the hazard exceeds the length of the Institutional Controls phase. CNL's technical assessment shows that there are no long-term effects resulting from the NPD Closure Project. CNL is committed to collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN community members and application of the AOPFN Algonquin Food Program and Risk Communication Program at the NPD site. Further CNL is committed to support the AOPFN with NPD Closure Project and NPD site-specific Guardian monitoring activities, incorporating traditional knowledge and AOPFN VCs. CNL welcomes recommendations for other monitoring/mitigation activities that should be integrated into the existing program to ensure that environmental and cultural components of value to AOPFN are protected. CNL's Commitments are summarized in Section 6.2.4.3.5.

Monitoring

In their comments on the 2020 draft EIS and through engagement activities, the AOPFN expressed interest in becoming involved in environmental monitoring at NPD and to be involved in co-development of the NPD Closure Project Follow-up Monitoring Plan and overall site Environmental Protection Program. CNL encourages the involvement by all Indigenous Nations, communities and organizations in its monitoring programs and have offered to have the AOPFN visit the site to observe the current monitoring program.

In November 2020, CNL provided draft dispositions to all of the AOPFN comments, including those on the environmental monitoring. The AOPFN provided feedback on these dispositions in December 2020 and two meetings to discuss responses were held in 2020. In their December 2020 feedback, the AOPFN indicated that CNL's dispositions to address the AOPFN's concern over environmental monitoring were partially adequate.

In October 2022, AOPFN provided CNL technical and Algonquin Knowledge comments on the NPD EAFMPs. AOPFN shared that the plans were well-organized and comprehensive. AOPFN suggested the addition of an Executive Summary for each of the plans and including any additional information noting that the plans were drafted in 2018. The AOPFN noted that because the plans were drafted prior to the commitment from CNL to incorporate Algonquin Knowledge into project monitoring there is an expectation that the plans are updated. AOPFN provided copies of their comments on the NSDF EAFMP from October 2021 and additional comments to be reviewed and incorporated where possible into the NPD plans. AOPFN requested that CNL provide feedback on the technical comments and review the comments made on the NSDF EAFMPs. NPD EAFMPs were discussed at the December 2022 Working Group, where CNL stressed that the plans did not need to be finalized with the revised draft EIS submission and that the opportunity to incorporate the comments and Algonquin Knowledge from the NSDF plans was still the path forward. CNL is aware that AOPFN's preference is for more progress to be made on the EAFMPs prior to the submission of EIS.

Some of the aspects of environmental monitoring and the Guardian Program are broad and will need to be addressed beyond the NPD Closure Project and may be addressed under the LTRA. CNL is committed to support the AOPFN with NPD Closure Project and NPD site-specific Guardian monitoring activities, incorporating traditional knowledge and AOPFN VCs. CNL welcomes recommendations for other monitoring/mitigation activities that should be integrated into CNL's existing program to ensure that environmental and cultural components of value to AOPFN are protected. CNL is committed to engaging with the AOPFN in the NPD Closure Project EA Follow-up Program development. CNL recognizes that these plans would benefit from incorporation of Indigenous knowledge and welcomes AOPFN comments, and other Indigenous Nations, communities and organizations.

CNL understands that this concern is outstanding from AOPFN's perspective until such time as there is a dedicated Indigenous-led, Indigenous Knowledge driven component integrated into the site monitoring at NPD. CNL will continue discussions with AOPFN, through the Working Group to determine how to integrate Indigenous knowledge in the monitoring plans for the NPD site and to seek verification that this concern has been addressed. Next steps that the AOPFN and CNL have agreed upon to continue to address outstanding concerns are described in Section 6.2.4.3.5 below.

National Policy

In their feedback to CNL in April 2023, AOPFN expressed concerned that the Government of Canada does not yet have a modern nuclear waste management policy in place and that a lack of coordinated planning in past to develop permanent facilities has resulted in a proposed facility in AOPFN territory that it has not consented to. CNL has responded that this topic is generally beyond the scope of the NPD Closure Project.

It is AECL's responsibility to manage their historic nuclear obligations now and not leave it for future generations, therefore the decision was made by AECL to complete the environmental remediation of the NPD site in a timely manner. CNL executes AECL's work under the GoCo agreements. The proposal to create a disposal facility on the NPD reactor site through in-situ disposal has been chosen as a safe and immediate decommissioning option for the NPD reactor with respect to the environment, workers and the public. It is important to highlight that this closure will reduce historic nuclear liabilities for Canada and, at the same time, reduce the footprint of the NPD site.

Protection of Flora and Fauna

In their comments on the 2020 draft EIS and through the results of the AKLUS study, AOPFN highlighted biological concerns including: impacts to the riparian ecosystem, road mortality impacts, fish, fish habitat, species at risk and the Kichi-Sìbì. Collectively, mitigation measures for the protection of biological interests, specifically species at risk, are outlined in Sections 9.6.3.2 (Terrestrial Environment). CNL also has an EcoRA TSD where potential impacts to biota, including those in the Kichi-Sìbì, from chemical and radiological releases during all phases of the project is assessed. The EcoRA found that no potential exposure-related effects to aquatic biota are expected during the Decommissioning Execution phase. The EcoRA also determined that no adverse residual effects to aquatic biota are anticipated during the Institutional Controls or Post-Institutional Controls phases. The AOPFN has identified that this issue is partially resolved and that more Algonquin Knowledge of species and habitat needs to be gathered and integrated. Through the contribution agreement, AOPFN and CNL have worked together to conduct site-wide Algonquin Knowledge Seasonal Inventories at the NPD site in 2022 and 2023. AOPFN members generously shared their time and interest in biodiversity, and in turn CNL was able to share information on the nuclear industry and environmental monitoring. The time spent together in the field has proven to be very valuable to improve the relationship as well as to increase the available biodiversity data at the NPD site.

CNL understands that this concern is partially resolved from AOPFN's perspective. AOPFN is seeking a dedicated Indigenous-led Indigenous Knowledge component integrated into the site monitoring at NPD. The participation of AOPFN in monitoring work for the NPD Closure Project ensures consideration of Indigenous knowledge, collaboration, mutual respect, ongoing participation and relationship building for the future. CNL and the AOPFN are continuing engagement through the framework of the contribution agreement. Using the findings and recommendations from AOPFN's site-wide inventory, CNL commits to work with AOPFN to develop specific project and corporate commitments that consider AOPFN valued species and components and mitigations to ensure AOPFN valued species are protected. CNL will seek verification that this concern has been addressed through ongoing engagements. Section 6.2.4.3.5 below outlines further next steps agreed upon between the AOPFN and CNL to continue to address outstanding interests.

Protection of the Kichi-Sìbì (Ottawa River)

Throughout engagement with CNL, and in their comments on the 2020 draft EIS and the results of the AKLUS report, the AOPFN expressed that the protection of the Kichi-Sìbì (Ottawa River) and the riparian ecosystem is of high priority. The AOPFN have consistently voiced their concern over the proximity of the NPD disposal site to the Kichi-Sìbì (Ottawa River) and the risk of release of radiological and other hazardous wastes into the river through surface water discharge.

CNL's commitment to protecting the Kichi-Sìbì (Ottawa River) is reflected in its in-design mitigation measures to contain and isolate NPD's waste inventory (Section 4.1) and the NPD EIS does not predict any adverse residual effects on the surface water environment encompassing the Kichi-Sìbì (Ottawa River) (Section 9.3.3.5). CNL also clarified that the NPD Closure Project decommissioning activities won't impact the currently disturbed riparian area. For this reason, no impact assessment has been conducted for this habitat.

In order to effectively address this concern, CNL is engaging with AOPFN community members and the AOPFN staff and their consultants regarding the results of the NPD EIS with respect to the protection of the Kichi-Sìbì. CNL has provided information on in-design mitigation measures that will ensure discharges do not cause adverse environmental effects to the Kichi-Sìbì (Ottawa River). Based on AOPFN feedback, CNL has updated and expanded mitigation measures for the protection of surface water (Section 9.3.3.2 in the EIS).

CNL understands that this concern is outstanding from AOPFN's perspective until such time as there is a dedicated Indigenous-led, Indigenous Knowledge driven component integrated into the site monitoring at NPD. Further, AOPFN would also like to see re-establishment of a more natural riparian habitat along the shore near the facility as part of site restoration activities. CNL and the AOPFN are continuing engagement through the framework of the contribution agreement. CNL will continue discussions on the implementation of the Guardian Program at the NPD site. Next steps to address interests and concerns related to the protection of the Kichi-Sìbì are found in Section 6.2.4.2.5 below.

Socio-economic

In their comments on the 2020 revised draft EIS and through engagement activities, the AOPFN expressed that they would like to see broader socio-economic interests that focus on Indigenous values discussed in the EIS. In the November 2020 response to this concern, CNL provided dispositions to AOPFN comments related to socio-economic indicators which were derived from secondary census data as discussed in the EIS. However, CNL recognizes that Indigenous Nations, communities and organizations may define socio-economic wellbeing in ways that cannot be adequately captured by census data. In order to address this concern, CNL discussed its dispositions to AOPFN's comments during two meetings in 2020; in their December 2020 response to CNL's dispositions, the AOPFN indicated that this concern has not been adequately addressed, and no direct substantive discussions on this topic have occurred as of November 2021.

CNL understands that this concern is outstanding from AOPFN's perspective. The contribution agreement signed in September 2020 enabled the establishment of an AOPFN Community Advisory Committee which has the potential to facilitate primary collection of socio-economic data specific to the AOPFN. In tandem with the anticipated data from this Committee, the LTRA addresses Indigenous-specific socio-economic data as impacted by CNL operations. Through planned Working Group meetings, CNL will continue to discuss any concerns by the AOPFN specifically related to the NPD Closure Project. Through the Working Group and ongoing engagement with AOPFN, CNL will maintain open dialogue to discuss this and other concerns and to seek verification that dispositions specific to the NPD Closure Project are adequate.

CNL is committed to improved economic participation and benefits for Indigenous peoples from its projects. In response to Call to Action #92 in the Truth and Reconciliation report to actively promote economic opportunity for Indigenous Businesses, CNL has developed an IRP Strategy, which has been endorsed by AECL. AECL, the federal Crown Corporation that provides oversight of CNL, has reviewed, and endorsed the strategy. CNL shared the IRP strategy with the AOPFN in March 2023. To ensure that CNL can begin to take a more active role in stimulating the Indigenous business sector in the future, the strategy became effective as of April 2023, and includes targets for 2023/2024. CNL recognizes that there will be ongoing opportunities to enhance its approach to reflect feedback from Indigenous Nations, communities and organizations. Discussions on employment and contracts/procurement opportunities may be advanced within a future LTRA.

Next steps that the AOPFN and CNL have agreed upon to continue to address outstanding concerns are described in Section 6.2.4.3.5 below.

Technical

In their comments on the 2020 draft EIS and through engagement activities, the AOPFN requested further clarification in order to understand technical aspects of the NPD Closure Project EA such as atmospheric dust emissions, and effluent discharges to the aquatic environment as assessed for NPD Closure Project. In November 2020, CNL provided written dispositions in response to specific questions, many of which were related to the conclusions in the 2020 draft EIS. Mitigation measures to control dust emissions are summarized in Section 9.2.3; the potential effects to aquatic biota from expected emissions during all phases of the NPD Closure Project are summarized in Section 9.4.3. The AOPFN provided written feedback on these dispositions in December 2020 and verbal feedback during two meetings in 2020. AOPFN accepted CNL's response regarding dust emissions during NPD Closure Project activities and indicated that they would need to review additional supporting documents (i.e., the PostSA) to better understand potential effluent discharges to the aquatic environment. CNL and the AOPFN are continuing engagement through the framework of the contribution agreement. CNL will continue discussions on the implementation of the Guardian Program at the NPD site.

Traditional Land and Resource Use and Cultural Impacts

In their July 2020 comments on the 2020 draft EIS, the AOPFN have indicated an interest in a number of topics related to traditional knowledge, land and resource use, and cultural impacts from the NPD Closure Project, as well as concern that the traditional land and resource use study areas in the EIS differ from the study areas used by the AOPFN in their AKLUS, Diet and Harvest Study and Culture and Rights Study. It

is AOPFN's position that by choosing to maintain the generic areas for the Local Study Area and Regional Study Area for their assessment of impacts to traditional land and resource use, as compared to the much larger areas used in the three AOPFN studies, CNL is ignoring Algonquin Knowledge in this area. AOPFN notes that this highlights a continued lack of understanding, by CNL, of the impact zone on traditional land use at and surrounding the NPD site. According to AOPFN members, NPD Closure Project interactions could impact AOPFN harvesting and traditional use rights in the study area by exacerbating concerns about contamination of water, fish, wildlife, and medicines in proximity to the project.

Within the scope of the EIS, CNL assumed that traditional uses occur near the NPD site, whether on the Ottawa River, on accessible private lands outside the restricted/fenced area, and/or on provincial crown land outside the restricted/fenced area. The Local and Regional Study Area boundaries were established based on the premise that they would include the areas within the range of potential effects from the NPD Closure Project. CNL recognized that different Indigenous Nations, communities and organizations might establish different study area boundaries based on their own particular interests, effects considerations and other factors. CNL anticipated that the study areas were likely going to be different than what was defined in the EIS and considers that this does not present an issue provided that the Indigenous Nations, communities and organizations' traditional knowledge studies had study areas that were larger than what was being proposed in the EIS. The rationale for this being that this would ensure traditional uses were collected and described for at least the areas within the CNL-defined potential range of effects.

The EIS concludes that the NPD Closure Project is not expected to affect traditional land and resource use. In fact, it may improve traditional land and resource use through improved relationship, risk-informed communications, input into the project and reconnection to the land through monitoring activities. CNL recognizes that the AOPFN disagrees with this conclusion, in part because of the AOPFN's observations of safety and quality of experience on the land and associated perception of risk (e.g., fears of contamination of land and water receptors), a concern strongly voiced by the AOPFN during engagement with CNL, as well as in the three AOPFN studies. Additionally, the AOPFN expressed that these observations and perceptions may result in the community's continued alienation from their traditional lands into the far future. While CNL provided dispositions based on the results of the EA for the NPD Closure Project and data from the EcoRA, the AOPFN requested that CNL commit to a focused workshop to better understand AOPFN's observations and beliefs and to work to mitigate concerns about safety, quality of experience on the land, and contamination risks.

In July 2021, the AOPFN provided a combined summary of the results and implications of the AOPFN AKLUS, Diet and Harvest Study, and Culture and Rights Study. The AOPFN studies find that there are measurable impacts on long-term ability to harvest in the NPD area will result from the project as proposed. AOPFN is concerned that CNL has underestimated the project's impacts on traditional land and resource use, as well as culture and heritage resources, and by extension has underestimated impacts on AOPFN rights. The strictly biophysical effects considered by CNL do not encompass the observations and experiences that AOPFN considers in its assessment. AOPFN also provided comments on the traditional land and resource use baseline and effects section of the 2020 revised draft EIS for the NPD Closure Project. Using this feedback, CNL has made additional improvements to Section 8.9 and 9.9 to include

content from the 2021 Harvest and Diet and Culture and Rights studies and sought feedback from AOPFN on this new content.

The issue is outstanding from AOPFN's perspective, given the very different findings and study area boundaries of its three studies in comparison to the revised draft EIS. CNL will continue to engage with the AOPFN to ensure CNL commitments will clearly and appropriately address potential impacts to AOPFN traditional land and resource use rights with respect to the NPD Closure Project. Many concerns will need to be addressed beyond the NPD Closure Project and may be addressed under the LTRA.

Through planned Working Group meetings, CNL will maintain open dialogue with the AOPFN to better communicate how their observations and experiences, interests and concerns have been considered in the EIS for the NPD Closure Project. CNL will seek verification that this concern has been addressed through ongoing engagements. CNL and AOPFN have also agreed that it is important to continue to identify proactive additional commitments through the remainder of the EA process and will use the Working Group for this purpose.

Valued Components (VCs)

Throughout engagement activities, direct correspondence, in their comments on the 2020 draft EIS, and the results of their studies AOPFN indicated interest in the environmental VCs that were incorporated in the EA for the NPD Closure Project. CNL incorporated AOPFN feedback on VCs into Section 6.3.2, including Table 6.3-1 and Table 6.3-4 of the revised draft EIS. Some AOPFN VCs were not previously included in the EIS while others were represented by species that were already evaluated as VCs in the EIS. Tables 6.3-1 and 6.3-4 of the EIS highlight how VCs identified by AOPFN are represented and evaluated in the EIS. Follow-up monitoring of environmental pathways (air, water, groundwater) will ensure that VCs are protected.

Through the contribution agreement, AOPFN and CNL have worked together to conduct site-wide Algonquin Knowledge Seasonal Inventories at the NPD site in 2022 and 2023. AOPFN members generously shared their time and interest in biodiversity, and in turn CNL was able to share information on the nuclear industry and environmental monitoring. The time spent together in the field has proven to be very valuable to improve the relationship as well as to increase the available biodiversity data at the NPD site.

CNL understands that this concern is outstanding from AOPFN's perspective, with specific issues raised in the AOPFN-developed Section 6.3.2.1 of the revised draft EIS.

AOPFN disagrees with using one species to represent another (or several others) and have identified here the importance of establishing both an Indigenous baseline and Indigenous Knowledge monitoring system. As noted in the *Table of Interests and Concerns*, CNL has committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary.

Summary

At present, this summary of interests and concerns is a consolidation of all the interests and concerns the AOPFN have brought forward on the NPD Closure Project.

The project-specific concerns raised by the AOPFN are considered in the context of the EIS. CNL will continue to respond to questions and concerns from the AOPFN through its ongoing engagement with both the Working Group and AAC. CNL will seek to understand those concerns in the context of the EIS and the NPD Closure Project. CNL and AOPFN have already agreed to several commitments related to the NPD Closure Project which are highlighted above and are also included in the *Table of Interests and Concerns* (Appendix C.2, Table C-6) and will continue to work closely to resolve outstanding concerns.

6.2.4.3.4 Verification

The AOPFN have provided several key inputs since 2020, identifying interests and concerns related to the NPD Closure Project, through: comments on the 2020 revised draft EIS, feedback on VCs, the AOPFN's AKLUS Report (October 2020), two additional studies (in August 2021): the Diet and Harvest Study and the Culture and Rights Study, and the AOPFN AMA (April 2022). To confirm CNL has adequately captured the AOPFN's interests and concerns, position and knowledge, the AOPFN and CNL underwent a verification process where CNL provided key documentation to the AOPFN for their review and feedback. Through this process, the AOPFN has reviewed and provided feedback on their *Table of Interests and Concerns*, list of VCs, the IER TSD and Sections 6.0, 8.9 and 9.9 of the draft EIS. While not all of the AOPFN's concerns have been mitigated by this process to date, CNL has made every effort to verify that the AOPFN's position, interests and concerns were adequately characterized. CNL continues to work with the AOPFN to address their concerns through ongoing discussions and the LTRA. Details of the interactions that formed the verification process between CNL and the AOPFN are captured in the IER TSD.

6.2.4.3.5 Next Steps

CNL's commitments within the "Next Steps" column of the *Table of Interests and Concerns* in Appendix C.2 and highlighted in Section 6.2.4.3.3, are reflective of the feedback CNL has received to date in the EA process from the AOPFN's technical review of the 2020 draft EIS, key areas of interest and concern highlighted during Working Group discussions and by the AAC, the AOPFN studies (AKLUS, Diet and Harvest, Culture and Rights) and their implications. CNL acknowledges that several areas of interest and concern for AOPFN are still unresolved and that for some concerns alignment will not be achieved. CNL has and will provide additional information and work closely with AOPFN to address the concerns. The IER TSD, as a living document, will include any updates related to the progress of these next steps at the time of submission of the final EIS and prior to the Commission Hearing process.

In response to AOPFN concerns, should the proposed NPD Closure Project proceed, CNL commits to implement the commitments described below. CNL and AOPFN have also agreed that it is important to continue to identify proactive additional commitments through the remainder of the EA process. The Working Group between CNL and AOPFN will be used as a forum to continue to explore required commitments should the NPD Closure Project proceed.

AOPFN-1. CNL is committed to continuing a Contribution Agreement, or equivalent, for 10 years (2023-2033).

CNL is committed to providing the funding to continue the Working Group and AOPFN Advisory Committee (AAC) for 10 years (2023-2033), or, until a site-wide arrangement takes over.

AOPFN-2. CNL is supportive of, and will assist with, the logistics and funding for location-specific commemoration and/or cultural recognition activities by AOPFN for the NPD Site (which includes collaborative development and implementation of an NPD Cultural Protection and Commemoration Plan) covering a 10-year period (2023-2033).

The CRL site access protocol will also allow access to the NPD site (individuals who have clearance at CRL will also have clearance at NPD). This access will facilitate NPD Closure Project Commitments.

AOPFN-3. CNL is committed to the collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN community members. Topics to include in communication materials are: history of the site, project information, and potential risks from decommissioning options and potential health risks of using the area for hunting/fishing/harvesting, as well as results of monitoring activities. Development and implementation of NPD-specific communication materials will continue for 10 years (2023-2023) to help build confidence in project performance.

CNL will support application of the AOPFN Algonquin Foods Program at NPD for a 10-year period (2023-2033).

AOPFN-4. CNL is committed to developing with AOPFN, a meaningful role for AOPFN in monitoring for the NPD Closure Project. CNL will support Indigenous knowledge monitoring for the Project over a 10-year period (2023-2033) to help build confidence in project performance.

CNL is committed to support AOPFN's desired involvement in NPD Closure Project monitoring and NPD site-specific AOPFN-led Guardian monitoring activities, incorporating traditional knowledge and AOPFN valued components.

CNL will utilize the EAFMP and the AOPFN-led Guardian Program in the characterization of potential impacts on AOPFN traditional land and resource use in proximity to the NPD Closure Project. Appropriate adaptive management measures will be co-developed between AOPFN and CNL based on monitoring results, if greater than expected impacts occur.

CNL will share its plans for ecological data collection with AOPFN on an annual basis for the next 10 years (2023-2033) and will facilitate AOPFN participation in activities of interest to AOPFN.

CNL will include AOPFN Algonquin Knowledge, collected independently by AOPFN Guardians in the terrestrial, riparian and aquatic environments, in future ecological data collection programs at the NPD site.

AOPFN-5. CNL supported an NPD Site "Inventory" data collection period, where AOPFN Guardians and Traditional Knowledge holders conducted a survey of the NPD site for wildlife and plant habitat, and areas

of potential cultural importance. Four seasonal visits were completed in 2022-2023 and AOPFN has shared its findings.

CNL is open to providing AOPFN with an opportunity to conduct harvesting of resources from the NPD site if desired by AOPFN members.

CNL commits to support and fund further AOPFN-led site inventory work covering the whole NPD site in 2024 and 2025 in order to develop an Algonquin Knowledge baseline for the site.

Where AOPFN identifies important resources that could be impacted by the NPD Closure Project, CNL is committed to work with AOPFN to evaluate and implement additional mitigation measures if necessary. CNL expects that this activity may be informed by the 2022/23 site inventory work.

AOPFN-6. CNL is committed to achieving understanding and support from AOPFN as part of the NPD Closure Project engagement. Where there are differences of opinion or concerns that need to be addressed, CNL is willing to explore mitigation measures and formulate commitments with the AOPFN with the intention of trying to remove or lessen the concern.

AOPFN-7. CNL to utilize the AKLUS results in the characterization of potential impacts on AOPFN traditional land and resource use in proximity to the NPD Closure Project. Appropriate adaptive management measures will be co-developed between AOPFN and CNL based on monitoring results if greater than expected impacts occur.

Through the NPD Closure Project funding, CNL will provide capacity for two updates to the AKLUS – the first update will occur three years after Project approval (which aligns closely with end of decommissioning execution activities) and the second update will occur five years after the first update, to show any potential changes since site closure.

AOPFN-8. CNL is committed to engaging with AOPFN in the NPD Closure Project EAFMP development. CNL recognizes that our follow-up monitoring plans would benefit from incorporation of Indigenous knowledge and welcomes AOPFN comments on the plans. The scope of the EAFMP monitoring, as per regulatory requirements, must remain the validation of project performance. CNL can provide AOPFN with a co-development role in identifying adaptive management triggers/thresholds and responses in relation to valued components related to AOPFN rights and interests, to be built into the EAFMP.

CNL will utilize the EAFMP and the AOPFN-led Guardian Program in the characterization of potential impacts on AOPFN traditional land and resource use in proximity to the NPD Closure Project. Appropriate adaptive management measures will be co-developed between AOPFN and CNL based on monitoring results, if greater than expected impacts occur.

AOPFN-9. CNL commits to sharing the contracting plan for the NPD Closure Project with AOPFN.

CNL commits to sharing employment opportunities with the Working Group to determine and identify how to best encourage inclusion of AOPFN members in the execution of the NPD Closure Project work.

AOPFN-10. CNL will involve AOPFN in any future archaeological programs at or around the NPD site.

CNL will implement the following existing project planning, monitoring and management at the NPD site (developed under the NSDF Project):

- Chance Find Procedure;
- Traditional Land and Resource Use Discovery Plan; and
- Eagle Feather Protocol.

AOPFN-11. CNL, AECL and AOPFN can explore opportunities for increased access to the existing NPD site following decommissioning.

CNL will consider offsets at off-site locations brought forward by AOPFN, which are commensurate with the wildlife habitat impacts associated with the NPD Closure Project.

AOPFN-12. CNL will seek AOPFN's input on aspects of value to the community that need to be considered during decommissioning. CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected. This activity to be completed during the project planning phase.

AOPFN-13. CNL is committed to seeking input from AOPFN on the proposed in-situ disposal project end state, including AOPFN input on lands restoration of the disturbed areas during NPD site restoration and end state planning.

AOPFN-14. CNL is committed to having all NPD Project staff and contractors attend AOPFN's Cultural Awareness Training.

AOPFN-15. CNL supported an AOPFN AMA, completed in April 2022. CNL committed to including AOPFN AMA findings directly within the EIS along with the full AOPFN AMA as an appendix. AOPFN has reviewed the AMA section and provided feedback.

Specific next steps that will be initiated prior to the issuance of the final EIS include:

- AOPFN and CNL will continue to meet in relation to monitoring, mitigation and other interests and concerns. If impacts are determined in the CNSC rights assessment, then accommodations will be negotiated;
- AOPFN and CNL will jointly review the draft EA Follow-up Plan and make efforts to integrate AOPFN and Indigenous Knowledge into the plan;
- AOPFN and CNL will continue to discuss the implementation of the Guardian Program at the NPD site;
- AOPFN and CNL will continue discussions on the potential impacts on traditional land and resource use, Indigenous culture, and Indigenous health;
- AOPFN and CNL will collaborate on planning site restoration activities.

6.2.4.4 Métis Nation of Ontario (MNO)

The MNO was formed in 1993 to represent communities and individuals recognized by the Métis Nation within Ontario and works to represent the rights, interests and collective aspirations of Métis people and communities throughout the province. The MNO identifies a registry of over 20,000 Métis citizens (MNO 2020). Members of the MNO Mattawa/Lake Nipissing Métis Traditional Territory Consultation Committee and MNO Lands, Resources and Consultation Branch have participated in CNL's Indigenous Engagement Program for the project. A fuller description of the MNO can be found in Chapter 3 of the IER TSD.

The MNO and CNL have signed a MOU for the NSDF Project and NPD Closure Project that has supported the MNO enhanced participation in the NPD Closure Project. The MOU is between CNL and the MNO, more specifically the Mattawa/Lake Nipissing Traditional Territory Consultation Committee, which includes the Sudbury Métis Council, the North Bay Métis Council and the Mattawa Métis Council which represent the regional rights-bearing Métis community. A representative of the MNO has been a member of CNL's ESC since March 2012.

The summarized objectives of the MOU include: to establish, in relation to the projects, a mutually beneficial, cooperative, productive and ongoing working relationship; provide a process for CNL to engage with the local and regional Métis communities, address any potential effects and discuss necessary mitigation measures; enhance the ability of the MNO to participate in the EA processes for the NPD Closure Project. The MOU also indicates the intention of both parties to pursue a longer-term relationship between CNL and the MNO.

CNL has provided funding to the MNO to assist them in enhanced engagement, specific funding for technical studies, VC workshop, and funds to allow staff to co-ordinate activities and work with CNL. The MNO have focused their technical reviews on three specific topics: follow-up monitoring, hydrogeology and archaeology. The MNO also carried out a comprehensive traditional knowledge and land study funded jointly by the CNSC and CNL.

6.2.4.4.1 Engagement

Table C-7 of Appendix C.3 includes a summary of key engagement activities that have occurred with MNO on the NPD Closure Project as of March 31, 2024. A complete list of engagement activities can be found in Appendix L (Table L-1) of the IER TSD. CNL has also provided a narrative summary of engagement with MNO.

Relationship-building and Agreements

CNL first reached out directly to the MNO in June 2016 to hold a teleconference with MNO representatives to introduce the proposed NPD Closure Project and enable preliminary discussion.

CNL followed up to this meeting with a letter in July 2016. This letter included a request for community input on any potential adverse impacts from project activities.

Later in July 2016, the MNO and CNL held a meeting share an overview with a wider group of MNO representatives. After these initial contacts, there was some follow-up, including a letter sent from CNL to the MNO in December 2016, which made inquiries about MNO asserted rights and traditional land and resource use activities.

In the fall of 2017, the MNO and CNL corresponded several times and held a meeting in Sudbury in September. The MNO hosted this meeting where CNL shared information on environmental monitoring, EAs, a project overview, and the EA process. In late 2017, CNL shared the draft EIS and the IER TSD. CNL invited MNO participation in the public comment period for the draft EIS and requested community input and feedback for incorporation into the project. The MNO reviewed the draft EIS and submitted comments to the CNSC. CNL provided a number of technical documents to support their review.

MNO and CNL met in March 2018 and focused on the development of an MOU to create a framework for relationship building between CNL and the MNO. This MOU set the platform for MNO, AECL and CNL to enter into discussions on an LRTA. LTRA meetings continue with signing estimated in 2021. Another aspect of particular importance relating to the MOU was the CNL's provision of partial capacity to undertake a TKLUS. This was jointly funded by CNL and the CNSC. Information sharing occurred in follow-up to the March 2018 meeting. Further correspondence between the MNO and CNL occurred in 2018 culminating in a meeting and site visit in June 2018 and the signing of the MOU in December 2018.

The MNO and CNL met again in North Bay for a two-part meeting in late 2019. The first part involved discussions with the MNO Mattawa/Lake Nipissing Traditional Territory Consultation Committee Councilors. In the evening, a community information session for MNO citizens was held. This information session included a presentation by project representatives and the opportunity for questioning.

The MNO and CNL met in early October 2021 to extend the current MOU, supporting the MNO's continued participation and engagement on the NPD Closure Project. As well, meetings aimed at developing an LTRA between CNL, the MNO and AECL, to cover all of CNL's activities and operations in the region, are ongoing.

Traditional Knowledge and Land Use Study, VCs and Technical Reviews

In January 2019, the MNO provided a hydrogeological and archaeological technical review to the project. And in February 2019, the MNO shared the TKLUS, which gave insight into the traditional land and resource use of the MNO citizens in the region. CNL has incorporated information from this TKLUS into the revised draft EIS. Following the receipt of the TKLUS, in April 2019, CNL and the MNO held a VC workshop which also helped inform this EIS. In May 2020, CNL shared the revised draft EIS, which had been submitted to the CNSC in March 2020 with the MNO and inquired if there was further information from the MNO to be incorporated. In May 2021, CNL shared the sections of the EIS that had been updated to incorporate the conclusions and interpretations in the MNO TKLUS and outcomes of the VC workshop. In August 2021, CNL shared the VC list and drafts of sections 8.9 and 9.9 intended for the fall 2021 revised draft EIS submission to the CNSC, seeking to verify with the MNO that CNL had accurately and adequately incorporated the TKLUS information.

Comments on the draft EIS and Comments on the Draft follow-up Monitoring Plans

In April 2019, CNL provided initial responses to the MNO comments on the draft EIS. Later that same month, the MNO and CNL met to discuss these dispositions to the comments on the draft EIS. That fall, in October of 2019, the MNO provided further comments to the NPD Closure Project, on the previously provided drafts of the follow-up monitoring plans.

In November 2019, the MNO sent a formal letter detailing the MNO response to CNL's draft dispositions of the MNO comments on the 2017 draft EIS. This included verification on whether the MNO accepted CNL's dispositions or whether they required further information.

In the spring of 2020, following the submission of the revised EIS to the CNSC, CNL shared the March 2020 revised draft EIS and an updated IER TSD with the MNO.

CNL provided a complete set of dispositions to the MNO comments on the draft EIS, incorporating previous dialogue and feedback over the course of the past two years, in September of 2020.

In October 2020, the MNO requested meetings specifically related to monitoring and follow-up monitoring for the NPD Closure Project and the NSDF Project. In November 2020, representatives of CNL and the MNO Regional Consultation Committee met virtually to discuss the current and proposed EA Follow-up Program for the NPD Closure Project. In advance of the November meeting, CNL shared draft dispositions to the MNO's comments on the draft follow-up monitoring plans. The MNO and CNL also discussed what MNO involvement in monitoring with respect to the NPD Closure Project might look like. The MNO and CNL, including staff from CNL's Environmental Protection Program, held a meeting in February 2021. CNL and the MNO discussed CNL's current monitoring program and where the MNO could be involved in the future with respect to the NPD Closure Project. In August 2021, following a discussion on commitments, MNO confirmed their acceptance of CNL's responses to all EIS comments.

Commitments

In April 2021, CNL followed up with MNO on their review of CNL's dispositions and provided a preliminary table of commitments to MNO made through engagements and comment responses for the NPD Closure Project. The MNO shared further feedback on the development of commitments, through their comments on the *Table of Interests and Concerns* in July 2021. In October 2022, CNL provided MNO an update on the project and suggested commitments be established to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for review. CNL and the MNO met to discuss the draft commitments November 2022, the meeting resulted in the MNO accepting the commitment list as final.

Summary Table of Interests and Concerns

CNL shared the *Table of Interests and Concerns* (Table C-9 of Appendix C.3) with the MNO. The MNO shared written comments on the summary table and met with CNL in July 2021 to share feedback verbally on the summary table, including how the interests and concerns identified could be addressed with additional commitments. In August, CNL shared back the updated summary table of interests and concerns incorporating the July feedback seeking verification that the feedback was adequately incorporated. CNL

has since followed up with the MNO in August and September seeking verification that the summary table represents the MNO's interests and concerns. CNL indicated that the intention was to submit the revised EIS in the fall of 2021 and any additional input on the content for this submission would be required in a timely manner. The MNO indicated that with the establishment of several commitments via the LTRA that concerns were resolved and that they had no further comments on the topics within the *Table of Interests and Concerns.* In January 2022, the CNSC informed CNL that the December 2021 EIS submission was incomplete. The CNSC staff directed CNL to revise the *Tables of Interests and Concerns* for clarity. CNL revised the MNO's *Table of Interests and Concerns* and shared the new table with the MNO in April 2022 asking that the MNO verify that the new table retained the MNO's interests and concerns. In June 2022, the MNO confirmed that they had reviewed the table and it was aligned with the earlier table, which had been verified.

6.2.4.4.2 Feedback

The MNO and CNL have had extensive engagement on the NPD Closure Project, which has led to the development of the interests and concerns topics. The MNO submitted formal comments on the 2017 EIS to the CNSC and shared these with CNL. Beyond those interests and concerns raised through formal EA process, the MNO also brought forward a number of interests and concerns through direct engagement with CNL. This included interests and concerns identified in the MNO TKLUS, correspondence and discussion (including workshops on VCs), comments provided on technical documents (including the three draft follow-up monitoring plans, the hydrogeological report and archaeological assessment) and through discussion during meetings.

The interests and concerns from the MNO are briefly identified below, and described in detail in Section 6.2.4.4.3 Summary Discussion of Interests and Concerns and the *Table of Interests and Concerns* in Table C-9 of Appendix C.3

Accidents & Malfunctions. The MNO expressed concern about the potential accidents and malfunctions (including traffic accidents) related to the proposed project.

Alternatives. The MNO expressed concerns about the alternatives assessment and their involvement in it, as well as the suitability of in-situ disposal.

Archaeology and Cultural Heritage. The MNO expressed an interest in archaeology and cultural sites. The MNO consultant provided supplemental review comments in January 2019, one focused on the archaeological potential of the site.

Atmospheric Environment. The MNO expressed concerns about the baseline data used to develop spatial boundaries for the atmospheric environment, and about stack releases.

Baseline Characterization. The MNO expressed concerns about the inclusion of Métis-specific socioeconomic data and effects, historic soil contamination, current contamination in the Kichi-Sìbì (Ottawa River), geological and hydrogeological site characterization, and MNO involvement in baseline data collection.

Engagement. Early in the engagement process the MNO expressed concern about lack of capacity to be involved in the NPD Closure Project. Both the MNO and CNL have indicated an interest in developing a

longer-term relationship. The MNO requested that CNL use the language “Métis Nation” instead of “Métis community”, as “community” minimizes the political structure and organization of the MNO.

EA Process and Methodology. The MNO reviewed the 2017 draft EIS and raised questions about EA methodology. The topics of interest included: assessment of residual effects and cumulative effects.

Environmental Effects and Mitigation Measures. The MNO reviewed the 2017 draft EIS and expressed some concerns with the environmental effects description, proposed mitigation and monitoring, and inclusion of the impact of negative perceptions from Métis citizens.

Indigenous Health. Initially, the MNO in their review of the 2017 draft EIS and verbally in sessions raised concerns about the human health assessment and more specifically about whether consumption of country foods was considered the lifestyle survey was comparable to Métis levels of food consumption.

Métis Rights and Interests and Traditional Uses. The MNO expressed concern about the assessment of impacts to Métis Rights and Interests, and requested capacity assistance to more deeply understand the potential impact of the project on Métis Rights and Interests including traditional uses.

Monitoring:

- **Input to and Future Involvement in Monitoring and Protection at NPD.** The MNO has expressed interest in better understanding the environmental program and monitoring at the NPD site and more generally.
- **EA Follow-up Monitoring.** The MNO reviewed the 2017 draft EIS and provided specific comments on follow-up monitoring. The MNO also submitted separate technical comments following their review of the draft Follow-up Monitoring Plans.

Socio-economics. The MNO reviewed the 2017 draft EIS and provided comments related to socio-economics.

Technical. In their review of the 2017 draft EIS, the MNO provided specific technical comments on: the local study area, the institutional control phase, changes to the project and benefits of those changes, and understanding impacts of groundwater on the facility.

Traditional Land and Resource Use and Cultural Impacts. The MNO identified the need and requested funding for a TKLUS. The MNO also raised a number of concerns related to traditional land and resource use and cultural impacts in their formal comments on the 2017 draft EIS.

Valued Components (VCs). The MNO expressed concern about incorporation of its interests into VCs for the NPD Closure Project as part of their comments on the 2017 EIS.

6.2.4.4.3 Summary Discussion of Interests and Concerns

The key interests and concerns discussed in this Section were derived from various engagements with the MNO (Table C-7 of Appendix C.3) as described in Section 6.2.4.4.1 of this EIS.

Accidents and Malfunctions

In their review of the 2017 draft EIS, the MNO voiced concerns about potential accidents and malfunctions related to the proposed project (including off-site transportation), and expressed the need for a procedure to be in place to notify and provide information to MNO citizens in the event of an accident or malfunction.

To address this concern, CNL has responded in writing to the MNO's comments, explaining where and how such events have been assessed. CNL dispositions referenced Section 9.12 of the EIS where potential effects from accidents and malfunctions are discussed and CNL provided clarification of on-site transportation activities and considerations from the MTO review of the project for off-site transportation impacts.

The NPD site has an Emergency Procedure that will remain in place and be updated as required throughout the Decommissioning Execution and Institutional Controls phases of this project. This procedure focuses on the prevention, mitigation of, preparedness for, response to, and recovery from a wide range of abnormal and emergency conditions including fires, floods, hazardous spills, loss of power, earthquakes, and tornados. The Emergency Procedure also defines the actions of specific staff/roles in such events. Following any of these emergency events, as soon as it is safe for staff to do so, site and facility condition will be evaluated, and any necessary actions will be taken to make repairs. The NPD Emergency Plan is developed and maintained in accordance with CNL's company-wide Emergency Preparedness Program that has been accepted to meet the CNSC's requirements (under REGDOC-2.10.1 – Nuclear Emergency Preparedness and Response).

CNL's Corporate Communications may activate its own local Emergency Information Centre to disseminate information to the public. In the event a site emergency occurs and escalates leading to potential off-site consequences, a Municipal Emergency Information Centre (MEIC) will be established by the municipality to provide emergency communications for the media and the public. This process will be followed for the NPD Closure Project.

Further, throughout all project phases (Decommissioning Execution, Institutional Controls and Post-Institutional Controls) CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above-ground natural hazards and extreme temperature change, and concludes that these events will have no undue effects on people or the environment around the site.

This concern has been resolved with MNO acknowledgement and acceptance of CNL's response on this topic in August 2021.

Alternatives

In their review of the 2017 draft EIS, the MNO expressed interest in the alternative means to carry out the project. Specifically, the MNO were concerned that they had no opportunity to provide input into the four proposed alternatives of the preferred in-situ disposal approach. In order to explain the in-situ disposal method as a technically feasible alternative, CNL provided the MNO with the AMA TSD. In response to this concern, CNL added some quantitative assessment of alternatives to the Alternative Means TSD such as the addition of a projected radiological dose and Industrial Safety risk to workers for each option. CNL

also incorporated additional information from the Alternative Means TSD directly into the revised draft EIS (Section 4.2) to provide greater clarity on how the alternative means was completed and what the results mean. As discussed above, CNL has shared the 2020 revised draft EIS with the MNO, as well as draft responses to the MNO's comments on the 2017 draft EIS. Alternative means was also the topic of many in-person meetings, enabling CNL to address ongoing concerns about the topic.

Following their review of CNL's dispositions to their concerns about alternative means, the MNO communicated that they would not be providing any additional feedback to CNL's responses to the 2017 draft EIS comments. CNL has committed to developing an LTRA with the MNO which will address their ongoing access to their traditional lands where the NPD site is located. Additionally, CNL is committed to continuing engagements with the MNO to enable collaborative work related to environmental monitoring, education, economic inclusion, and support for cultural activities.

This concern has been resolved with MNO acknowledgement and acceptance of CNL's response on this topic in August 2021.

Archaeology

During direct engagement about the NPD Closure Project, the MNO expressed interest in archaeology and cultural sites which CNL directly impact or occupy. In their review of the 2017 draft EIS, the MNO raised concerns about the lack of Métis history in the archeological study for the NPD site. CNL provides a summary of the archaeological assessment for NPD in Section 8.11.4 of the EIS and a description of Indigenous Cultural Resources and Ceremonies is provided in Section 8.9.3. The MNO's concerns are also addressed by the implementation by CNL to suspend decommissioning activities if undocumented archaeological resources are discovered. CNL and the MNO discussed specific concerns related to archaeology during several meetings in 2016 and 2018.

In November 2019, the MNO responded to CNL's April 2019 dispositions to their concerns and indicated that they fully accept CNL's responses to their specific questions. In May 2020, CNL shared the updated sections of the EIS which have been revised to incorporate the results of the MNO TKLUS. In August 2021, the MNO confirmed that they had no additional feedback regarding Archaeology at the NPD site. CNL is committed to developing an LTRA with the MNO which will ensure any emerging concerns from the MNO regarding archaeological artefacts will be addressed throughout the closure of the NPD site.

Atmospheric Environment

In its comments on the 2017 draft EIS, the MNO expressed concerns that the study area boundaries are limited and may not extend to far enough to encompass the area where intangible aspects of Métis way-of-life may be affected and where there is Métis citizens perceive there may be impacts from the project. The MNO also expressed concern about increases in C-14 releases from the stack in recent years.

CNL provided draft dispositions to the MNO's comments on the atmospheric environment, including clarification about the off-site locations used to characterize the baseline conditions of the atmospheric environment. With respect to the effects on Métis perception or intangible aspects of Métis way-of-life, CNL

is eager to learn more and discuss how these effects may be minimized, for example through participation in air monitoring activities.

In their review of CNL's dispositions in July 2021, the MNO confirmed that they will not be providing any additional feedback regarding the atmospheric environment aspects of the EIS; they expect that their concerns related to this topic will be addressed through an acceptable LTRA.

Baseline Characterization

In their comments on the 2020 draft EIS, the MNO expressed concerns about the inclusion of Métis-specific socioeconomic data and effects, historic soil contamination, current contamination in the Kichi-Sìbì (Ottawa River), geological and hydrogeological site characterization, and MNO involvement in baseline data collection.

In response to feedback from MNO on the baseline conditions of the aquatic environment at NPD, CNL collected sediment samples during a baseline characterization survey in the summer of 2020. These samples were analyzed for chemical and radiological contaminants of concern as well as benthic macroinvertebrates. Drone surveys were also performed to assess the baseline conditions of surrounding fish habitat. These surveys inform the follow-up monitoring plans for the NPD Closure Project.

CNL provided draft dispositions to the MNO's comments on baseline characterization and provided additional detail on the definition of site baseline conditions especially for the atmospheric and aquatic environments. The MNO confirmed that they had no additional feedback concerning some aspects of this topic. CNL considers other aspects of this topic have been substantially addressed, and that any outstanding aspects will be addressed through commitments made as part of the development of an LTRA with the MNO.

Engagement

Since being informed of the NPD Project Description, the MNO have expressed an ongoing interest in meaningful engagement with CNL and participation in the EA process. Since the 2016 submission of the Project Description, CNL has regularly invited the MNO to its public engagement activities, these included: project updates, information sessions, site visits and facility tours, and meetings where participants are given the opportunity to voice their concerns and ask CNL subject matter experts about the details of the proposed NPD Closure Project. Through an MOU signed in December 2018, CNL provided funding to enable the MNO to continue engaging with CNL throughout the NPD Closure Project regulatory review process. The MOU has enabled the MNO to assess the potential impact of the NPD Closure Project on their traditional rights and values; through the MNO, CNL supported the completion of an MNO TKLUS which the MNO shared with CNL in February 2019 and which CNL incorporated in the revision of the NPD EIS. Section 6.2.4.4.1 and Table C-7 of Appendix C.3 summarize the engagements between CNL and the MNO along with capacity assistance to enable the MNO to continue assessing the NPD Closure Project impacts on their community.

In August 2021, the MNO confirmed that they had no additional feedback concerning this topic. However, because many of the MNO's concerns are broad and not specific to the NPD Closure Project, CNL has commenced the development of an LTRA with the MNO to enable ongoing meaningful engagement beyond the NPD Closure Project. The agreement will also address any emerging concerns that MNO may have beyond the project's regulatory review.

EA Process and Methodology

In their comments on the 2017 draft EIS, the MNO voiced concerns regarding the residual effects of the NPD Closure Project on environmental components. Additionally, the MNO were concerned about cumulative effects, should the NPD Closure Project proceed. In addition to direct engagement activities (e.g., meetings, site tours), CNL addressed these concerns in a written disposition shared with the MNO in April 2019. In its disposition, CNL addressed specific comments from the MNO regarding the vulnerability of the environment to potential project effects. CNL referenced Section 9.1.2.1 and 9.1.2.2 in the EIS where identification and assessment of residual effects for the NPD Closure Project are summarized; Section 9.13 of the EIS discusses the process of evaluating cumulative effects as a result of the NPD Closure Project; and the DecomSA and PostSA TSDs. More recently in September 2020, CNL proposed a dedicated meeting with the MNO wherein effects on environmental receptors and mitigation measures could be discussed.

In August 2021, the MNO confirmed that they had no additional feedback concerning the EA Process and Methodology and that they expect concerns related to this topic will be addressed through an acceptable LTRA.

Environmental Effects and Mitigations

In their review of the 2017 draft EIS, the MNO expressed interest in the environmental effects of the NPD Closure Project and the mitigation measures that are proposed in the NPD EIS. In addition to direct engagement activities (e.g., meetings, site tours), CNL addressed these concerns in a written disposition submitted to the MNO in April 2019. In its disposition, CNL addressed specific comments from the MNO regarding the vulnerability of the environment to potential project effects.

CNL has indicated that it is willing to involve all Indigenous Nations, communities and organizations in its monitoring programs; the proposed follow-up monitoring for the NPD site is described in Section 12 of the EIS. In November 2020, CNL followed up with the MNO in a presentation focusing on the draft follow-up monitoring plans for the NPD Closure which included descriptions of the mitigation measures which will ensure residual effects are minimized during NPD Closure activities. A second meeting in February 2021 facilitated further discussion regarding MNO's involvement in long-term monitoring at NPD.

As an outcome of CNL engagement with the MNO, a preliminary discussion has been established between the MNO, CNL, and AECL to develop an LTRA which will provide capacity for direct engagement with environmental monitoring at the NPD site. In July 2021, the MNO confirmed that they had no additional feedback regarding CNL's dispositions to their comments on this topic. CNL will maintain open dialogue with the MNO through the development of the LTRA. The agreement will also address any emerging concerns that MNO may have beyond the project's regulatory review.

Indigenous Health

During previous engagement and as part of their review of the 2017 draft EIS, the MNO expressed concerns that their traditional food consumption levels are not reflected accurately in the human health assessment for the NPD site. The MNO voiced that they wanted to be directly involved in the scoping and execution of future lifestyle surveys to ensure adequate MNO representation. Additionally, the MNO requested that there be a separate consideration of Indigenous Health in the NPD EIS. In addition to direct engagement activities (e.g., meetings, site tours), CNL addressed these concerns in a written disposition submitted to the MNO in April 2019. CNL also explained that the PostSA TSD includes a self-sufficient receptor group; this receptor hypothesizes an Indigenous community with adults and children which use the area surrounding the disposal site, including the Kichi-Sìbì (Ottawa River), for hunting and gathering. Individuals in this community are assumed to obtain all of their food through hunting and gathering in the area. It is assumed that this receptor group would have increased consumption of fish and wild game. The predicted radiological dose to this group is well below the public dose limit. Overall, the EIS does not predict any adverse residual effects to human health or Indigenous health (Sections 9.8.3.5 and 9.10.3.5).

In order to enable ongoing meaningful engagement with the MNO, CNL provided support through an MOU with the MNO. Through the MOU, the MNO completed a TKLUS; the MNO shared with CNL in April 2019 and which contained information that CNL incorporated into the revised draft EIS.

In their verification of CNL's disposition regarding this topic of concern, the MNO voiced that they partially accept CNL's responses provided that they can review the final EIS and ensure the results of their TKLUS are adequately incorporated. In August 2021, the MNO confirmed that they had no additional feedback concerning this topic. Because many of the MNO's concerns are broad and not specific to the NPD Closure Project (for instance, future traditional lifestyles surveys would be relevant to all CNL sites and projects in the region), CNL has commenced the development of an LTRA with the MNO to enable ongoing meaningful engagement beyond the NPD Closure Project.

As part of the MNO's review of the EIS an interest to participate in future diet and harvest studies conducted by CNL was expressed. As committed to, CNL informed the MNO about the opportunity to participate in a diet and harvest study to support the update of derived release limits for airborne and liquid emissions at the Chalk River Laboratories Site. Of particular interest for CNL are the diets and harvesting activities of Metis living in communities closest to the CRL Site. The MNO hosted a community information session October 2022, the session gave citizens the opportunity to participate in a survey to ensure that the environmental models developed by CNL at the Chalk River Laboratories adequately consider the diet and harvest patterns of Métis citizens. CNL shared the results of the study April 2023.

Métis Rights and Interests and Traditional Uses

In their review of the 2017 draft EIS, the MNO expressed interest in the inclusion of Métis rights into the EA process. As such, in order to document Métis rights, interests, and traditional uses, the MNO requested capacity to better understand the potential impact of the NPD Closure Project. In addition to direct engagement activities (e.g., meetings, site tours), CNL addressed these concerns in a written disposition submitted to the MNO in April 2019. In their written response, CNL explains that the MNO, MNO North

Bay, MNO Mattawa Métis, and MNO Sudbury are included via the Mattawa/Lake Nipissing Traditional Territory Consultation Committee in Table 6.2-1.

In order to enable ongoing meaningful engagement with the MNO, CNL supported participation through a MOU with the MNO. Through the MOU, the MNO completed a TKLUS; the MNO shared the report with CNL in April 2019 and which contained information that CNL incorporated into the revised draft EIS.

In their disposition to the MNO, CNL expressed its opinion that the NPD Closure Project will not impact MNO rights as its activities will not affect off-site traditional land use. While the EIS does not predict any adverse residual effects on the traditional land and resource use (Section 9.10.3.3), the MNO remain concerned that perceptions about the NPD site will lead to avoidance by its citizens which can impact their traditional use and harvesting rights. Because this is a broad concern and not specific to the NPD Closure Project, CNL has commenced the development of an LTRA with the MNO to enable ongoing meaningful engagement beyond the NPD Closure Project. The agreement will also address any emerging concerns that MNO may have beyond the project's regulatory review.

Monitoring

In their review of the 2017 draft EIS, the MNO expressed interest in better understanding the environmental protection program and long-term monitoring at the NPD site; the MNO also expressed interest in the follow-up monitoring for the NPD Closure Project. In addition to direct engagement activities (e.g., meetings focusing on environmental monitoring in 2017 and 2020), CNL addressed these concerns in a written disposition submitted to the MNO in April 2019. In their written response, CNL references the Draft Follow-up Environmental Monitoring Plan, Effluent Monitoring Plan and Groundwater Monitoring Plan for the NPD Closure Project that are detailed in Section 12 of the EIS. During meetings wherein environmental monitoring for the NPD Closure Project were discussed, SMEs directly addressed specific questions and concerns from MNO members about environmental receptors. Critically, CNL provided the MNO with the draft follow-up monitoring plans for the NPD Closure Project in order to invite feedback and enable the consideration and inclusion of MNO values and interests. CNL expressed its interest in involving all Indigenous Nations, communities and organizations in its EA Follow-up Programs, this includes the NPD Closure Project.

As an outcome of CNL engagement with the MNO, a preliminary discussion has been established between the MNO, CNL, and AECL to develop an LTRA which will provide capacity for direct involvement in environmental monitoring and related activities at the NPD site. In their review of CNL's dispositions in July 2021, the MNO confirmed that they will not be providing any additional feedback about this topic; they expect that their concerns related to environmental monitoring will be addressed through an acceptable LTRA. The agreement will also address any emerging concerns that MNO may have beyond the project's regulatory review.

Socio-economics

In their review of the 2017 draft EIS, the MNO expressed interest in the inclusion of further information on socio-economics for Indigenous Nations, communities and organizations. In addition to direct engagement activities (e.g., ongoing discussions), CNL addressed these concerns in a written disposition submitted to

the MNO in April 2019. In their written response, CNL referenced that Section 9.10.1.2 of the EIS has been revised to describe how Indigenous socio-economic values interact with NPD Closure Project activities; this section also discusses mitigation measures designed to ensure Indigenous socio-economic receptors are not adversely impacted by NPD Closure activities.

In their disposition, CNL reiterated that the EIS does not predict any adverse residual effects on the Indigenous socioeconomic and health (Section 9.10.1.4 and 9.10.2.4). CNL has considered Indigenous consumption of country foods under Human Health (Section 8.8 and 9.8 of the revised draft EIS) and CNL has prepared a stand-alone section on Indigenous Health (Section 8.10.2 and 9.10.2 of the revised draft EIS).

In their review of CNL's dispositions in July 2021, the MNO confirmed that they will not be providing any additional feedback regarding socio-economic interests; they expect that their concerns related to environmental monitoring will be addressed through an acceptable LTRA.

Technical Aspects of the Environmental Assessment

In their review of the 2017 draft EIS, the MNO requested further clarification in order to understand technical aspects of the NPD Closure Project EA such as the study areas, the institutional control period, changes to the project and the benefits of these changes, and understanding impacts of groundwater on the facility. Since April 2019, the MNO and CNL have been sharing comments and dispositions back and forth to work towards addressing different concerns related to technical aspects of the EA. In the dispositions to MNO's comments CNL provided: an explanation of how the local study area for the project was selected, clarification that the institutional control period will last a minimum of 100 years, clarification of the PostSA findings related to how groundwater will impact the facility in the long-term, and has revised the EIS to reflect how Indigenous feedback has resulted in changes made to the project.

CNL is committed to improved economic participation and benefits for Indigenous peoples from its projects. In response to Call to Action #92 in the Truth and Reconciliation report to actively promote economic opportunity for Indigenous Businesses, CNL has developed an IRP Strategy. AECL, the federal Crown Corporation that provides oversight of CNL, has reviewed, and endorsed the strategy. CNL shared the IRP strategy with the MNO in March 2023. To ensure that CNL can begin to take a more active role in stimulating the Indigenous business sector in the future, the strategy became effective as of April 2023, and includes targets for 2023/2024. CNL recognizes that there will be ongoing opportunities to enhance its approach to reflect feedback from Indigenous Nations, communities and organizations. In their review of CNL's dispositions in July 2021, the MNO confirmed that they will not be providing any additional feedback regarding technical aspects of the EIS; they expect that their concerns related to this topic will be addressed through an acceptable LTRA.

Traditional Land and Resource Use and Cultural Impacts

During direct engagement and in their review of the 2017 draft EIS, the MNO identified the need to understand the impact of the NPD Closure Project on Métis traditional land uses and way of life; the MNO therefore requested funding for a TKLUS to inform their interpretation of the effects of the NPD Closure Project. In February 2019, the MNO shared the TKLUS with CNL; the results from the MNO

TKLUS have been incorporated into the revision of the NPD EIS (Section 8.9). In addition to direct engagement activities (e.g., ongoing discussions), CNL has been addressing these concerns through continued submission of written dispositions to the MNO beginning in April 2019. In these responses, CNL discussed traditional land use and way of life as it relates to the NPD site, traditional food consumption levels, and negative perceptions associated with the use of the NPD site throughout the postclosure period. CNL reiterated that the EIS predicts no residual effects on traditional land and resource use (Section 9.9.4), Indigenous Health (Section 8.8), and Indigenous consumption of country foods (Section 9.8).

In their review of CNL's dispositions in July 2021, the MNO confirmed that they will not be providing any additional feedback regarding traditional land use and cultural impacts of the NPD Closure Project; they expect that their concerns related to this topic will be addressed through an acceptable LTRA. CNL is committed to enabling the MNO to be directly involved in CNL monitoring programs (see earlier "Environmental Monitoring" section). CNL will maintain collaborations with the MNO to be inclusive of MNO values and building trust in land use.

Valued Components (VCs)

During direct engagement and in their review of the 2017 draft EIS, the MNO expressed concerns about the selection of VCs in the NPD Closure Project EA; specifically, they were concerned that the VCs are not representative of Métis interests. As they detailed in the TKLUS report, the MNO were concerned about the selection of habitat for wildlife (specifically for moose, partridge, grouse, rabbit, deer, duck, and goose), areas of vegetation (oak, ground hemlock, berries), and small and large game harvesting areas. The MNO were also seeking appropriate representation of Métis cultural practice sites, trapping areas, fish harvesting areas, and harvesting areas for other natural materials. In order to address these concerns, CNL provided funding through a MOU with the MNO. The MOU, allowed for the inclusion of an evaluation of the VCs by the MNO that was appended to the TKLUS report. The MNO shared their completed TKLUS report with CNL in April 2019 and which contained information that CNL incorporated into the 2020 revised draft EIS. In addition to direct engagement activities (e.g., meetings, community information session), CNL has been addressing these concerns through continued submission of written dispositions to the MNO beginning in April 2019. In these responses, CNL discussed that some Indigenous-specific VC are represented by species that were already evaluated in the EIS; Tables 6.3-1 and 6.3-3 of the EIS highlight how VCs identified by MNO have been evaluated by representative species. Section 8.9 and 9.9 have been revised to include expanded descriptions of tradition uses and new VCs that were added and evaluated based on feedback from the MNO. Mitigation measures which are proposed to minimize impacts to these VCs are described in Section 9.6.3.2.

In August 2021, the MNO verified that they had no additional feedback regarding the VCs selected for the NPD Closure Project EIS; they expect that their concerns related to this topic will be addressed through an acceptable LTRA.

Summary

At present, this summary of interests and concerns is a consolidation of all the interests and concerns the MNO have brought forward on the NPD Closure Project. While CNL recognizes the MNO's concern on aspects of monitoring and a long-term relationship, CNL notes that these concerns go beyond the scope of this project. CNL will continue to document and share with the CNSC in CNL's subsequent IER TSD any additional feedback provided by the MNO relative to aspects of monitoring and a long-term relationship.

The project-specific concerns raised by the MNO are considered in the context of the EIS. CNL has shared with the MNO a preliminary table of commitments that reflect the measures proposed by CNL to address the concerns raised to date by the MNO. CNL will continue to respond to questions and concerns from the MNO through its ongoing engagement efforts. CNL will seek to understand those concerns in the context of the EIS and the NPD Closure Project and commits to continue to work together with the MNO to receive their feedback on the project.

6.2.4.4.4 Verification

The MNO have provided several key inputs identifying interests and concerns related to the NPD Closure Project including comments on the 2017 draft EIS, technical reviews on the draft follow-up monitoring plans, feedback on VCs and the MNO's TKLUS Report. To confirm CNL has adequately captured the MNO's interests and concerns, position and knowledge, the MNO and CNL underwent a verification process where CNL provided key documentation to the MNO for their review and feedback. Through this process, the MNO has reviewed and provided feedback on their *Table of Interests and Concerns*, list of VCs and the draft follow-up monitoring plans. While not all of the MNO's concerns have been mitigated by this process to date, CNL has made every effort to verify that the MNO's position, interests and concerns were adequately characterized. CNL continues to work with the MNO to address their concerns through ongoing discussions. And, as stated above, the MNO and CNL continue to work towards having a long-term relationship agreement in place in the near term. Details of the interactions that formed the verification process between CNL and the MNO are captured in the IER TSD.

6.2.4.4.5 Next Steps

CNL's commitments within the "Next Steps" column of the *Table of Interests and Concerns* in Appendix C.3, are reflective of the feedback CNL has received to date in the EA process from the MNO's technical review of the 2017 draft EIS, MNO's supplementary technical comments on hydrogeology and archaeology, MNO feedback on the draft follow-up monitoring plans, and the MNO TKLUS – as well as the direct feedback shared by the MNO on the *Table of Interests and Concerns*.

CNL recognizes that MNO involvement in follow-up monitoring activities is a key area of ongoing interest.

MNO and CNL, along with AECL, will continue to engage towards developing a long-term relationship agreement, more broadly related to CNL's activities and operations in the region.

6.2.4.5 Algonquin Anishinabeg Nation Tribal Council (AANTC)

The Algonquin Anishinabeg Nation, also referred to as the Algonquins of Western Quebec, or AANTC, was voluntarily established in 1992. Its purpose was to provide representation in land claim development and negotiation for member nations. Traditional territories claimed include the Kichi-Sìbì (Ottawa River) valley. At its inception, it comprised five member nations: Kebaowek (formerly known as Eagle Village) First Nation, Lac Simon First Nation, Abitibiwinni First Nation, KZA, and Long Point First Nation (Winneway). Later, two other communities joined the AANTC. A fuller description of the AANTC can be found in Chapter 3 of the IER TSD.

6.2.4.5.1 Engagement

Table C-10 of Appendix C.4 includes a summary of key engagement activities that have occurred with AANTC on the NPD Closure Project as of March 31, 2024. A complete list of engagement activities can be found in Appendix M (Table M-1) of the IER TSD. CNL has also provided a narrative summary of engagement with AANTC.

Relationship-building

In July 2016, CNL sent the AANTC a letter to introduce the proposed NPD Closure Project that included a request for community input on any potential adverse impacts from project activities followed by a second letter in November 2016, which inquired about AANTC asserted rights and traditional activities. CNL did not receive a response at this time from the AANTC.

In April 2017, the AANTC leadership and CNL met to discuss CNL projects, specifically the NPD Closure Project and the NSDF Project. In November 2017, CNL shared the draft EIS and the IER. CNL invited AANTC participation in the public comment period for the draft EIS and requested community input and feedback for incorporation into the project.

In late 2017 the AANTC reached out to CNL indicating interest in reviewing the draft EIS, supporting materials and submitting comments to the CNSC. CNL shared the requested documents and hosted a meeting and site visit for representatives of the AANTC, including their technical consultant, in January 2018.

In 2021, as a result of engagement on the NSDF Project CNL was made aware that KFN and the KZA were not getting the direct engagement with their individual Nations through the AANTC. As a result, CNL reiterated the offer to establish an agreement to ensure each Nation had the capacity to participate in the EA for the NPD Closure Project.

Comments on the draft EIS and concerns with effluent

Following the meeting and site visit to NPD in 2018, CNL shared a number of further documents requested by the AANTC. The AANTC submitted comments on the draft EIS to the CNSC and in February 2018, as result of this review, the AANTC Grand Chief wrote a letter to the CEO of CNL, copying the CNSC, requesting that specific effluent releases from the NPD site cease. The practice was ceased and now water

collected in facility sumps is sent to the Waste Treatment Centre at CRL for treatment. The last release of liquid from sumps in the NPD facility to the Kichi-Sìbì (Ottawa River) occurred in 2017.

In May 2020, CNL shared the March 2020 revised draft EIS with the AANTC requesting any additional feedback from the AANTC that may have been missing from the submission.

In June 2020, the AANTC requested a hard copy of the March 2020 revised draft EIS that had been sent earlier and indicated that they would be responding to the March 2020 revised draft EIS with comments.

CNL shared an updated and complete set of responses to the AANTC comments on the 2017 draft EIS in September 2020, which was followed by the French translation of these comments and dispositions in early October 2020. In late October 2020, the consultant for the AANTC reached out to CNL with a number of follow-up questions. CNL and the AANTC's consultant corresponded back and forth over several weeks in late 2020 to clarify the CNL dispositions to the AANTC comments.

CNL followed up with the AANTC again to see if there was additional feedback on CNL's dispositions in April 2021.

Other Engagement

Throughout 2018, 2019, 2020, 2021, 2022 and 2023 the AANTC received invitations to all engagement activities and attended a breakfast briefing in April 2019. At that time, a tentative meeting date of May 2019 between CNL and the AANTC was discussed. In preparation for the meeting CNL sent the draft dispositions to the formal EIS comments submitted by the AANTC for review prior to meeting. The AANTC did not commit to a meeting date. In late 2019 CNL provided further requested documents on the NPD Closure Project to the AANTC.

Early in 2020, the AANTC requested an update on the project and timeline for the NPD Closure Project EA, which CNL provided. In the spring of 2020, CNL shared the March 2020 revised draft EIS, which had been submitted to the CNSC, as well as the updated IER.

As the NPD progressed through the EA process CNL continued to share information with the AANTC. This includes updates in the fall of 2022, winter and spring of 2023. CNL did not receive responses from the AANTC.

Letters to the Prime Minister and Natural Resources Canada

In May of 2020, the AANTC and KFN submitted a joint letter to the Prime Minister outlining issues and concerns that included the NPD Closure Project, copying CNL: Letter from AANTC August 26 2020. In August 2020, the AANTC and KFN submitted a second letter to the Minister of Natural Resources outlining similar concerns: Letter from AANTC August 26 2020. In September 2020, the AANTC informed CNL that they would not be willing to meet again until the latest letter sent to the Minister receives a response and requests are met. In November 2020, the Minister of Natural Resources responded to the AANTC and KFN acknowledging the Chalk River Environmental Assessment projects: Letter from Minister November 5 2020. Also in November 2020, the CNSC responded to the AANTC and KFN: Letter from CNSC November 25

2020. In January 2021, KFN and AANTC submitted a third letter to the Minister of Natural Resources indicating the need to meet to discuss Indigenous consultation and engagement for the Chalk River nuclear assessment projects. In May 2021, the AANTC and KFN sent a letter to the Minister of Natural Resources reiterating these concerns. While many of these concerns are related to the Government of Canada, CNL is interested in meaningful engagement with the AANTC and KFN on the NPD Closure Project.

Discussions on an Agreement

CNL initiated discussions with the AANTC in late May to establish a contribution agreement to ensure support of the AANTC's participation in the EA process. The initial contribution agreement meeting with the AANTC was in June 2020. CNL attempted to coordinate a second meeting on establishing a contribution agreement over the summer of 2020 and in August 2020 the AANTC informed CNL that they would not engaging with CNL until there was a response from the Minister of Natural Resources to earlier TSD correspondence, which began in May of 2020. CNL has not heard back directly from AANTC representatives in response to CNL's ongoing correspondence to the AANTC since then.

Commitments

In April 2021, CNL followed up with AANTC on their review of CNL's dispositions, provided a project status update and a preliminary table of commitments to AANTC made through engagements and comment responses for the NPD Closure Project. Later in the month, the AANTC, along with KFN, responded by letter to CNL on this list of commitments, indicating that this was not acceptable to them and that proper engagement was requested. In April 2021 CNL responded by letter to the AANTC and KFN indicating interest in meeting to discuss a mutually acceptable list of commitments. In October 2022, CNL sent a letter to the ANNTC providing a project update and the engagement status with the AANTC. CNL stated it is committed to recording the ANNTC's interests and concerns into the EIS. CNL outlined the proposed next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL offered to discuss capacity and establish commitments before December 2022. CNL did not receive a response from the AANTC. CNL has continued to reach out to the AANTC.

Summary Table of Interests and Concerns

In June 2021, CNL shared a draft summary of interests and concerns for the AANTC and is seeking to verify this summary with the AANTC. CNL followed up with the AANTC three times in July and August on the *Table of Interests and Concerns*, and expressed interest in continuing with contribution agreement discussions to support AANTC participation in the EA. In January 2022, the CNSC informed CNL that the December 2021 EIS submission was incomplete. The CNSC staff directed CNL to revise the *Tables of Interests and Concerns* for clarity. CNL developed a simplified *Table of Interests and Concerns* (Table C-12 in Appendix C.4), and a table which maps how this simplified table relates to detailed input and feedback from the AANTC (Table C-11 in Appendix C.4). The new table was shared with the AANTC in April 2022 requesting that the AANTC verify that the new table retained the AANTC's interests and concerns. CNL followed up in May 2022 and June 2022 offering funding to support the review. In June, CNL requested that the AANTC respond before the end of the month on whether the AANTC was interested in reviewing the revised table.

Due to the importance of the summary table of interests and concerns and the AANTC's input on verifying its completeness and accuracy, CNL share the most updated version of this table with the AANTC in May 2023. CNL requested a response on the table.

6.2.4.5.2 Feedback

The AANTC and CNL have been engaging on the NPD Closure Project since 2017, which have led to the development of the interests and concerns topics. The AANTC submitted formal comments on the 2017 EIS to the CNSC and shared these with CNL. The AANTC reiterated these interests and concerns that were brought up in the formal EA process and also brought forward additional interests and concerns through direct engagement with CNL. This included interests and concerns identified through correspondence and discussion during meetings, for instance, the need for French language communications.

The interests and concerns from the AANTC are briefly identified below and then detailed in the Summary Discussion of Interests and Concerns – Section 6.2.4.5.3 and the *Table of Interests and Concerns* in Table C-12 of Appendix C.4:

Alternatives. The AANTC expressed concern that the AMA does not provide sufficient detail, or assess all potential effects.

Baseline Characterization. The AANTC raised concerns about the geological and hydrogeological characterization of the site, including bedrock flow system; and groundwater and surface water quality.

Engagement. The AANTC identified the importance of meaningful Indigenous participation. The AANTC also indicated a need for capacity to support their technical review of the EIS.

EA Process and Methodology. The AANTC questioned the continued use of *CEAA* 2012 for the NPD Closure Project rather than the new *IAA*.

EIS - Official Languages. The AANTC requested that the EIS be available in both English and French.

Monitoring. The AANTC raised several concerns about the future monitoring of the NPD site. The AANTC has expressed that CNL should monitor for as long as is necessary to ensure protection of the environment. The AANTC has indicated that they would like to be informed of monitoring program results, and have them reviewed by independent researchers. The AANTC expressed concerns about lack of detail in the groundwater and surface water quality monitoring programs.

Technical. The AANTC expressed general concern about the project moving too fast, and concerns about the potential effects to groundwater and surface water quality.

6.2.4.5.3 Summary Discussion of Interests and Concerns

The key interests and concerns discussed in this Section were derived from various engagements with the AANTC (Table C-10 in Appendix C.4) as described in Section 6.2.4.5.1 of this EIS.

Alternative Means

In their review of the 2017 draft EIS, the AANTC expressed interest in alternative means to carry out the NPD Closure Project. In December 2017, the Alternative Means TSD was shared with the AANTC along with all other NPD TSDs in order to support the AANTC's review of the 2017 draft EIS. The AANTC was of the opinion that the AMA needed to be expanded and rewritten to better articulate the relative advantages and disadvantages of each alternative.

In order to address this concern, CNL revised the Alternative Means TSD and added a quantitative assessment of alternatives such as a projected radiological dose and Industrial Safety risk to workers for each option. The results of this additional assessment were incorporated into Section 4.2 of the EIS to support the results and clearly describe the implications of the alternatives assessment. CNL will maintain open dialogue with the AANTC to address this and emerging technical concerns; similarly, CNL will continue to seek verification that its dispositions adequately address all AANTC concerns specifically related to the NPD Closure Project.

Baseline Characterization

In the AANTC's comments on the 2017 draft EIS, concerns with the geological and hydrogeological characterization of the site were raised. Specifically, the AANTC were concerned about the NPD bedrock flow system and groundwater and surface water quality. In response to AANTC's concerns, CNL completed additional geoscientific characterization and updated its geosynthesis report in May 2019 and September 2020 (Section 8.5). Additionally, the groundwater flow modelling used to define future hydrogeological conditions was updated to support the PostSA TSD. CNL provided the geosynthesis and groundwater modelling technical supporting documents to the AANTC in December 2017. CNL also held a meeting with the AANTC at the NPD site in January 2018 to provide an overview and opportunity to discuss interests and concerns around the NPD Closure Project.

In order to address AANTC's concerns about the assessments of the geological and hydrological environments, CNL provided technical supporting documents, including the 2020 draft EIS, to support direct dispositions to comments in November 2020. Since its dispositions, CNL has not received any new feedback from the AANTC regarding baseline characterization for the NPD Closure Project. Through planned Working Group meetings, CNL will continue to engage with the AANTC to discuss any outstanding concerns about the NPD Closure Project.

Engagement

Since its early engagement regarding the NPD Closure Project, the AANTC has consistently sought meaningful Indigenous participation and adequate Crown consultation in EAs for designated projects. This concern was directly raised with the Minister of Natural Resources. While CNL has hosted several engagements with the AANTC (several meetings including a site visit in 2016 and 2018), the AANTC's

concerns were very broad and cannot be completely addressed by the NPD Closure Project. Although CNL attempted further correspondence with the AANTC between July and August 2020, in September 2020, the AANTC informed CNL that they would not be willing to meet again until the latest letter sent to the Minister received a response and requests are met. In April and August 2021, CNL attempted to reach out to the AANTC to restart discussions around the development of a contribution agreement; as of November 2021, CNL has not heard further interest from the AANTC in the development of an agreement.

As communicated by AANTC during engagement activities, CNL recognizes that securing AANTC's capacity to conduct a technical review of the NPD EIS is very important. In June 2020, CNL met with AANTC to discuss an agreement or work plan to provide support for a technical review of the EIS through a contribution agreement. CNL has since followed up with the AANTC regarding this initiative; however, CNL has not received further comments from the AANTC regarding this interest. CNL will continue to follow-up with the AANTC on provision of capacity to support ongoing involvement in the EA process. CNL will also ensure engagement activities are undertaken in English and French.

Within its role as a project proponent, CNL will continue to follow up with the AANTC on interests to address any concerns specific to the NPD Closure Project.

EA Process and Methodology

The AANTC directly corresponded with the Minister of Natural Resources to express their concern that the NPD Closure Project EA should be subject to the *IAA* instead of *CEAA, 2012*. While the topic of regulatory requirements for an EA process is broad and not specific to the NPD Closure Project, CNL recognizes the importance of addressing this concern. The NPD EIS was revised to include a reference to the *IAA* transitional provisions for continuing the NPD Closure Project EA under *CEAA, 2012* given that commenced under *CEAA, 2012* before the *IAA* was legislated in 2019 (Section 3.5 of the EIS).

Through future engagements, CNL will continue to follow up with the AANTC and seek to address any emerging concerns regarding the EA process for NPD.

EIS Official Languages

In 2017, the AANTC requested that the EIS be published in French. CNL responded to this request and provided both the 2017 draft EIS and the 2020 revised draft EIS in French for public review. The final EIS, federal and provincial comments, and public comments that were made in French along with their subsequent responses will be made available in both official languages, as outlined in Appendix A to the CNL-CNSC Administrative Protocol for the Nuclear Power Demonstration Closure Project (Step 18). Following the immediate transition from in-person meetings to remote engagements, CNL has hosted quarterly (and later, bi-monthly) webinars in English and French; questions and answers at the end of each webinar were also spoken in both English and French. CNL has also offered simultaneous interpretation to accommodate meetings with the AANTC. Written dispositions addressing AANTC comments were provided in both English and French. All engagements with the AANTC will be offered in both official languages.

Monitoring

Throughout previous engagement activities and during their review of the 2017 draft EIS, the AANTC has consistently expressed the importance of protecting the environment against hazardous impacts as a result of the NPD Closure Project activities. The AANTC communicated their concern for future monitoring of the NPD site, seeking assurance that CNL will monitor for as long as is required. In response to these concerns, CNL shared the draft follow-up monitoring plans with the AANTC in December 2019. CNL has also facilitated webinars which focus on monitoring activities proposed for the NPD. In its disposition, CNL communicated that the EIS describes, at a high level, the follow-up monitoring plans for the project and elaborates on the three programs, in particular: Draft Follow-up Environmental Monitoring Plan, Effluent Monitoring Plan and Groundwater Monitoring Plan (Section 12). CNL has indicated it is willing to involve the AANTC in monitoring activities for the NPD Closure Project. CNL also discussed in its disposition to the AANTC that the Institutional Control period, which will be in place for at least 100 years (Section 5.2.1.2 of the EIS), will include regulatory oversight of the NPD site. This includes appropriate environmental monitoring for as long as necessary to ensure the grouted facility performs as expected and human health and the environment remain protected.

The AANTC also expressed interest in obtaining the follow-up monitoring results and conducting independent review. CNL has provided an explanation of how the results will be made available to Indigenous Nations, communities and organizations and the public, as well as being submitted to the Canadian Nuclear Safety Commission (as the Responsible Authority).

CNL is committed to continuing engagements with the AANTC regarding the follow-up monitoring for the NPD Closure Project. Workshops will be offered to address any outstanding questions and seek feedback about monitoring from the AANTC perspective. Additionally, CNL continue to follow up with the AANTC to discuss how they can be involved with monitoring programs at NPD.

Technical

In their comments on the 2017 draft EIS, the AANTC expressed technical concerns about the NPD, including concerns about potential impacts on groundwater and surface water quality. The AANTC also expressed an interest in understanding the decision-making behind the project timelines.

In response to the AANTC's technical concerns, CNL explained the assessments of impacts on surface water and groundwater quality that have been carried out. The NPD EIS does not predict any adverse residual effects resulting from NPD closure activities to surface water (Section 9.3.3.3) and aquatic (9.4.3.3) environments. In 2018, in response to concerns initially raised by the AANTC, CNL ceased the practice of discharging liquid effluent from the facility sumps to the Kichi-Sìbì (Ottawa River). Effluent which is collected in the facility sumps at NPD is now transported to the Waste Treatment Centre at the CRL site. Section 9.3.3.2 of the revised draft EIS discusses the mitigation measures that will be implemented during the NPD Closure Project to ensure the protection of the surface water environment (e.g., any liquids generated will be managed as a non-routine discharge, meaning that the liquid will be sampled and managed appropriately depending on the analysis results). Furthermore, Section 9.4.3.2 describes how the aquatic environment is similarly protected by the mitigations employed to protect other environmental components (surface water, atmospheric, and geological and hydrogeological). As mentioned, the 2020

revised draft EIS (in digital and hard copy) was provided to the AANTC and CNL understood that the AANTC was reviewing the updated document from correspondence in July 2020.

CNL also responded to the AANTC's concerns about project timeline, explaining the roles of CNL and the regulatory authority (the Canadian Nuclear Safety Commission) and how the timeline allows for participation and input from Indigenous Nations, communities and organizations.

In its revision of the NPD draft EIS, CNL considered and incorporated the concerns from the AANTC related to technical aspects of the EA. Through ongoing engagements, CNL will maintain open dialogue with the AANTC to continue receiving feedback.

Summary

At present, this summary of interests and concerns is a consolidation of all the interests and concerns the AANTC have brought forward on the NPD Closure Project. The project-specific concerns raised by the AANTC are considered in the context of the EIS. CNL has shared with the AANTC a preliminary table of commitments that reflect the measures proposed by CNL to address the concerns raised to date by the AANTC. CNL will continue to respond to questions and concerns from the AANTC through its ongoing engagement efforts. CNL seeks to understand the AANTC's interest and concerns in the context of this EIS and the NPD Closure Project and commits to continue to work together with the AANTC to receive their feedback on the project.

6.2.4.5.4 Verification

The AANTC have provided several key inputs, identifying interests and concerns related to the NPD Closure Project including comments on the 2017 draft EIS, which detail a hydrogeological review, and correspondence. To confirm CNL has adequately captured the AANTC's interests and concerns, position and knowledge, CNL provided key documentation to the AANTC for their review and feedback. To date, CNL has made every effort to verify that the AANTC's position, interests, and concerns were adequately characterized and these efforts are documented in the IER TSD. CNL continues to reach out to the AANTC.

6.2.4.5.5 Next Steps

CNL's commitments within the "Next Steps" column of the *Table of Interests and Concerns* in Appendix C.4, are reflective of the feedback CNL has received to date in the EA process from the AANTC's technical review of the 2017 draft EIS. CNL will continue to follow up with the AANTC. Should the AANTC bring forward any new concerns or interests through this ongoing engagement or regulatory proceeding, CNL will seek to understand those concerns in the context of the EIS and the project and commits to continue to work together with the AANTC to receive their feedback on the project.

6.2.4.6 Kebaowek First Nation

KFN is one of the eleven currently federally recognized Algonquin communities within the Algonquin Nation. Nine are located in Québec and two in Ontario. Algonquin rights and title extend to lands on both sides of the Ottawa River, lands that British colonial law has placed within the boundaries of either the province of

Ontario or Québec. On January 23, 2013, KFN, along with WLFN and TFN jointly released a Statement of Asserted Rights which summarizes the Aboriginal rights, including title, which the three First Nations assert and provides detailed evidence to substantiate it. Copies of the Statement of Asserted Rights, maps and background documentation were transmitted to the Governments of Canada, Quebec and Ontario in January 2013. KFN have not relinquished Aboriginal rights over lands that straddle the Kichi-Sìbì (Ottawa River) basin on both sides of the Quebec-Ontario boundary. The reserve is situated on the shore of Lake Kipawa to the northeast of Témiscaming, Quebec and as well the community has a membership office in Mattawa ON. KFN has a membership of over 1,100 individuals living on and off the Reserve and in both Quebec and Ontario. While the Reserve is in Quebec most members speak English on a daily basis with only 2% being fluent in French. The median age for the population on the Reserve was reported as 45.7 (KFN 2023).

6.2.4.6.1 Engagement

Table C-13 of Appendix C.4.1 includes a summary of key engagement activities that have occurred with KFN on the NPD Closure Project. A complete list of engagement activities can be found in Appendix O (Table O-1) of the IER TSD. Below is a narrative summary of CNL's engagement activities with KFN, which cover the time period from 2016 to June 2024. CNL includes engagement beyond the cut-off date used in other places within this EIS in order to capture receiving KFN's preliminary EIS review comments.

Information sharing and Relationship Building

In July 2016, CNL sent KFN a letter to introduce the proposed NPD Closure Project, which included a request for community input on any potential adverse impacts from project activities followed by a second letter in November 2016 which inquired about KFN asserted rights and traditional activities. At that time, CNL did not receive a response from the KFN.

CNL met with KFN through a wider meeting with the AANTC in April 2017 to discuss CNL projects, including the NPD Closure Project and to gain feedback from AANTC leadership. In November 2017, CNL shared the draft EIS and the IER. CNL invited AANTC participation in the public comment period for the draft EIS and requested community input and feedback for incorporation into the project. KFN did not submit comments on the 2017 draft EIS or share any feedback on the project directly with CNL.

In the spring of 2020, CNL shared the March 2020 revised draft EIS, which had been submitted to the CNSC, as well as the latest revision of the IER TSD with KFN and encouraged community input for the final revision. In June 2020, CNL met with the AANTC and KFN for a contribution agreement discussion on the NSDF and NPD projects.

In September 2021, KFN identified that the proper channel of engagement on the NPD Closure Project was through the First Nation's consultation department. KFN expressed the need to be engaged as a First Nation, independent from the AANTC, regarding CNL related projects and activities.

In the summer of 2022, KFN extended an invitation to CNL and AECL leadership to join KFN's Chief and other members at Fitzpatrick Island, an island that is of cultural significance for the Algonquin Nations. This

first leadership meeting was a valuable learning opportunity for CNL as well as an occasion to strengthen the relationship by visiting an Indigenous Protected Conservation Area (IPCA). Commitments were made to work together to decrease gaps in views and create common understanding. Chief Haymond also extended an invitation for CNL and AECL leaders to visit KFN.

KFN leadership attended CNL's August 2022 Open House, which provided an opportunity to learn more about CNL's organization and operations.

CNL's President and CEO and AECL's President and CEO among others, attended a leadership meeting in community with KFN's Chief and Council, and other representatives and members of the community in December 2022.

In April 2023, CNL welcomed KFN members to the NPD site for a tour. Throughout the day CNL answered questions from KFN. The areas of interest were monitoring, operational history, site geology and the similarities between the NPD Closure Project and Whiteshell Reactor 1 (WR-1) Project. KFN had a tour of the NPD facility and walked to the river with CNL staff. The relationship between CNL and KFN was impacted when members from the tour received positive notifications for radioactive contamination. Readings were taken which confirmed that the levels recorded had descended at a rate which was indicative of the presence of the radioactive by-products (or progeny) of radon gas. CNL and KFN discussed the implications the day of the tour and again at the May 2023 Working Group meeting. KFN informed CNL that members were upset by the incident and that this event would impact KFN's interest in visiting CNL sites in the future. KFN reported the tour and the events to the CNSC. In efforts to better the relationship and continue working together, CNL and KFN agreed to develop a visitor protocol together. Starting in 2023, the NPD Closure Project has been included as a standing agenda item at the Monthly Working Group meeting.

Letters to the Prime Minister, Natural Resources Canada and the CNSC

In May 2020, the AANTC and KFN submitted a joint letter to the Prime Minister outlining procedural consultation interests and concerns that included the NPD Closure Project, copying CNL: Letter from AANTC May 14 2020. In August 2020, the AANTC and KFN submitted a second letter to the Minister of Natural Resources outlining similar concerns: Letter from AANTC August 26 2020. In September 2020, the AANTC informed CNL that they would not be willing to meet again until the latest letter sent to the Minister receives a response and requests are met. In November 2020, the Minister of Natural Resources responded to the AANTC and KFN acknowledging the Chalk River Environmental Assessment projects: Letter from Minister November 5 2020. Also in November 2020, the CNSC responded to the AANTC and KFN: Letter from CNSC November 25 2020. In January 2021, KFN and AANTC submitted a third letter to the Minister of Natural Resources indicating the need to meet to discuss Indigenous consultation and engagement for the Chalk River nuclear assessment projects. While many of these concerns are related to the Government of Canada, CNL has continued to pursue meaningful engagement with KFN on the NPD Closure Project.

Commitments

In April 2021, CNL provided a letter with a project update and a preliminary table of commitments to KFN, which was determined through correspondence and meetings on the NPD Closure Project and the NSDF Project. Later in the month, KFN and the AANTC responded by letter to CNL on this list of commitments, indicating that this was not acceptable to them and that proper engagement was requested. CNL responded by letter to the AANTC and KFN indicating interest in meeting to discuss a mutually acceptable list of commitments. CNL followed up with a call and discussed the letter with KFN's consultation coordinator, reiterating CNL's interest in meeting.

In March 2023, CNL shared a draft commitment list. KFN provided feedback in June 2023, which CNL has used to revise the draft commitment list which will accompany this EIS submission.

Summary of Interests and Concerns

In June 2021, CNL shared a draft summary of interests and concerns for the KFN on the NPD Closure Project, seeking to verify this summary with the KFN. CNL followed up with KFN in July and KFN responded by letter in late July indicating specific interests and concerns and an additional interest in moving forward with a letter of intent (LOI) and towards a framework agreement.

In January 2022, the CNSC informed CNL that the December 2021 EIS submission was incomplete. The CNSC staff directed CNL to revise the *Tables of Interests and Concerns* for clarity.

CNL shared KFN's *Table of Interests and Concerns* in April 2022 asking that the KFN verify that KFN's interests and concerns are accurately characterized. At KFN's request, CNL shared the 2021 revised draft EIS, to support KFN's review of the table. In June 2022, KFN provided revisions to ensure that KFN's interests and concerns were correctly represented. Later the same month, CNL shared back the revised table to confirm how CNL had adequately incorporated KFN's feedback.

In March 2023, CNL indicated interest in validating KFN's interests and concerns. CNL sent KFN the proposed and requested commitments between KFN and CNL for the NPD Closure Project. KFN responded early in April 2023 sharing their comments on the *Table of Interests and Concerns* that CNL had previously addressed and shared with KFN in June 2022. KFN expressed interest in an NPD specific meeting. CNL reminded KFN that KFN feedback had been incorporated into the *Table of Interests and Concerns*, which CNL re-shared with KFN in July 2022. KFN and CNL met in April 2023 to discuss the *Table of Interests and Concerns* and other project aspects. CNL also invited KFN to participate in an NPD site tour on April 26, 2023, and the May 2023 Chimney Swift Count Night, offering a dedicated viewing night to KFN.

During the April 2023 meeting, KFN and CNL were not able to walk through the full *Table of Interests and Concerns.* Due to the importance of the summary table of interests and concerns and KFN's input on verifying its completeness and accuracy, CNL share the most updated version of this table in May 2023. CNL received comments from KFN on the *Table of Interests and Concerns* in June 2023. CNL incorporated the feedback and shared the updated Table with KFN in July 2023. KFN accepted the updates to the table CNL in July 2023.

In late August 2023, CNL received indication from the CNSC on KFN's desire to provide a full technical review the EIS. In response, CNL deferred the draft EIS submission and focused engagements with KFN on enabling a fulsome review of the EIS. In email correspondence to KFN, CNL expressed its commitment to recording KFN's interests and concerns into the EIS, as KFN input is essential to the EA process. At the September 2023 Monthly Working Group meeting, CNL and KFN discussed KFN's desire to conduct a full NPD EIS review, and CNL offered capacity support. Following the meeting, CNL provided KFN with an LOI for NPD, as well as the NPD EIS. In October 2023, the Monthly Working Group met to discuss content and language for the LOI, and CNL asked for an update from KFN on a timeline for KFN's review of the EIS. Further discussion on the LOI is incorporated in the next Subsection.

In January 2024, KFN updated CNL that KFN was still working to prepare a workplan and budget for activities that KFN may identify related to the NPD Closure Project. CNL followed up with KFN in February 2024 to request that KFN provide CNL with a timeline for review of the NPD EIS. CNL asked KFN that the NPD project-specific agreement and associated engagement schedule and initial EIS review be completed by March 2024, for inclusion in the revised draft EIS submission. In February 2024, an in-person meeting was held with KFN to discuss KFN's NPD workplan and budget and amendment to the consultation framework agreement to include work on the NPD EIS. During the meeting, KFN provided the draft workplan to CNL. CNL discussed with KFN that KFN's review of the EIS is the last piece needed for the NPD EIS submission, and KFN indicated that their technical reviewer is on standby. CNL and KFN agreed to include forward looking language in the EIS to reflect future work together on the NPD Closure Project.

In March 2024, CNL provided KFN with NPD documents and WR-1 related information to assist in KFN's technical review. CNL followed-up with KFN in March 2024, to confirm that KFN received the email from CNL. CNL sent the PostSA 3rd Iteration, Chimney Swift Studies TSD, Comment Table on the Draft EIS for the Nuclear Power Demonstration Closure Project, Federal and Provincial Technical Review with Quebec Comments – Revision 2 (December 2021) and the Alternative Means Presentation. CNL also re-shared with KFN the work plan and budget (including proposed timelines for deliverables) as requested by KFN.

At the April 2024 Monthly Working Group meeting CNL requested KFN's timeline for review of the EIS. KFN noted that, due to resourcing, more time would be needed. CNL requested KFN provide an updated timeline for this review. A CNL follow-up via email requested an updated timeline from KFN.

At the May 2024 Monthly Working Group meeting KFN shared an update on the review of the revised draft EIS, indicating that it would take 12-14 months to complete the studies. KFN's legal counsel shared that in April KFN had sent a letter to the CNSC seeking a Procedural Order. During the discussion it became clear that KFN was misinformed, thinking that CNL was submitting the final EIS rather than the revised draft EIS. The KFN technical consultant indicated that a review of the revised draft was underway and that CNL could expect a list of information requests (IRs). CNL confirmed that they were ready to receive the IRs. KFN noted the review being completed was a desktop review by technical experts, not the community led studies as noted in the Framework Agreement. Following the meeting, KFN shared a copy of the letter to the CNSC with CNL. CNL sent a reply to the letter in May 2024. CNL's response confirmed and reiterated the status of the project within the EA process and the expected timeline to submit the final EIS to the CNSC. CNL confirmed it would be beneficial to have KFN's studies incorporated within the draft EIS.

In May 2024, KFN's technical consultant sent CNL a list of 61 IRs and initial comments on the revised draft EIS. KFN also offered a meeting to discuss. The IRs were broken down by topic areas, which CNL used to revise KFN's interest and concerns on the project. CNL updated the KFN *Table of Interests and Concerns* and sent it to KFN in June 2024 to validate that the updates properly reflected the interests and concerns of the community to date.

In June 2024, CNL received feedback from KFN on KFN's *Table of Interests and Concerns*, and mapping table, as well as a cover letter from the KFN's Chief. KFN highlighted that it is too early in the review process to determine whether the topics identified will constitute specific issues of concern for KFN. KFN clarified that the IR topic areas should be understood as indicating identified areas in which more information and data is required. KFN requested edits to the *Table of Interests and Concerns*, and mapping table to reflect this important distinction, which CNL has incorporated. KFN has requested further technical information from CNL to complete their assessments and there are a number of queries to which CNL will need to provide a response. KFN has also flagged the need to complete studies. CNL will respond to KFN's IR queries, and this is expected to generate further discussions. CNL has captured KFN's feedback as part of next steps to support continued relationship building between CNL and KFN. CNL and KFN continue to work together to ensure all of KFN's interests and concerns are captured.

Contribution Agreement, Letter of Intent and Framework Agreement

CNL initiated discussions with KFN and the AANTC in late May 2020 to establish a contribution agreement to support participation in the EA process. The initial contribution agreement meeting with the AANTC was in June 2020, and included attendance by KFN. At this meeting, KFN raised interest in possibly having a direct contribution agreement between KFN and CNL, as well.

CNL attempted to coordinate a second meeting on establishing a contribution agreement with KFN and the AANTC over the summer of 2020 and in August 2020 the AANTC informed CNL that they would not engage with CNL until there was a procedural consultation response from the Minister of Natural Resources to earlier correspondence, which began in May 2020 as described above.

CNL responded to KFN and the AANTC in August 2021 and indicated interest in moving forward with an LOI to start to address the interests and concerns. KFN provided a draft LOI in September 2021, which CNL revised and shared back to KFN in October 2021. KFN and CNL met in December 2021 to discuss next steps on finalizing the LOI and a formal path forward on engagement related to CNL's EAs in the region. In January 2022, KFN and CNL signed the LOI and in March 2022, KFN and CNL began meeting on a monthly basis to progress towards a framework agreement covering KFN-CNL engagement on CNL projects and activities at a company-wide level.

In May 2022, KFN shared the initial draft of a proposed Framework Agreement.

At the Monthly Working Group meeting held in June 2022, AECL, CNL and KFN were able to discuss and set a path forward for negotiating and executing a Framework Agreement that: (i) acknowledges that KFN enjoys and asserts constitutionally protected Indigenous rights and title, among other things, on Algonquin Nation traditional territory, (ii) acknowledges that the parties wish to build a strong, constructive,

cooperative, mutually respectful and beneficial relationship, (iii) acknowledges and creates a process that respects and provides for the participation of KFN in CNL's projects; and (iv) provides for the process and means for KFN's consultation and engagement, as applicable, in respect of CNL's projects where the duty to consult must be fulfilled. Framework Agreement negotiations continued at the October, November and December 2022 Monthly Working Group meetings. CNL was extremely pleased to be able to meet with KFN's Chief, and representatives of AECL in January 2023 to sign and formally execute the Consultation and Engagement Framework Agreement.

In December 2023, CNL followed up with KFN to determine KFN's capacity to work with CNL to review the NPD materials. As both CNL and KFN continued to work on agreement for LOI language as discussed earlier, CNL noted the existing Framework Agreement in place between KFN, AECL and CNL could be utilized as a mechanism to enable KFN's review of the NPD EIS. KFN indicated to CNL that KFN was focused on other CNL designated projects however the NPD Closure Project continued to be a recurring agenda item for the Monthly Working Group meetings. KFN confirmed they will proceed with the funding schedules for the NPD project under the existing Framework Agreement and a meeting was held in January 2024 to discuss the specifics of the amendment. Following the meeting, CNL provided a draft amendment to the Framework Agreement to incorporate a new schedule in the agreement, which will provide the work plan and budget for the NPD Closure Project as a project-specific agreement.

In February 2024, at an in-person meeting, KFN provided KFN's Draft NPD Project work plan and budget to CNL and AECL. CNL also shared material that will assist in KFN's technical review including; Federal and Provincial Comments on the draft EIS for NPD (February 2018), Comment Table on the Draft EIS for the Nuclear Power Demonstration Closure Project, Federal and Provincial Technical Review with Quebec Comments – Revision 2 (December 2021), CNSC completeness check of December 2021 EIS submission (January 2022), a presentation on alternative means, the Chimney Swift Studies TSD, PostSA 3rd Iteration, and directed KFN to specific areas of interest in the EIS.

In March 2024, CNL provided KFN with the draft amendment to the Framework Agreement, which was updated based on the written draft workplan and budget for the NPD project that KFN shared with CNL.

Through the spring of 2024, CNL followed up with KFN seeking an update on the timeline for finalizing the amendment to the Framework Agreement. CNL requested the updated amendment to the Framework Agreement be sent back to CNL to reflect the revised timeline for KFN to complete the EIS review.

In June 2024, KFN shared with CNL a draft of the amendment to the Framework Agreement. CNL provided the revised draft back to KFN later that month. The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024.

6.2.4.6.2 Feedback

Through discussions with KFN in 2020 and correspondence from KFN to government officials and agencies (Prime Minister, Minister of Natural Resources and the CNSC), CNL identified a number of KFN's initial interests and concerns on the project. Through continuing engagement with KFN, CNL has updated the concerns using the IRs provided by KFN in May 2024 as part of KFN's technical review of the NPD Closure

Project revised draft EIS. CNL recognizes that KFN's review and assessment of the draft EIS remains underway, and therefore, the interests and concerns of KFN as described in this document may change once the review and studies are completed and such changes will be captured in the final EIS.

The interests and concerns from KFN are briefly identified below and then detailed in the Summary Discussion of Interests and Concerns – Section 6.2.4.6.3 and the *Table of Interests and Concerns* in Table C-15 of Appendix C.4.1. CNL has tried to accurately portray the interests and concerns of KFN, however it is understood the KFN may articulate these concerns differently. KFN's specific concerns and interests related to the NPD Closure Project are detailed below:

Alternatives. KFN identified the importance of Indigenous participation in the assessment of alternatives for the NPD Closure Project, including understanding more fully NPD's financial guarantee. KFN has also inquired about CNL's approach to applying relevant IAEA standards.

Baseline Characterization. KFN expressed concern about the long-term impacts of the NPD Closure Project specifically that CNL must have a thorough understanding of the baseline geological conditions to understand how the site will evolve in the future.

End State, Site Restoration and Future Use of the Land. KFN is inquiring about plans for managing the on-site landfills for all project alternatives.

Engagement. KFN identified the importance of meaningful Indigenous participation, and funding for participation, in the EA for the NPD Closure Project, and that consultation and/or accommodation occurs with rights holders.

EA Process and Methodology. KFN expressed concern regarding the continued use of *CEAA,* 2012 for the NPD Closure Project, as opposed to the new *IAA*. KFN is also inquiring about CNL's assessment of cumulative effects, including CNL's assertion that only a high-level assessment is required due to its assertions of no residual effects associated with its preferred option for the NPD Closure Project.

Environmental Effects and Mitigation Measures. KFN expressed interest in providing input on mitigation measures. The Kichi-Sibì and aquatic species are of particular importance to KFN. KFN would also like additional information on plans, protocols, or strategies for Indigenous engagement/consultation on potential impacts to the aquatic environment.

Free Prior and Informed Consent. KFN is seeking incorporation and advancement of the UNDRIP including the principle of FPIC prior to proceeding with the proposed in-situ disposal project.

Indigenous Health. KFN is interested in how Indigenous receptors have been defined in CNL's assessment and how CNL meets the requirements under CSA N288.1.

Inventory. KFN is seeking further information about the nuclear waste that may remain on site and the radiological inventory of the proposed NPD disposal facility.

Long-term Safety. It is important to KFN that the concept of in-situ disposal is technically suitable. KFN is interested in seeing examples of in-situ disposal used elsewhere and the performance of this concept. KFN wants confidence in the performance of the facility over the long-term to protect humans and the environment. KFN is also seeking more information about how CNL determines whether or to what extent environmental events may affect the long-term safety of the facility.

Monitoring. KFN is interested to understand CNL's past and current environmental performance at the NPD site via access to environmental monitoring plans and data. KFN wishes to ensure the environment has not been impacted by past operations. KFN is also interested in understanding plans for future monitoring at the NPD site to ensure the environment around the site is protected.

Protection of Flora and Fauna. KFN is inquiring about the potential impacts to chimney swifts from remedial and closure activities for the NPD ventilation stack. KFN is also inquiring about a lack of engagement/consultation during the SAR permitting process.

Protection of the Kichi-Sìbì (Ottawa River). KFN expressed concern about watershed sustainability. KFN is inquiring about contamination releases to surface water during proposed decommissioning activities on the NPD site.

Radiological Risk. KFN has indicated that members were concerned about visiting CNL sites.

Technical. It is important for KFN to understand CNL's plans for the proposed batch mixing plant to ensure that potential effects on the aquatic environment are properly assessed.

Traditional Land and Resource Use and Cultural Impacts. KFN expressed that KFN's community-specific knowledge should be collected and incorporated into the EIS.

Valued Components. KFN is interested in the identification, selection, and assessment of "candidate species" (i.e., VCs).

6.2.4.6.3 Summary Discussion of Interests and Concerns

The key interests and concerns discussed in this Section were derived from various engagements with KFN, the details of which are recorded in Table C-13 of Appendix C.4.1 and in Section 6.2.4.6.1 of this EIS.

Alternatives

In June 2022, KFN provided feedback to CNL on the interests and concerns recorded for their community. KFN identified the need to collaborate on alternative project options and technologies taking into account land use, social, and cultural impacts. KFN also expressed concerns that, internationally, the practice of in-situ decommissioning is only permitted in the case of an emergency or accident, which does not apply in the case of the NPD Closure Project. CNL understands KFN is interested in the detailed cost breakdown for each alternative option for NPD. KFN understands that the current proposal for decommissioning the NPD site would replace the preliminary decommissioning plans that informed the basis for the NPD's

financial guarantee. KFN is seeking more information on CNL's consideration and application of IAEA standards for decommissioning and their application to the in-situ option.

CNL agrees that protection of future land users is an important concern and has addressed this subject. CNL has assessed the in-situ disposal alternative for the NPD site, and the EIS shows that such a disposal is safe for human health and the environment in the short term and long-term. When conducting the AMA, CNL followed the regulatory framework laid out in the Canadian Environmental Assessment Agency (CEAA) Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" under the *Canadian Environmental Assessment Act*, 2012 (*CEAA* 2012) for the evaluation of alternatives. Based on its consideration of national and international standards and guidelines, CNL continues to believe that the NPD facility has characteristics that support in-situ disposal.

CNL is committed to meeting with KFN to hear community perspectives on alternatives.

Baseline Characterization

During a site visit in April 2023, KFN asked several questions about the site geology and CNL's investigations into the integrity of the bedrock. CNL summarized verbally some of the geologic and site investigation undertaken to support the project and as a follow-up CNL shared the Geosynthesis report.

In 2018/19 CNL undertook a geoscientific fieldwork campaign to sample and characterize the bedrock around the NPD facility. The fieldwork included coring of 10 boreholes to a depth of 50 metres into bedrock and several overburden boreholes, with installation of wells for sampling and hydraulic property determinations. The Geoscientific Characterization Report was used to revise the Geosynthesis report and the various models (i.e., Groundwater Model, Resaturation Model). The results of these reports were incorporated into the PostSA, enabling CNL to assess potential effects to VCs in the aquatic and terrestrial ecosystems. The additional field investigations and updated models support the conclusion that the NPD Closure Project is protective of human health and the environment.

CNL is committed to meeting with KFN to continue discussions on the baseline characterization of the site if further discussion is desired by KFN.

End State, Site Restoration and Future Use of the Land

CNL understands KFN is looking for additional information on the two legacy landfills on the NPD site including management of the land area and continuation of monitoring, if required. Closure plans for the on-site landfills are important to KFN because they want to ensure that the environment around the site of the NPD Closure Project is protected.

Through future engagements, CNL will continue to follow up with the KFN to address any emerging concerns regarding site restoration and end-state planning for the NPD site.

Engagement

In their letter to the Minister of Natural Resources, in partnership with the AANTC, KFN impressed the importance of meaningful Indigenous participation and consultation regarding the EA of the NPD Closure

Project. KFN took issue that CNL has established project "Relationship Agreements" with umbrella organizations. As described previously, CNL, AECL and KFN have entered into a Framework Agreement, which provides for engagement directly between the parties on the NPD Closure Project as well as capacity funding to support KFN's participation in the EA process. As the engagement has deepened, KFN have now requested an opportunity to review existing studies and NPD Closure Project EIS as discussed above.

EA Process and Methodology

KFN, in partnership with the AANTC, directly corresponded with the Minister of Natural Resources to express their concern that the NPD Closure Project EA should be subject to the *IAA* instead of *CEAA, 2012*. While the topic of regulatory requirements for an EA process is broad and not specific to the NPD Closure Project, KFN's comments were directed at the regulatory regime under which the NPD Closure Project should be assessed. CNL recognizes the importance of addressing this concern. Therefore, the NPD EIS was revised to include a reference to the *IAA* transitional provisions for continuing the NPD Closure Project EA under *CEAA,* 2012 given that it was commenced under *CEAA,* 2012 before the *IAA* came into force in 2019 (Section 3.5 of the EIS). CNL understands that KFN is also inquiring about CNL's assessment of cumulative effects, including CNL's assertion that only a high-level assessment is required due to its assertions of no residual effects associated with its preferred option for the NPD Closure Project. Therefore, KFN is interested in obtaining more information on work that CNL has done on the identification, assessment, and analysis of potential cumulative effects.

Through future engagements, CNL will continue to follow up with the KFN to address any emerging concerns regarding the EA process for the NPD Closure Project.

Environmental Effects and Mitigation Measures

KFN provided feedback to CNL on the interests and concerns recorded for their community. KFN expressed concern that appropriate measures are not being taken to prevent or mitigate any negative impacts of proposed studies, developments, or monitoring. This evaluation should properly consider the importance of balancing interrelationships among cultural, environmental, and social elements, including Trauma Informed Impact Assessment. CNL understands that KFN would like additional information on plans, protocols, or strategies for Indigenous engagement/consultation on potential impacts to the aquatic environment. The Kichi-Sibì and aquatic species are of particular importance to KFN.

For VCs in all environmental components, it was determined that no adverse residual effects are expected to occur from the NPD Closure Project: the proposed mitigation measures are expected to eliminate, reduce or control possible effects, resulting in no or negligible effects. CNL is continuing its efforts to address concerns related to potential effects, mitigation measures and monitoring by offering an opportunity to all Indigenous Nations, communities and organizations to be involved in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help build confidence that the decommissioning strategy and mitigation measures are effective.

Free, Prior, and Informed Consent (FPIC)

KFN provided feedback to CNL on the interests and concerns recorded for their community. Kebaowek is seeking to incorporate UN guiding Principles for Human Rights and Business and UNDRIP. Additionally, KFN highlights that the *IAA* works to advance UNDRIP, endorsed and enacted by the Government of Canada, including FPIC. KFN has identified a pilot Impact Assessment for the Temiskaming Dam Replacement Project under *CEAA,* 2012 that takes into consideration historic rights and UNDRIP. It is the position of KFN that their consent is required for the creation of a permanent hazardous waste disposal facility in its traditional territory, per Section 29.2 of the UNDRIP.

CNL will work with KFN towards achievement of that principle to the extent possible. CNL is committed to ensuring meaningful participation of Indigenous peoples in decisions that affect their Nations, communities and territories. CNL is committed to work towards consensus and consent, with an understanding that UNDRIP does not necessitate a veto in decision-making.

Indigenous Health

CNL understands that KFN is looking for additional information on the methodology for conducting the Indigenous health assessment, including receptors, and diet. Specifically, KFN is looking for additional information on the definitions for “Indigenous People” and “Indigenous Worker” which are identified as specific receptors for calculating exposure to potential health risks. KFN is concerned that the assessment meet dose calculation requirements from CSA N288.1.

CNL acknowledges KFN’s concerns about the methodology used to assess Indigenous health effects from the NPD Closure Project. A potential Exposure Group consisting of a family of self-sufficient Indigenous receptors was included in the PostSA. The exposure profile in the postclosure period was developed based on a traditional Indigenous lifestyle pre-European contact (SENES 2014). This lifestyle results in a more cautious dose estimate than that based on current-day lifestyle, where some food is store-bought. CNL maintains that human health has been conservatively assessed for Indigenous Nations, communities, and organizations within the EIS and looks forward to discussing this topic further with KFN.

Inventory

CNL understands that KFN is seeking further information about the nuclear waste/contamination that is expected to be present at the NPD site, and requests more information on the radiological inventory (quantities and radioactivity) of the proposed NPD disposal facility.

Based on the facility’s low radionuclide inventory and the design life of the multiple barrier system, coupled with the consideration of national and international standards and guidelines, CNL continues to believe that the NPD facility has characteristics that support in-situ disposal.

CNL is committed to ongoing engagement with KFN to gain a greater understanding of their concerns about the long-term safety of nuclear waste.

Long-term Safety

KFN identified the need to incorporate long-term nuclear waste effect-related concerns into the evaluation of the NPD Closure Project. This evaluation to properly account for cultural, environmental, and social concerns and interests of the community, including gender-based analysis. CNL understands that KFN is inquiring on the comparative studies and assessments for in-situ disposal used by CNL, the significant differences in surface ecology and climate at NPD, as well as impacts to subsurface conditions and behaviour at less than 5m depth. KFN is interested in examples of in-situ disposal used elsewhere and the performance of this concept in order to evaluate the long-term integrity of the site. This includes more information on the comparison of the NPD plan with anthropogenic analogues, as well as social or cultural comparisons for in-situ disposal (which may include fear or stigma associated with the radiological legacy of a site).

KFN is also seeking more information about how CNL determines whether or to what extent environmental events may affect the long-term safety of the facility. This includes a greater understanding of how the effects of extreme weather, seismic events, climate change including storm projections and severe forest fires are considered in the NPD Closure Project's assessment. KFN wants confidence in the performance of the facility over the long-term to protect humans and the environment.

CNL has assessed the long-term effects of the in-situ disposal facility and the resulting EIS shows that such disposal is safe for human health and the environment in the short term and long-term. Design features of the current NPD facility make it conducive to disposing of the material in place. CNL includes an Indigenous receptor group in its assessment of long-term safety. The predicted peak dose to an Indigenous receptor is 0.0004 mSv/yr which is 500 times less than the dose criterion. The analysis demonstrates that the impact on Indigenous peoples and the environment is negligible. The proposed project involves a long-term solution to ensure the waste that currently resides at the NPD site is effectively contained and isolated from the environment, ensuring public safety. This solution has the potential to result in additional lands being freed up for traditional harvest or other uses by Indigenous peoples or the public.

CNL is committed to ongoing engagement with KFN to understand more fully their concerns about the long-term safety of nuclear waste.

Monitoring

KFN is interested to understand CNL's past and current environmental performance at the NPD site. KFN wishes to ensure the environment has not been impacted by past operations. CNL understands that KFN is concerned that there is no publicly accessible Environmental Risk Assessment (ERA) or other publicly accessible source of monitoring data or monitoring plan descriptions for the NPD Closure Project. KFN is also interested in the proposed follow-up monitoring plans for NPD including information on monitoring pathways, locations, and frequencies, since it is important to KFN that CNL is regularly monitoring the environment around the NPD site. CNL shared a link to the annual summary or environmental performance as a follow-up to the April 2023 site visit and would be happy to share other historic monitoring data as requested by KFN. CNL conducts a rigorous monitoring program and is committed to ensuring that the environment around the NPD site, including the Kichi-Sìbì (Ottawa River), is protected. The results demonstrate that the public and the environment around the NPD site continue to be protected.

In addition to the CNL monitoring program, the CNSC leads an IEMP designed to verify that the public and the environment around licensed nuclear facilities are protected. As part of its IEMP, the CNSC samples and analyzes surface water upstream and downstream of the NPD site (including sampling for non-radiological parameters). The CNSC IEMP results confirm that the public and the environment around the NPD site are protected and that there are no expected health impacts.

CNL is committed to ongoing engagement with KFN to understand more fully their concerns about environmental monitoring activities at the NPD site.

Protection of Flora and Fauna

CNL understands that KFN is inquiring about the potential impacts to chimney swifts from remedial and closure activities for the NPD ventilation stack. KFN is interested in current contaminant levels present in the stack, specifically frequency of stack monitoring, sampling methodologies, and disaggregated monitoring results. KFN is also inquiring about a lack of engagement/consultation during the SAR permitting process. Specifically, KFN is seeking information on actions taken and status of CNL's plans, protocols, or strategies for Indigenous engagement/ consultation for species at risk.

CNL understands that ensuring that lands on and in the vicinity of the NPD site are responsibly managed and monitored is an area of concern for KFN. CNL is committed to the protection of SAR and has and will apply for any necessary permits from ECCC for the protection of biota and SAR and looks forward to continuing discussions on this topic with KFN.

Protection of the Kichi-Sìbì (Ottawa River)

KFN identified the need to incorporate watershed sustainability concerns into the evaluation of the NPD Closure Project to properly account for cultural, environmental, and social concerns and interests of the community, including gender-based analysis. CNL understands that KFN is inquiring about contamination releases to surface water during proposed decommissioning activities on the NPD site. KFN is interested in both historic liquid effluent discharge practices for the NPD facility sumps to the Ottawa River, as well as the current process involved in transferring the wastewater to the CRL site. This includes additional potential sources or pathways of liquid emissions from the NPD site during proposed decommissioning: the two tile drainage systems on site; stormwater channels (surface ditches); an equipment washout pit, and potential wastewater generated by the proposed grout mixing plant for the NPD decommissioning activities. It is unclear to KFN from the EIS how all these potential sources of water contamination will be addressed in proposed decommissioning activities. Further, KFN is also interested in any studies, assessments, or documents specifically relating to whether expected releases to surface water may require a Fisheries Act authorization. As stewards of the lands and waters, it is important to KFN that the Ottawa River is protected.

The potential for contamination to reach the Kichi-Sìbì (Ottawa River) is assessed in the EIS and is supported by long-term modelling and detailed groundwater modelling. The EIS predicts no effects to surface water (including the Kichi-Sìbì (Ottawa River)), and follow-up monitoring will be implemented to confirm these predictions.

CNL is committed to the protection of the Kichi-Sìbì (Ottawa River) and looks forward to continuing discussions on this topic with KFN.

Radiological Risk

KFN expressed concerns regarding radiological risk, how radiological risks are communicated and the use of plain language with respect to visits at the NPD site. During a visit to the NPD site in April 2023, members from the tour received positive notifications for radioactive contamination. Readings were taken which confirmed that the levels recorded had descended at a rate which was indicative of the presence of the radioactive by-products (or progeny) of radon gas. Even after discussions and reassurance from CNL Radiation Protection staff, several visitors remained very unsettled by the event and were concerned about radiation risk and exposure.

CNL does recognize its obligation to continue to work with Indigenous Nations, communities and organizations in addressing such concerns. In efforts to better the relationship, allow KFN members to be better informed before visiting site and continue working together, CNL and KFN agreed to develop a visitor protocol together.

CNL notes that this concern is not specific to the NPD Closure Project but is broader to the CNL sites and possibly the nuclear industry. However, CNL is committed to continue work with KFN on how to communicate radiological risk with its members going forward and to provide educational sessions for the community, if desired.

Technical

CNL understands that it is important for KFN to understand CNL's plans for the proposed batch mixing plant to ensure that potential effects on the aquatic environment are properly assessed. This includes additional information on the water source, volume, or intake rate required for the grout mixing plant.

CNL acknowledges that KFN is interested in the final plans for the batch mixing plant and will provide these details to KFN to review together once available to understand any concerns.

Traditional Land and Resource Use and Cultural Impacts

KFN is seeking recognition and support of an Algonquin community-led assessment. KFN identified that traditional knowledge needed to be properly incorporated and considered by the project. KFN also identified their capacity to carry out independent studies as part of environmental, social, and cultural impact-assessment processes, with due regard to ownership of and the need for the protection and safeguarding of traditional knowledge. KFN is seeking to collaborate with CNL on appropriate land use, social, and cultural impact study methodologies with suitable timeframes to implement studies.

CNL agrees that KFN-specific information and traditional knowledge from the KFN and other Indigenous Nations should be integrated into the EIS. Prior to the June 2022 feedback, CNL sent two letters asking specific questions of KFN to align with the requirements of *CEAA,* 2012 Section 5(1)(c), including questions related to traditional activities and sites of ceremonial significance near the NPD Closure Project. The EIS and supporting studies have assumed that traditional uses do occur adjacent to the NPD site, whether on

the Kichi-Sìbì (Ottawa River) or outside the restricted/fenced area. CNL has also assumed that in the future there is an interest to re-establish traditional use activities on the NPD site.

Valued Components

CNL understands that KFN is interested in the identification, selection, and assessment of “candidate species” (i.e., VCs). Specifically, KFN is looking for the frequency and duration of any field studies to confirm the selection of VCs, and any further assessments relating to CNL’s application of an “ecosystem approach” to the identification and representativeness of VCs for the project.

CNL looks forward to further discussions with KFN to ensure that VCs of importance to KFN are appropriately represented in the EIS.

Summary

At present, this summary of interests and concerns is a consolidation of all the interests and concerns the KFN have brought forward on the NPD Closure Project. The project-specific concerns raised by the KFN are considered in the context of the EIS. While CNL recognizes the KFN’s concerns regarding the EA process, CNL notes that the concerns raised relative to the EA process are beyond the scope of the project. CNL will continue to document and share with the CNSC in CNL’s subsequent IER TSD any additional feedback provided by the KFN relative to the EA process.

CNL will continue to respond to questions and concerns from KFN through its ongoing efforts to engage with KFN. CNL will seek to understand those concerns in the context of the EIS and the NPD Closure Project and commits to continue to work together with KFN to receive their feedback on the project.

6.2.4.6.4 Verification

KFN has provided key input, identifying interests and concerns related to the NPD Closure Project in the form of correspondence with CNL, including revisions to the *Table of Interests and Concerns*, or correspondence that CNL was copied on.

To confirm CNL has adequately captured KFN’s interests and concerns, position and knowledge, the KFN and CNL underwent a verification process where CNL provided key documentation to KFN for their review and feedback. Through this process, KFN has reviewed and provided feedback on their *Table of Interests and Concerns*. While not all of KFN’s concerns have been mitigated by this process to date, CNL has made every effort to verify that KFN’s position, interests and concerns were adequately characterized. CNL continues to work with KFN to address their concerns through ongoing discussions. Details of the interactions that formed the verification process between CNL and KFN are captured in the IER TSD.

6.2.4.6.5 Next Steps

CNL has used the feedback and IRs shared by KFN to update the interests and concerns for KFN, as well as to update the record of topics that require additional information for KFN to adequately assess the project. CNL has also incorporated KFN feedback and knowledge shared through other submissions related to CNL’s designated projects into the EIS. CNL shared and re-shared materials to support KFN’s review of

the NPD EIS. As part of next steps, KFN has requested further technical information from CNL to complete their assessments and there are a number of queries to which CNL will need to provide a response. KFN has also flagged the need to complete studies. CNL will respond to KFN's IR queries, and this is expected to generate further discussions. As part of KFN's requests, CNL compiled and shared with KFN the requested supplemental references.

CNL will continue to work with KFN through the Framework Agreement to support direct and meaningful engagement for the NPD Closure Project, including, without limitation, the performance of Indigenous-led studies. Should the KFN bring forward any new concerns or interests through this ongoing engagement and associated regulatory proceeding, CNL will seek to understand any interests and concerns in the context of the EIS and the project.

6.2.4.7 Kitigan Zibi Anishinabeg

The KZA, also known also as the River Desert Band or Maniwaki is one of the nine currently federally recognized Algonquin communities in Quebec. The community resides on reserve lands which were established in 1853. The main Reserve is situated to the south-west of the borders of Maniwaki in the Outaouais region of Quebec, on the west bank of the Gatineau River. According to KZA, as of March 2023, the First Nation had a population of 3,912 members of which 2,228 members live off reserve, a large number of whom live and/or work in Ontario. KZA has a rich history and archaeological evidence indicates that the area has been inhabited for at least 6,000 years. The Algonquin Anishinabeg people have lived in the region for generations and have maintained a strong connection to the land and its natural resources (KZA 2023). KZA presented a comprehensive land claim in 1989 to the federal Crown.

A fuller description of the KZA can be found in Chapter 3 of the IER TSD.

6.2.4.7.1 Engagement

Table C-16 of Appendix C.4.2 includes a summary of key engagement activities that have occurred with KZA on the on the NPD Closure Project as of May 2024. A complete list of engagement activities can be found in Appendix N (Table N-1) of the IER TSD. CNL has also provided a narrative summary of engagement with KZA.

Comments on the Project Description

In July 2016, CNL sent KZA a letter to introduce the proposed NPD Closure Project, which included a request for community input on any potential adverse impacts from project activities followed by a second letter in November 2016 which inquired about KZA asserted rights and traditional activities. KZA provided comments on the Project Description for the NPD Closure Project to the CNSC through the formal EA process. Over the summer and fall of 2016, CNL had phone calls and email correspondence with KZA representatives, including the sharing of some general project information with KZA.

Meeting at the NPD Site

CNL met with the AANTC, including KZA and KFN, in April 2017 to discuss the NPD Closure Project and gain feedback from AANTC leadership. In May 2017, CNL met with KZA Council in Maniwaki, Quebec to discuss the NPD Closure Project and the comments submitted on the Project Description. Following this meeting, CNL hosted KZA environmental staff for a CRL and NPD site visit in July 2017, which included a tour of the proposed NPD site and an opportunity to provide feedback on the project, which included feedback on species at risk.

Ongoing Information Sharing

In late 2017, CNL shared the draft EIS and the IER TSD. CNL invited KZA participation in the public comment period for the draft EIS and requested community input and feedback for incorporation into the project. KZA did not submit comments on the draft EIS to the CNSC and CNL did not receive any feedback from KZA on the draft EIS.

In the spring of 2020, CNL shared the March 2020 revised draft EIS, which had been submitted to the CNSC, as well as the latest revision of the IER TSD with KZA, requesting community input for the final revision.

In October 2021, the KZA identified that the proper channel of engagement on the NPD Closure Project was through the First Nation's consultation department, a position that they were in the process of filling. The KZA expressed the need to be engaged as a First Nation, independent from the AANTC regarding CNL-related projects and activities. The KZA representatives had a number of questions on the NPD Closure Project related to the radiological waste inventory at the NPD site and the interests and concerns about the project raised by other Indigenous Nations, communities and organizations. KZA also requested baseline environmental information for the NPD site. CNL followed-up with KZA providing a draft of this document's Appendix C, where the records of engagement and *Tables of Interests and Concerns* are found, six documents containing baseline environmental information, and further information on the radiological waste inventory. KZA also indicated an interest in viewing an example of a contribution agreement, which CNL agreed to share.

In November 2021, representatives from KZA met with CNL representatives for an overview of the NPD Closure Project and the NSDF project. The representatives had several questions about the NPD Closure Project related to waste inventory at NPD. CNL responded to these questions with further information in December 2021.

In February 2023, KZA participated in the NPD webinar. The webinar topic was *Changes to the EIS Resulting from Feedback.*

In May 2024, KZA community members, including high school students and elders, came to the CRL site to access the Point au Baptême beach. KZA requested access to conduct a water ceremony. KZA welcomed CNL, AECL and CNSC staff to participate in the ceremony. During the afternoon, KZA community members shared feelings with CNL about projects, including the NPD project. CNL listened to all views and enjoyed the day with KZA at the beach and having lunch together.

Contribution Agreement

CNL initiated discussions with the AANTC in May 2020 to establish a contribution agreement to support the AANTC's participation in the EA process. The AANTC indicated in June 2020 that KZA would also be involved in contribution agreement discussions. CNL attempted to coordinate a meeting to establish a contribution agreement over the summer of 2020 and in August 2020 the AANTC informed CNL that they would not engage further with CNL until there was a response from the Minister of Natural Resources to earlier correspondence.

In November 2021, representatives from KZA met with CNL for an overview of the NPD Closure Project and the NSDF project. KZA requested a template for a contribution agreement. CNL sent this following the meeting. CNL and KZA met in October 2022 to discuss suggestions from CNL on how to improve the relationship between the two parties and the development of a long-term framework agreement. Following the meeting CNL re-shared an agreement template.

At a meeting in December 2023, KZA shared that based on the community engagement sessions held and the feedback provided by members, KZA is not looking to establish a project specific contribution agreement with CNL at this time. CNL continues to offer support for KZA's participation in the EA process.

Commitments

In April 2021, CNL provided a project status update and a preliminary table of commitments to KZA made through engagements and comment responses for the NPD Closure Project.

In October 2022, CNL provided a project update and the engagement status with KZA. CNL outlined the proposed next steps, including offering capacity through a contribution agreement and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for KZA's review. CNL did not receive a response from KZA.

In January 2023, CNL provided a project update. CNL proposed the next steps would be to continue working together to ensure the KZA's interests and concerns are reflected in the EIS by CNL.

Comments on the Revised Draft EIS

In September 2023, CNL received feedback from the CNSC on KZA's desire to provide a full review of the NPD EIS. In response, CNL deferred the draft EIS submission and focused engagements with KZA on enabling a fulsome review of the EIS, as desired by KZA.

KZA shared that they had held a community meeting in November 2023, to discuss CNL and the NPD Closure Project, among other topics. In December 2023, KZA sent CNL written preliminary comments on the revised draft EIS for the NPD Closure Project. The feedback included areas of concern and interest expressed by the community members during the community meeting held in November 2023, as well as a technical review of the EIS (the EIS was sent to KZA for review in September 2023). CNL and KZA met in December 2023 to discuss and review the feedback provided.

In January 2024, CNL shared with KZA the updated the *Table of Interests and Concerns* and Mapping Table based on the written preliminary feedback received on the EIS. In its correspondence back to KZA, CNL noted the work being done to incorporate KZA feedback and knowledge that has been shared through other submissions related to CNL projects.

CNL acknowledged the feedback from the meeting held in December 2023 that KZA was interested in focusing its attention on the EA process and working with the CNSC over the next while, and therefore would have limited additional feedback on NPD Closure Project at this time. CNL offered to remain available to discuss the NPD Closure Project at any time.

In March 2024, CNL and KZA met to discuss the updates to the interest and concerns and Sections 8.9 and 6.2.4.7 of the EIS. KZA expressed that direct language incorporated by CNL had accurately captured KZA's opinions. No further feedback from KZA on the draft EIS is expected.

Summary Table of Interests and Concerns

In June 2021, CNL shared a draft summary of interests and concerns for the KZA and heard back in July that KZA would be responding to the letter that enclosed the summary *Table of Interests and Concerns*. CNL followed up five times between July 2021 and September 2021. KZA did not provide feedback on the table in 2021.

In January 2022, the CNSC informed CNL that the December 2021 EIS submission was incomplete. The CNSC staff directed CNL to revise the *Table of Interests and Concerns* for clarity. CNL revised KZA's *Table of Interests and Concerns* and shared the new table with KZA in April 2022 asking that KZA verify that the new table retained KZA's interests and concerns. In May 2022, KZA reviewed the table and provided comments to CNL. In June 2022, CNL shared back the revised table to confirm how CNL had incorporated KZA's feedback.

CNL took note of the feedback provided by KZA during the NSDF hearings and subsequent Procedural Direction. As a result, CNL has proactively added additional areas of interest to the *Table of Interests and Concerns*. Topics include:

- Consultation process and the need for capacity building;
- Potential impacts on the KZA's Aboriginal and treaty rights;
- Proximity of projects to the Kichi-Sìbì (Ottawa River) and drinking water quality;
- Cumulative effects of all activities at and in near proximity to the CRL site;
- Continued application of *CEAA*, 2012 rather than the *IAA*, 2019;
- Transparency, specifically related to environmental concerns and their mitigation; and
- Long-term site integrity.

Due to the importance of the summary *Table of Interests and Concerns* and KZA's input on verifying its completeness and accuracy, CNL shared updated versions of the *Table of Interests and Concerns* and Mapping Table with KZA in January 2024. CNL and KZA met in March 2024 to review the tables together

and ensure KZA interests and concerns have been captured appropriately. KZA expressed that CNL incorporating direct language had accurately captured KZA's opinions.

6.2.4.7.2 Feedback

KZA has provided feedback formally, through their comments shared with the CNSC on the 2016 Project Description, and directly to CNL via engagement activities. CNL has tried to accurately portray the interests and concerns of KZA however it is understood the KZA may articulate these concerns differently. KZA's specific concerns and interests related to the NPD Closure Project are detailed below.

The interests and concerns from the KZA are briefly identified below and then detailed in the Summary Discussion of Interests and Concerns – Section 6.2.4.7.3 and the *Table of Interests and Concerns* in Table C-18 of Appendix C.4.2.

Accidents and Malfunctions. KZA expressed concern about proximity of the disposal facility to the Kichi-Sìbì (Ottawa River) and potential effects of malfunctions, accidents and deterioration of the disposal facility over time.

Alternatives. KZA is concerned about the technical suitability of the in-situ disposal concept and further is concerned that the long-term risks of the alternatives have not been adequately considered. KZA also has concerns about the process used to assess alternative means for the project. It is the position of KZA that all materials and contaminants present at the NPD site should be removed and permanently stored in a deep geological repository off-site.

Archaeology and Cultural Heritage. KZA has expressed interest in the archaeological studies for the NPD site.

Engagement. Representatives from KZA have posed general questions about the NPD Closure Project. Some of the questions related to the radiological waste inventory and the layout of the facility. KZA has also indicated that it is important for meaningful Indigenous participation and adequate Crown consultation to occur for the NPD Closure Project and the NSDF Project EAs.

EA Process and Methodology. KZA expressed concern on continued use of *CEAA*, 2012 rather than the more recent *IAA*. It is important to KZA that the NPD Closure Project EA is carried out using up-to-date legislation. There is concern that the current framework used to assess the NPD Closure Project is colonial in context and fails to acknowledge Anishinabe laws and governance systems. KZA is also interested in cumulative effects and overall protection of the Ottawa River and land at and in the vicinity of CNL sites and wants to be involved in the assessment of impacts. Further, KZA is concerned about access to, and use of, Indigenous knowledge for the project, specifically in KZA's view, CNL's failure to observe KZA knowledge in favour of more limited CNL studies which cannot be fully relied upon to protect the land. It is important to KZA that KZA available information is acknowledged and incorporated into the EA.

End State, Site Restoration and Future Use of the Land. It is important to KZA that it receives reassurance that the area will move towards renaturalization and healing over time through involvement in site restoration planning. This will enable future use of the land by KZA.

Free, Prior and Informed Consent (FPIC). It is important to KZA that CNL work to secure its free, prior and informed consent through meaningful consultation.

Impacts on Rights. KZA expressed general concern and interest related to Indigenous rights and traditional territory.

Inventory. KZA is concerned about the nuclear waste that will remain on site specifically the radiological content (inventory).

Long-term Safety. It is important to KZA that there is confidence in the performance of the facility over the long-term and that there are barriers in place to protect the environment. It is also the view of KZA that there is a significant gap in research on the unique pathways for exposure to contaminants for Anishinabe people that needs to be addressed through the EA.

Monitoring. KZA is interested in the monitoring locations and is concerned that mitigation measures can be effectively implemented in the case that groundwater contamination occurs. KZA is interested in being involved in a monitoring strategy to provide assurance to KZA members that CNL is regularly monitoring the environment around the NPD site.

Protection of Flora and Fauna. KZA expressed specific concerns about the potential negative impact of the project on biota, especially species at risk such as chimney swifts. KZA representatives also identified the potential for monarch butterfly habitat (milkweed) during a site visit.

Protection of the Kichi-Sìbì (Ottawa River). KZA expressed concern about the potential impacts of the project on the health of the Kichi-Sìbì (Ottawa River).

Socio-economic. A KZA representative expressed some interest in contracting opportunities with CNL.

Traditional Land and Resource Use and Cultural Impacts. KZA is concerned that the EIS neglects to acknowledge CNL's responsibility in creating and perpetuating avoidance of the area by KZA members.

6.2.4.7.3 Summary Discussion of Interests and Concerns

The key interests and concerns discussed in this Section were derived from various engagements with KZA, the details of which are recorded in Table C-16 of Appendix C.4.2 and described in Section 6.2.4.7.1 of this EIS.

Accidents and Malfunctions

Through comments to the NSDF project, CNL understands that it is important to the KZA that there are no health or environmental impacts from the disposal facility in the long-term because of the project's proximity

to the Kichi-Sìbì, which has great importance to the KZA. KZA is also concerned and potential malfunctions, accidents and deterioration of the disposal facility over time. Section 8.12 of the EIS discusses the natural disasters to which NPD may be exposed. Section 9.14 of the EIS discusses the potential effects on the project of climate change, forest fires, floods, earthquakes, severe weather such as tornados, lightning strikes, ice storms, and changes to the Kichi-Sìbì (Ottawa River). Additional details and a range of scenarios that encompass the potential impacts from extreme weather and natural hazards are examined in the DecomSA and the PostSA.

CNL's Emergency Procedure for the NPD site includes actions for specific staff roles in the event of a wide range of emergency conditions including fires, floods, and hazardous spills, loss of power, earthquakes, and tornados. This procedure was developed and is updated in accordance with CNL's company-wide Emergency Preparedness Program, which has been accepted by the CNSC and meets the requirements of REGDOC-2.10.1 Nuclear Emergency Preparedness and Response. It will remain in place and be updated as required throughout the Decommissioning Execution and Institutional Controls phases of this project.

CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above-ground natural hazards and extreme temperature change through all project phases (Decommissioning Execution, Institutional Controls and Post-Institutional Controls), and concludes that these events will have no undue effects on people or the environment around the site. CNL models several scenarios in its PostSA TSD which consider how accidents and natural hazards could affect the facility. These scenarios are called disruptive events. One such case models severe erosion (flood) while another case models extreme degradation of the facility (the concrete structure and the grout). In both of these cases, the predicted doses to receptors are still well below the dose criterion of 0.25 mSv/yr; 0.009 mSv/yr and 0.0009 mSv/yr, respectively.

CNL is open to increased engagement, education and participatory involvement in monitoring activities at the site to help alleviate any concerns. CNL will continue to follow up with KZA to address any emerging concerns about this topic.

Alternatives

KZA has expressed concern about the societal and ethical choice of in-situ decommissioning, in particular about the future impacts to Indigenous Nations, communities and organizations. KZA has expressed interest that the NPD Closure Project selected alternative of ISD be compared against international best practices. KZA is also concerned that the evaluation of alternatives did not include a thorough risk assessment, considering worst-case scenarios, emergency protocols and remediation measures. Further, it is important to KZA that the process of assessing and accepting alternative means includes KZA, particularly the importance that KZA places on long-term risk when evaluating the alternative means. KZA highlights that joint assessment of alternatives is considered best practice and are commonly implemented for projects that are of high concern to Indigenous Peoples. It is the position of KZA that all materials and contaminants present at the NPD site should be removed and permanently stored in a deep geological repository off-site.

CNL believes that the risks associated with in-situ disposal are lower than other options. In-situ disposal is a well-known technique used since the 1960's at many nuclear sites worldwide. Sites contaminated with toxic and hazardous wastes are also remediated using this technique. This approach requires the project to apply for a license as a disposal facility, and hence the facility must also meet the regulations for a disposal facility.

In the case of the NPD reactor, the decommissioning strategy is to incorporate the reactor into a new disposal facility, which is in accordance with the IAEA definition of decommissioning, IAEA Safety Glossary (IAEA 2019). This strategy also meets the Canadian regulatory requirements, in particular the requirements of Section 5.1 of REGDOC-2.11.2, Decommissioning.

The NPD reactor has a low inventory. Tritium is the major radionuclide and will decay to low levels during the Institutional Control period. The longer-lived Intermediate Level Waste (ILW) consists of small quantities of low energy beta emitters. The beta emitters have low radiotoxicity and do not generate heat. These are activation products inside the metal of the calandria in the reactor vault. The reactor vault is reinforced concrete with walls 3 m thick located around 10 m below grade in bedrock. The location of the reactor vault isolates the wastes making it hard to access. These are all features that are consistent with IAEA Safety Standard SSR-5, Disposal of Radioactive Waste, regarding cavern or vault disposal for ILW.

CNL has written a report summarizing facilities worldwide that use in-situ disposal. The report is not limited to nuclear reactors or processing facilities, and also includes mines and hazardous waste sites. The report also describes what each of the facilities have in common, why in-situ disposal is the preferred approach and how it applies to NPD.

CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above ground natural hazards and extreme temperature change through all project phases (Decommissioning Execution, Institutional Controls and Post-Institutional Controls), and concludes that these events will have no undue effects on people or the environment around the site. CNL models several scenarios in its PostSA TSD which take into account how accidents and natural hazards could affect the facility. These scenarios are called disruptive events. One such case models severe erosion (flood) while another models extreme degradation of the facility (the concrete structure and the grout). In both of these cases the predicted doses to receptors are still well below the dose criterion.

When conducting the AMA, CNL followed the regulatory framework laid out in the Canadian Environmental Assessment Agency (CEAA) Operational Policy Statement: Addressing “Purpose of” and “Alternative Means” under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2015) for the evaluation of alternatives. The level of analysis conducted for each alternative is consistent with the *CEAA,* 2012 requirements.

CNL's technical assessment shows that the in-situ design is appropriate for the hazardous timeframe of the contaminants and is consistent with national and international standards. CNL understands that this concern is outstanding from KZA’s perspective based on KZA feedback in July 2023. Through continued engagement at the working group, CNL hopes that the parties are able to find common ground on this topic.

Archaeology and Cultural Heritage

In July 2017, KZA staff, which included technical and environmental experts, toured the NPD site. CNL's biologist was on hand to discuss ecological and archaeological studies. KZA had the opportunity to ask questions or offer feedback on the project, including feedback on species at risk. All questions were addressed verbally at the tour.

CNL's archaeology consultant determined that there was no archaeological potential for the site study area (where project activities will take place), because that area has already been completely disturbed during site construction. However, in response to concerns expressed by Indigenous Nations, communities and organizations, CNL did conduct a Stage 1 archaeological assessment of the remainder of the NPD site. No further archaeological work is planned for NPD.

In May 2022, KZA requested a discussion related to archaeological studies of the NPD site. CNL has shared the results of the archaeological assessment with KZA and would be pleased to provide a summary and overview presentation on the archaeological work conducted on the site.

Engagement

CNL has responded to all questions, comments, and IRs to date. This includes responding to questions posed by KZA in November 2021 related to radiological waste inventory and to interests and concerns raised by other Indigenous Nations, communities and organizations. KZA also requested and received from CNL a package of baseline environmental information and an example contribution agreement (see details under Protection of the Kichi-Sìbì (Ottawa River), below). CNL will continue to follow up with the KZA to address any emerging concerns related to this topic.

CNL has reached out to KZA on an ongoing basis since the beginning of the project and has met with KZA in 2017 and in 2021. At the meeting with KZA in November 2021, CNL expressed interest in entering an agreement to provide capacity funding to enable participation in the EA process.

EA Process and Methodology

KZA expressed concern on continued use of *CEAA*, 2012 rather than the more recent *IAA*. While the topic of regulatory requirements for an EA process is broad and not specific to the NPD Closure Project, KZA's comments were directed at the regulatory regime under which the NPD Closure Project should be assessed. CNL recognizes the importance of addressing this concern. Therefore, the NPD EIS was revised to include a reference to the *IAA* transitional provisions for continuing the NPD Closure Project EA under *CEAA*, 2012 given that it was commenced under *CEAA*, 2012 before the *IAA* came into force in 2019 (Section 3.5 of the EIS).

Through comments and engagement on the NSDF project, CNL has heard that KZA is also concerned about cumulative effects and is interested in the overall protection of the Kichi-Sìbì (Ottawa River) and land at, and in the vicinity of, CNL sites, not just the impacts of a single project. KZA is also concerned that the methodology used for conducting the effects assessment is based on a limited methodology which restricts exploration of impact to KZA. CNL acknowledges KZA's concern about the effects on the Kichi-Sìbì (Ottawa River) and land at, and in the vicinity of the NPD site from various activities in the past, present and future.

The methodology used in the EIS for assessing the significance of residual effects for the NPD Closure Project is an established methodology that was used in the Environmental Assessment for the Darlington New Nuclear Project, which currently has an approved License to Prepare Site. The criteria for the evaluation of significance are from the CNSC REGDOC 2.9.1(2020), Environmental Protection: Environmental Principles, Assessments and Protection Measures. As discussed in the EIS and outlined in the CEAA technical guidance Assessing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act*, 2012 (2018), a cumulative effects assessment is only required to be undertaken for residual effects of the project. Section 9.13 of the EIS describes the process for evaluating cumulative effects and presents CNL's assessment of cumulative effects for the NPD Closure Project.

KZA is also interested in data sovereignty and in conducting its own environmental and impact assessment, inventories and monitoring studies. CNL acknowledges that KZA is interested in conducting its own environmental assessment, inventories and monitoring studies. The EIS and supporting studies have assumed that traditional uses do occur adjacent to the NPD site, whether on the Kichi-Sìbì (Ottawa River) or outside the restricted/fenced area. CNL has also assumed that there will be future interest in re-establishing traditional use activities on the NPD site. CNL has determined that there are no adverse impacts on Traditional Land and Resource Use resulting from the NPD Closure Project.

CNL will continue to follow up with KZA to address any emerging concerns about this topic.

End State, Site Restoration and Future Use of the Land.

It is important to KZA that it receives reassurance that the area will move towards renaturalization and healing over time through involvement in site restoration planning. This will enable future use of the land by KZA. KZA affirms that the NPD site should be remediated before being returned to the care of Indigenous Peoples who have always been responsible for these lands and waters.

CNL acknowledges KZA's desire for the NPD site to move towards renaturalization and healing. CNL has used the terms renaturalize/renaturalization to mean: return to natural. As much of the site is forested, disturbed areas outside the final licensed area will be left to return to natural via natural succession. Renaturalization will have a positive impact on terrestrial biodiversity because vegetation will provide habitat for nests and dens, cover for animals as they roam, and will promote movement of animals by increasing connectivity (reducing habitat fragmentation).

The landowner, AECL, is also committed to engagement and consultation with Indigenous Nations, communities, and organizations, such as KZA, on future end state and land use. The potential land options will not be fully determined until the NPD Closure Project EA and license amendment process proceeds further. In the meantime, CNL is preparing a plan for site restoration after decommissioning is complete, which CNL is committed to sharing with KZA for feedback and input.

Free, Prior and Informed Consent

In July 2023, KZA highlighted that with respect to KZA prior and informed consent, KZA expects effective information sharing with CNL. KZA has indicated that all relevant information should be shared to KZA in a clear, transparent and understandable way and in a timely manner. KZA needs sufficient time to review

and comment on this information and that information should be “word-count effective” (focusing on the main information/fact, without diluting it through a lot of general text).

CNL acknowledges that it is understood by KZA that an Indigenous Nation, community or organization’s consent is required for the creation of a permanent hazardous waste disposal facility in its traditional territory, per Section 29.2 of the UNDRIP. CNL will work with KZA towards the achievement of that principle to the extent possible. CNL is committed to work towards consensus and consent, with an understanding that UNDRIP does not necessitate a veto in decision-making.

CNL understands that UN guiding principles for human rights and UNDRIP are areas of importance for KZA. CNL remains committed to seeking common ground with KZA in the interest of moving closer towards consent. Through continued engagement at the working group CNL hopes that the parties are able to find common ground on this topic.

Impacts on Rights

In their comments on the 2016 Project Description, KZA first expressed their interest in representing Indigenous rights in the EA of the NPD Closure Project. Two letters were sent in 2016 (as part of CNL’s introduction of the NPD Closure Project proposal) and one in 2020 seeking to generate feedback on and inquire about traditional land use, Indigenous rights and other interests in the project. CNL met with KZA in May 2017 to present project updates; the discussion included how CNL can incorporate Indigenous rights in its development of the NPD Closure Project. CNL also met with KZA in 2021 and expressed interest in entering an agreement to provide capacity funding to enable KZA participation in the EA process.

While the EIS (Table 6.2-1) recognizes that the NPD site is located within traditional territory for which KZA and the AANTC asserts rights, CNL continues to reach out to KZA and the AANTC and coordinate a meeting to discuss any outstanding or emerging issues where Indigenous Rights may play a role.

Inventory

In July 2023, KZA expressed concern about the nuclear waste on site, including legacy waste, and radiological content (inventory) of the proposed NPD disposal facility. CNL agrees that protection of future land users is an important concern and has addressed this subject. CNL has assessed the suitability of in-situ disposal for the NPD site, and the EIS shows that such a disposal is safe for human health and the environment in the short term and long term.

The NPD reactor has a low radionuclide inventory. Tritium is the major radionuclide and will decay to low levels during the Institutional Control period (~100 years). The proposed waste disposal facility barriers have a design life consistent with that timeframe. The longer-lived ILW consists of small quantities of low energy beta emitters. The beta emitters have low radiotoxicity. The main barrier to containing the radioactivity on long timescales is that 83% of the initial inventory (mostly activation products) is embedded within steels and zircaloy which corrode very slowly, particularly in an alkaline environment. The metals used in the reactor vault are corrosion-resistant alloys, with stainless steel taking approximately 30,000 years to fully corrode and zircaloy up to 300,000 years to fully corrode. The low corrosion rates

allow the radioactivity to decay before it is released into the reactor vault. Once in the reactor vault the radioactive contaminants sorb onto the grout which further delays its diffusion out of the facility.

CNL's technical assessment shows that the in-situ design is appropriate for the hazardous timeframe of the contaminants and is consistent with national and international standards. CNL understands that this concern is outstanding from KZA's perspective based on feedback in July 2023. Through engagement, CNL hopes that the parties are able to find common ground on this topic, including the development of commitments to build confidence and trust in the in-situ disposal concept.

Long-term Safety

Through comments and engagement related to the NSDF project, CNL understand that it is important to KZA that there is confidence in the performance of the facility over the long-term and that there are barriers in place to protect the environment.

CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above-ground natural hazards and extreme temperature change on the integrity of the grouted facility and concludes that these events will have no undue short-term or long-term effects on people or the environment around the site. The PostSA TSD demonstrates that beyond the Institutional Controls period, under all scenarios, the impact on the public, Indigenous and the environment is negligible.

To verify that the engineered barriers as a whole are performing as expected/designed, CNL will monitor groundwater. Groundwater wells will be located between the NPD facility and the Kichi-Sìbì (Ottawa River) in order to monitor groundwater quality after it interacts with the facility and before it reaches the Kichi-Sìbì (Ottawa River). CNL will conduct monitoring for as long as necessary to verify the results of the assessment in the EIS.

During the review of the EIS, KZA identified other aspects of interest regarding long-term safety, therefore in October and November 2023, CNL provided a presentation and written materials to KZA with additional information on the contaminants involved in the NPD Closure Project, specifically:

- main contaminants of concern.
- half-life and LLW/ HLW categorization.
- threshold limits and how they are established.
- lifespan of the grout/concrete structure.
- effects of the contaminants at higher levels on the environment and human health.
- the mobility of the contaminants (how they move within the environment and how they affect the things around them).
- overview of the various proposed protection measures (the role of grout and other barriers).
- how in-situ disposal compares with Deep Underground Repositories; and
- what route the contaminants would travel (even if they are at 'acceptable levels') after the concrete/grout decays.

As part of long-term safety, the unique pathways for potential contamination exposure must be considered. It is the view of KZA that there is a significant gap in research on the unique pathways for exposure to contaminants for Anishinabe people that needs to be addressed through the EA. CNL agrees that traditional activities and resource use are important to integrate into the EIS with consideration of potential unique pathways of exposure for materials harvested or gathered in the area.

In the third iteration of the PostSA issued in March 2020, CNL included a Potential Exposure Group consisting of a family of self-sufficient Indigenous receptors in the NPD area. The exposure profile in the postclosure period was developed based on a traditional Indigenous lifestyle pre-European contact (SENES 2014). This lifestyle results in a more cautious dose estimate than that based on current-day lifestyle, where some food is store-bought and likely not from the contaminated area.

The predicted peak dose to an Indigenous receptor (from the 3rd iteration PostSA) is 0.0004 mSv/yr, which is 500 times less than the dose criterion. The analysis demonstrates that the impact on the public, Indigenous peoples and the environment is negligible under all scenarios.

Through use of a Diet and Harvest Study prepared by a local Indigenous Nation, CNL has updated the exposures to an Indigenous receptor within its PostSA. This receptor already included pathways to wild foods harvested from the area but now also considers exposure through traditional use of materials harvested or gathered from the area. The new pathways include inhalation of smoke from burning medicinal plants and rubbing of plants into the skin.

CNL is committed to further engagement with KZA to obtain a greater understanding of their concerns about the long-term safety of nuclear waste. CNL will continue to follow up with KZA to address any emerging concerns about this topic.

Monitoring

In July 2023, KZA identified that it expects monitoring to occur both at the NPD site and offsite. This monitoring should check all waters (groundwater and surface water) coming into or leaving the NPD site. This water should be monitored to ensure it remains uncontaminated with particular attention given to water flowing to the Kichi Sìbì. KZA is concerned that any contaminated water be isolated from the water network and remediated. CNL is equally concerned that the Kichi-Sìbì (Ottawa River) remains protected. KZA is interested in being involved in a monitoring strategy to provide assurance to KZA members that CNL is regularly monitoring the environment around CNL sites.

The potential for contamination to reach the Kichi-Sìbì (Ottawa River) is assessed in the EIS, and is supported by long term modelling and detailed groundwater modelling. The EIS predicts no effects to surface water (including the Kichi-Sìbì (Ottawa River)).

CNL has added information to the EIS about the washout pit and historic water discharges from the wells area sump. Monitoring results capture the effects of historic activities.

Groundwater modelling was conducted for the NPD site. The PostSA TSD incorporates the results of groundwater modelling and, where necessary, uses conservative assumptions, (e.g., the tile drains remain

functional and serve as a faster pathway to the Kichi-Sìbì (Ottawa River)), and considers the tile drains to have failed (so that the facility resaturates more quickly). The PostSA TSD concludes that no residual effects are expected from potential contaminant migration in groundwater.

In addition, monitoring of the environment will be undertaken to verify the EIS predictions of no significant adverse effect and to confirm that mitigation measures are effective. Groundwater wells will be located between the NPD facility and the Kichi-Sìbì (Ottawa River) in order to monitor groundwater quality after it interacts with the facility and before it reaches the Kichi-Sìbì (Ottawa River). CNL will conduct monitoring for as long as necessary to verify the results of the assessment in the EIS.

Through engagement, CNL is open and willing to collaboratively discuss the list of mitigation measures proposed for the NPD Closure Project as well as KZA's interests in water monitoring and mitigation efforts. CNL understands that this concern is outstanding from KZA's perspective. CNL is committed to involving Indigenous Nations, such as KZA, in its monitoring programs, and is open and willing to explore options for KZA's desired involvement in monitoring at the NPD site. CNL believes that a dedicated Indigenous-led, Indigenous Knowledge driven component integrated into the site monitoring at NPD can help build confidence and trust in CNL's assessment.

Protection of Flora and Fauna

KZA is concerned about potential adverse effects on biota such as the chimney swift and monarch butterfly. Site tours and a follow-up meeting were organized to help inform KZA's understanding of the NPD site and to address further feedback.

As a result of feedback from Indigenous Nations, communities and organizations, in particular KZA staff observations of milkweed, the monarch butterfly was added as a VC in the terrestrial environment assessment of the 2017 draft NPD EIS (Section 6.3.2 of the EIS). Potential environmental effects on habitat are considered along with mitigation measures in Section 9.6.3.2 of the EIS. Section 9.6.3.2 in the EIS describes the mitigation measures that will be implemented during NPD Closure Project activities to ensure effects on chimney swifts are minimized. CNL has also applied for a permit under the *Species at Risk Act* in order to undertake project activities which may affect chimney swifts.

In response to increased interest in the chimney swift beginning in 2019, CNL invited Indigenous Nations, communities and organizations to participate in the annual National Chimney Swift Roost Counts at the NPD site; the Swift counts demonstrate how the ventilation stack at NPD is used as a roosting site. CNL will continue to follow up with KZA to address any emerging concerns about this topic.

Protection of the Kichi-Sìbì (Ottawa River)

In their comments on the 2016 Project Description, KZA first expressed their interest in the protection of the hydrological environment (waterways) around the NPD Closure Project; specifically, they were concerned about radiological contamination in the Kichi-Sìbì (Ottawa River). Through various engagement activities, CNL has shared the results of its hydrological and hydrogeological environment assessments which describe how the NPD Closure Project mitigation measures will be protective of the Kichi-Sìbì (Ottawa River) during NPD Closure Project activities. During the May 2017 meeting with KZA, NPD Closure

Project experts were able to discuss and address the specific concerns of KZA representatives; CNL presented the environmental monitoring methods at NPD which will verify that mitigation measures effectively maintain that concentrations of contaminants in surface water and groundwater will meet federal and provincial safety standards for the protection of humans and wildlife (Section 4.1 and Section 9.3.3.2 of the EIS). In July 2017, KZA participated in an NPD site tour where ecological and archaeological studies at the NPD site were discussed. During these meetings, KZA representatives had opportunities to ask technical questions related to environmental mitigation measures employed at the NPD site. In October 2021, KZA's new point of contact connected with CNL and coordinated a meeting where the representatives had a number of questions on the NPD Closure Project related to the radiological waste inventory at the NPD site and the interests and concerns about the project raised by other Indigenous Nations, communities and organizations. KZA also requested baseline environmental information for the NPD site. CNL followed-up with KZA providing a draft of this document's Appendix C, where the records of engagement and *Tables of Interests and Concerns* are found, six documents containing baseline environmental information, and further information on the radiological waste inventory. CNL will continue to follow up with the KZA to address any emerging concerns related to this topic.

Socio-economic

KZA expressed an interest in general contracting or employment opportunities. While this is a broader topic of concern and is not specific to the EA of the NPD Closure Project, CNL has provided information about procurement and available job postings on the CNL website. CNL will maintain open dialogue with the KZA in order to address outstanding concerns specific to the NPD Closure Project.

CNL is committed to improved economic outcomes and benefits for Indigenous peoples from its projects. CNL has acknowledged this gap and is working to develop a company-wide Indigenous Procurement Strategy, as well as a Reconciliation Action Plan, which includes a commitment to advance economic reconciliation.

Traditional Land and Resource Use and Cultural Impacts

KZA is concerned that the EIS neglects to acknowledge CNL's responsibility in creating and perpetuating avoidance of the area by KZA members. KZA notes that there is a lack of desire to hunt and fish near the site and reluctance to gather plants that were grown in soils ravaged by radioactive contamination. The idea that KZA must hunt, fish, and gather at the site to validate KZA claims to the right to co-manage and protect it is a shortfall in the understanding of KZA culture and values.

CNL acknowledges KZA's concerns about the safety of the NPD site and the potential impacts on the rights of the KZA and other Indigenous Nations, communities, and organizations to practice traditional activities around the NPD site. CNL has assessed potential effects related to dust and noise nuisance, loss of connection, safety of harvesting and consuming local foods, and changes to access and identified no significant adverse effects. To instil confidence in the EIS findings and the effectiveness of the follow-up monitoring, CNL will involve the KZA and other Indigenous Nations, communities and organizations in the monitoring program, if desired, which aims to confirm the predictions of the EIS.

CNL notes that the final end-state is the only time when changes to access will occur; the final end-state of the NPD site will be an improvement from current conditions.

The PostSA TSD addresses the potential for concerns about loss of connection to land and water, and about food safety. The PostSA and EIS (and other supporting studies) have demonstrated that, there are no concerns about the accessibility or safety of the NPD site in the long term based on several different future use scenarios, including self-sufficient Indigenous receptors. The proposed activities will result in an enhancement of current conditions at the NPD site and will improve the ability to practice traditional activities in the area surrounding the NPD site. These findings, which will be confirmed by monitoring, may reduce concerns about loss of connection to land and water, and about food safety.

Summary

At present, this summary of interests and concerns is a consolidation of all the interests and concerns the KZA have brought forward on the NPD Closure Project. While CNL recognizes the KZA's concern on aspects of protection of the environment and employment, contracting and other economic interests, CNL notes that these interests go beyond the scope of this project. CNL will continue to document and share with the CNSC in CNL's subsequent IER TSD any additional feedback provided by the KZA relative to aspects of protection of the environment and employment, contracting and other economic interests.

The project-specific concerns raised by the KZA are considered in the context of the EIS. As noted above, CNL has shared with the KZA a preliminary table of commitments that reflect the measures proposed by CNL to address the concerns raised to date by the KZA. CNL will continue to respond to questions and concerns from the KZA through its ongoing engagement. CNL will seek to understand those concerns in the context of the EIS and the NPD Closure Project and commits to work together with KZA regarding the project.

6.2.4.7.4 Verification

KZA have provided several key inputs, identifying interests and concerns related to the NPD Closure Project, including comments on the Project Description, meetings and correspondence. To confirm CNL has adequately captured KZA's interests and concerns, position and knowledge, KZA and CNL underwent a verification process where CNL provided key documentation to KZA for their review and feedback. Through this process, KZA has reviewed and provided feedback on their *Table of Interests and Concerns*. While not all of KZA's concerns have been mitigated by this process to date, CNL has made every effort to verify that KZA's position, interests and concerns were adequately characterized. CNL continues to work with KZA to address their concerns through ongoing discussions. Details of the interactions that formed the verification process between CNL and KZA are captured in the IER TSD.

The Summary of KZA Key interests and concerns has been developed at the working group level based on community feedback. This information has not been reviewed or vetted by KZA leadership. KZA and CNL remain committed to working respectfully and collaboratively at the working group level and will seek opportunities to present this information to leadership.

6.2.4.7.5 Next Steps

Through KZA's written preliminary comments on the EIS, received by CNL in December 2023, CNL has used the feedback shared by KZA to update the interests and concerns for KZA. CNL re-shared the interests and concerns tables with KZA and have discussed with KZA within the Working Group to ensure that KZA's interests and concerns have been captured appropriately. The Summary of KZA key interests and concerns has been developed at the working group level based on community feedback. CNL has also incorporated KZA feedback and knowledge shared through other submissions related to CNL projects into the EIS.

The KZA community consultation information has been shared with KZA leadership. This information has not been reviewed or vetted by KZA leadership, however KZA representation in the working group have confirmed that KZA has fully participated in pre-consultation efforts to the best of KZA's availability.

6.2.4.8 Williams Treaties First Nations (WTFN)

The WTFN are the Chippewas of Beausoleil, Georgina Island and Rama, and the Mississaugas of Alderville, Curve Lake, Hiawatha and Scugog Island. These seven First Nations are signatories to various 18th and 19th century treaties that covered lands in different parts of south-central Ontario. In 1923, the Chippewas and Mississaugas signed the Williams Treaties, which included one large tract of land between Lake Huron and the Kichi-Sìbì (Ottawa River) bounded on the north by the Mattawa River-Lake Nipissing and French Line and on the south by earlier concluded treaties. A fuller description of the WTFN communities can be found in Chapter 3 of the IER TSD.

6.2.4.8.1 WTFN Process Coordinator

Table C-19 of Appendix C.5 below includes a summary of key engagement activities that have occurred with the WTFN Process Coordinator on the NPD Closure Project. A complete list of engagement activities can be found in Appendix F (Table F-1) of the IER TSD.

In July 2016, CNL sent each of the WTFN communities a letter to introduce the proposed NPD Closure Project that included a request for community input on any potential adverse impacts from project activities followed by a second letter in November 2016, which inquired about each community's asserted rights and traditional activities. CNL received responses from some of the individual communities, including Curve Lake First Nation and Chippewas of Rama.

Based on an email from the Chippewas of Rama First Nation advising CNL that the November 2016 CNL letter was sent to the WTFN Process Coordinator for review, CNL sent email correspondence in late 2016 and early 2017 to the Process Coordinator to inquire about whether the WTFN (collectively) were interested in engaging with CNL on the NPD Closure Project. CNL did not receive a response.

In 2017, CNL did have engagement with Curve Lake First Nation, in particular, Curve Lake requested archaeological information, and CNL provided the archaeological assessment in response.

In late 2017, CNL shared the draft EIS and IER TSD with all of the WTFN communities and invited the WTFN communities to participate in the public and Indigenous EA comment period. None of the communities submitted comments to the CNSC on the draft EIS and CNL did not receive any feedback from any WTFN communities on the report or draft EIS.

In February 2020, CNL once again reached out to the WTFN Process Coordinator to inquire about whether the WTFN as a whole were interested in engaging with CNL on the NPD Closure Project. CNL did not receive a response. As of March 2020, CNL was informed that all engagement activities should be done through each community consultation coordinator/liaison, rather than the WTFN Process Coordinator.

In November of 2023, CNL and the WTFN communities agreed to transition away from monthly meetings and to move to quarterly meetings and information sharing about project updates, milestones and/ or news in between meetings as needed.

The following sections described the engagement with each individual community in the WTFN.

6.2.4.9 Alderville First Nation

6.2.4.9.1 Engagement

Table C-20 of Appendix C.5 includes a summary of key engagement activities that have occurred with Alderville FN on the NPD Closure Project as of March 31, 2024. A complete list of engagement activities can be found in Appendix Q (Table Q-1) of the IER TSD. CNL has also provided a narrative summary of engagement with Alderville FN. This has been included to illustrate the development of the relationship between the AANTC and CNL related to the NPD Closure Project, and in particular the EA process.

Information Sharing

In July 2016, CNL sent Alderville FN a letter to introduce the proposed NPD Closure Project, which included a request for community input on any potential adverse impacts from project activities followed by a second letter in November 2016 which inquired about Alderville FN's asserted rights and traditional activities. CNL did not receive a response from Alderville FN.

In late 2017, CNL shared the draft EIS and the IER with Alderville FN. CNL encouraged participation in the public comment period for the draft EIS and requested community input and feedback for incorporation into the project. Alderville FN did not submit comments on the draft EIS to the CNSC and CNL did not receive any feedback from Alderville FN on this report.

In early 2022, Alderville FN began to attend the WTFN monthly meetings coordinated between Curve Lake FN and CNL and open to all.

In October 2022, CNL met virtually with Alderville FN to provide them with an update on the NPD project and to discuss the October 26, 2022 NPD/CRL site tour. Alderville did not attend the site tour.

Engagement with all of the Williams Treaties First Nations (WTFN)

In May 2020, CNL shared a version of the revised draft EIS, which had been submitted to the CNSC, as well as the updated IER TSD and inquired on any Alderville FN specific information. Later that month, in follow up to a webinar requested on the NSDF Project, the CNL held a webinar on the NPD Closure Project for the WTFN in May 2020. Alderville FN participated in this webinar and had two specific questions related to the ventilation stack at NPD and the Chimney Swift population. Other follow-up from the webinar, which was distributed to all participants, included the annual compliance and monitoring reports for three previous years and the archaeological assessment for the NPD site.

In late 2020, CNL and Curve Lake FN began discussions on the development of a contribution agreement. As a part of these discussions Curve Lake coordinated a recurring monthly meeting between all of the WTFN and CNL as a touch point on the various CNL projects and activities of interest to the WTFN communities. The first monthly meeting was in March 2021 and invitations were sent in February 2021 to all WTFN community representatives. After each meeting every community representative receives a copy of the content discussed at the meeting and CNL responds to questions and comments on the content. To date, there have been 16 monthly meetings with the WTFN, three of which the Alderville FN Consultation Coordinator has been able to attend. All of these have included an update on the NPD Closure Project including an overview of the project, the draft follow-up monitoring plans for the NPD Closure Project, the interests and concerns of Hiawatha FN and Curve Lake FN, the CNL Indigenous Relations Procurement Strategy, and the Curve Lake FN review of the NPD Closure Project's draft EIS and CNL's responses to this review. CNL has not heard any specific concerns or interests through this engagement.

Commitments

In April 2021, CNL provided a project status update and a preliminary table of commitments to Alderville FN, which CNL had developed through engagement on the NPD Closure Project.

In October 2022, CNL sent a letter addressed to Alderville First Nation providing a project update and the engagement status. CNL stated it is committed to recording Alderville FN interests and concerns into the EIS. CNL proposed next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for Alderville First Nation's review. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that Alderville First Nation respond confirming their agreement to proceed with the engagement activities, or modified engagement activities. CNL did not receive a response.

In January 2023, CNL informed Alderville FN of the decision to postpone the submission of the NPD Closure Project's draft EIS until May 2023 to allow for additional Indigenous input.

Summary Table of Interests and Concerns

In June 2021, CNL shared a draft summary of interests and concerns for Alderville FN seeking to verify this summary with Alderville FN.

The representative from Alderville FN was unable to attend the WTFN monthly meetings in the summer of 2021. However, Curve Lake FN and Hiawatha FN did indicate at the June 2021 meeting that the Mississauga nations (including Alderville FN) would have internal discussions on interests and concerns with respect to the NPD Closure Project. CNL followed up with Alderville in August. Alderville FN did not verify the *Table of Interests and Concerns* prior to the December 2021 EIS submission.

In January 2022, the CNSC informed CNL that the December 2021 EIS submission was incomplete. The CNSC staff directed CNL to revise the *Tables of Interests and Concerns* for clarity. CNL developed a simplified *Table of Interests and Concerns* (Table C-28 in Appendix C.5), and a table which maps how this simplified table relates to detailed input and feedback from the WTFN (Table C-27 in Appendix C.5). The new table was shared with Alderville FN in April 2022 requesting that Alderville FN verify that the new table retained Alderville FN's interests and concerns. In June 2022, Curve Lake FN reviewed the table and provided comments to CNL on behalf of three WTFN communities: Curve Lake FN, Alderville FN and Hiawatha FN. This was agreed to by Alderville FN in an email in April 2022. In June 2022, CNL shared back the revised tables to confirm how CNL had incorporated all three WTFN communities' feedback.

6.2.4.9.2 Feedback

Alderville FN has not submitted any written comments on the NPD Closure Project Description or the EIS. However, based on verbal comments during engagement in 2020 (specifically the May 2020 webinar), CNL has noted the community's interest in the Chimney Swift.

6.2.4.9.3 Summary Discussion of Interests and Concerns

The key interests and concerns discussed in this section were derived from various engagements with Alderville FN, the details of which are recorded in Table C-20 of Appendix C.5 and described in Section 6.2.4.9.1 of this EIS.

Protection of Flora and Fauna

During the May 2020 NPD Closure Project update webinar that focused on, among other topics, Species at Risk and VCs, Alderville FN along with fellow WTFN members expressed interest in the maintenance of the ventilation stack (i.e., the height of the stack) at the NPD site as a long-term roosting habitat for the chimney swift. Alderville FN also inquired about mitigation measures which are designed to be protective of the species; Section 9.6.3.2 in the EIS describes the mitigation measures that will be implemented during NPD closure activities to ensure effects on chimney swifts are minimized. CNL has also applied for a permit under the *Species at Risk Act* (*SARA*) through the ECCC in order to undertake project activities which may affect chimney swifts.

In addition to responses to specific questions, CNL provided the Chimney Swift TSD and thermal imaging videos from a Chimney Swift roosting event. In response to increased interest in the chimney swift beginning in 2019, CNL invited Indigenous Nations, communities and organizations to participate in the annual National Chimney Swift Roost Counts at the NPD site; the Swift counts demonstrate how the ventilation stack at NPD is used as a roosting site. The 'Swift count nights' transitioned a virtual event as a

result of public health restrictions due to the COVID-19 pandemic in 2020. CNL will continue to follow up with Alderville FN and facilitate open dialogue to address any emerging concerns about this topic.

Summary

At present, the summary of interests and concerns is a consolidation of all the interests and concerns the Alderville FN have brought forward on the NPD Closure Project as understood by CNL. The project-specific concern (on the Chimney Swifts) raised by Alderville FN is considered in the context of the EIS. As noted above, CNL has shared with Alderville FN a preliminary table of commitments that reflect the measures proposed by CNL to address the concern raised to date by Alderville FN. CNL will continue to respond to questions and concerns from Alderville FN through its ongoing engagement efforts. CNL will seek to understand those concerns in the context of the EIS and the NPD Closure Project and commits to continue to work together with Alderville FN to receive their feedback on the project.

6.2.4.9.4 Verification

Alderville FN have provided key input, identifying several interests and concerns related to the NPD Closure Project through feedback at meetings. To confirm CNL has adequately captured Alderville FN's interests and concerns, position and knowledge, Alderville FN and CNL underwent a verification process where CNL provided key documentation to Alderville FN for their review and feedback. Through this process, Alderville FN has reviewed and provided feedback on their *Table of Interests and Concerns*. While not all of Alderville FN's concerns have been mitigated by this process to date, CNL has made every effort to verify that Alderville FN's position, interests and concerns were adequately characterized. CNL continues to work with Alderville FN to address their concerns through ongoing discussions. Details of the interactions that formed the verification process between CNL and Alderville FN are captured in the IER TSD.

6.2.4.9.5 Next Steps

CNL will continue to share project information with the Alderville FN. Should Alderville FN bring forward any new concerns or interests through this ongoing engagement or regulatory proceeding, CNL will seek to understand those concerns in the context of the EIS and the project and commits to continue to work together with Alderville FN to receive their feedback on the project.

6.2.4.10 Curve Lake First Nation

6.2.4.10.1 Engagement

Table C-21 of Appendix C.5 includes a summary of key engagement activities that have occurred with Curve Lake FN on the NPD Closure Project as of March 31, 2024. A complete list of engagement activities can be found in Appendix U (Table U-1) of the IER TSD. CNL has also provided a narrative summary of engagement with Curve Lake FN.

Comments on the Project Description

Curve Lake FN submitted comments on the Project Description for the NPD Closure Project in June of 2016. In July 2016, CNL sent the Curve Lake First Nation a letter to introduce the proposed NPD Closure

Project, which included a request for community input on any potential adverse impacts from project activities followed by a second letter in November 2016 which inquired about Curve Lake FN's asserted rights and traditional activities. Curve Lake responded with an interest in the NPD Closure Project and particularly in the archaeological assessment. CNL formally responded to this interest in 2017 and shared the archaeological assessment with Curve Lake First Nation, once it was completed, in early 2017.

Information Sharing

In late 2017, CNL shared the draft EIS and the IER TSD with Curve Lake FN. CNL encouraged participation in the public comment period for the draft EIS and requested community input and feedback for incorporation into the project. Curve Lake FN did not submit comments on the draft EIS to the CNSC and CNL did not receive any feedback from Curve Lake FN on this report.

Engagement with all of the Williams Treaties First Nations (WTFN)

In May 2020, CNL shared the March 2020 revised draft EIS, which had been submitted to the CNSC, as well as the updated IER TSD and inquired on any Curve Lake FN specific information. Later that month, in follow up to a webinar requested on the NSDF Project, CNL held a webinar on the NPD Closure Project for the WTFN in May 2020. Curve Lake FN participated in this webinar and had a number of specific questions related to chimney swifts, end state, engagement, site ownership and purpose of the disposal facility. CNL responded to all of these questions. Other follow-up from the webinar, which was distributed to all participants, included the annual compliance and monitoring reports for three previous years and the archaeological assessment for the NPD site.

In November 2020, Curve Lake FN and CNL representatives met to discuss developing a contribution agreement. Discussions evolved to determine what this would entail and what engagement activities would come out of such an agreement. In early 2021, as a part of these discussions, Curve Lake FN coordinated a recurring monthly meeting between all of the WTFN and CNL as a touch point on the various CNL projects and activities of interest to the WTFN communities. The first monthly meeting was in March 2021 and invitations were sent in February 2021 to all WTFN community representatives, after confirming the timing and format with Curve Lake FN.

Discussions at these meetings have included a deeper dive into topics that have been of interest to Curve Lake FN, including SARs, which was touched on as a part of the biodiversity-focused meeting in May 2021. The meetings have focused on aspects of the NPD Closure Project, including: an overview of the project, the draft EA Follow-up Program for the NPD Closure Project, the interests and concerns of Hiawatha FN and Curve Lake FN, the Curve Lake FN review of the NPD Closure Project's draft EIS and CNL's responses to this review and the CNL Indigenous Relations Procurement Strategy.

In October 2022, CNL welcomed WTFN communities, Curve Lake FN, Hiawatha FN, Scugog Island FN, and the Chippewas of Rama FN to a site tour of the NPD facility as part of a two-day visit of the Chalk River Laboratories site and area visit. The day include a smudging ceremony by the Kichi-Sìbì (Ottawa River) and relationship building including answering questions from the WTFN communities.

Commitments

In April 2021, CNL provided a preliminary table of commitments to Curve Lake FN made through engagements and comment responses for the NPD Closure Project. In October 2022, CNL sent a letter addressed to Curve Lake FN providing a project update and the engagement status. CNL stated it is committed to recording Curve Lake's interests and concerns into the EIS. CNL proposed next steps, including establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for Curve Lake FN's review. CNL requested that Curve Lake FN respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.

In March 2023, CNL shared the proposed Curve Lake FN and Hiawatha FN NPD table of commitments that addressed the comments from Curve Lake FN's feedback and added a proposed timeline column to the commitments table. Curve Lake verified the accuracy of the table in June 2023.

Summary of Interests and Concerns

In June 2021, CNL shared a draft summary of interests and concerns for Curve Lake FN. In response to this letter, Curve Lake FN decided that the interests and concerns of the WTFN would be a focus topic for the July monthly meeting. During the July monthly meeting CNL, Curve Lake FN and Hiawatha FN discussed additional interests to be incorporated in the *Table of Interests and Concerns* and CNL shared back an updated table in August 2021. CNL followed up in September 2021 to confirm that Curve Lake interests and concerns brought forward to date were accurately captured.

In January 2022, the CNSC informed CNL that the December 2021 EIS submission was incomplete. The CNSC staff directed CNL to revise the *Tables of Interests and Concerns* for clarity. CNL developed a simplified *Table of Interests and Concerns* (Table C-28 in Appendix C.5), and a table which maps how this simplified table relates to detailed input and feedback from the WTFN (Table C-27 in Appendix C.5). The new table was shared with Curve Lake FN in April 2022 requesting that Curve Lake FN verify that the new table retained Curve Lake FN's interests and concerns. In June 2022, Curve Lake FN reviewed the table and provided comments to CNL on behalf of three WTFN communities: Curve Lake FN, Alderville FN and Hiawatha FN.

Since 2022, Curve Lake FN and CNL have continued to make positive steps forward and have completed some of the next steps that were identified together. Due to the importance of the summary *Table of Interests and Concerns* and the Curve Lake's input on verifying its completeness and accuracy, CNL shared the most updated version of this table in May 2023. CNL noted the updates to the *Table of Interests and Concerns*, primarily related to the recent progress made on next steps. Specifically, CNL had made updates to its response to the interest/concern and the status of the concern. Curve Lake confirmed the table was complete and accurate in June 2023.

Review of the Revised Draft EIS

In July 2021, Curve Lake FN shared their review of the revised draft EIS for the NPD Closure Project. CNL provided dispositions in late August. Curve Lake FN decided that the review and CNL's responses should

be the focus topic for the September monthly meeting. This meeting was an open discussion between Curve Lake FN, Hiawatha FN and CNL on each finding and CNL's response.

Contribution Agreement

In late 2020, Curve Lake FN expressed interest in entering into an agreement with CNL, which included interest in support for involvement with the NPD Closure Project. Discussions on the contribution agreement continued throughout 2021 and a number of activities described in the contribution agreement began, including the monthly meeting. The agreement was entered into in November 2021 and remains in effect.

6.2.4.10.2 Feedback

Curve Lake FN submitted comments on the Project Description and reviewed the March 2020 revised draft EIS. In addition, Curve Lake FN has raised several interests through engagements with CNL.

The interests and concerns from the Curve Lake FN are briefly identified below and then detailed in the Summary Discussion of Interests and Concerns – Section 6.2.4.10.3 and the *Table of Interests and Concerns* in Table C-28 of Appendix C.5.

Aquatic Environment. As a finding from their review of the revised draft EIS, Curve Lake highlighted that wetlands are sacred to the Curve Lake FN and also requested additional information on the benthic invertebrate community.

Archaeology and Cultural Heritage. Based on a formal review and comment of the 2016 Project Description, Curve Lake FN requested the archaeological assessment.

Baseline Characterization. Curve Lake FN expressed the importance of understanding baseline tritium levels in the Kichi-Sìbì (Ottawa River), and in soil and vegetation.

Engagement. Curve Lake FN and CNL have been in discussions about providing resources for their enhanced involvement in CNL projects. As part of the monthly information sharing meetings, Curve Lake FN and other WTFNs have indicated a desire for more holistic engagement with CNL that goes beyond individual projects. Also, based on review of the revised draft EIS, Curve Lake FN noted several instances of colonial language in the EIS.

EA Process and Methodology. Based on review of the revised draft EIS, Curve Lake FN requested more detailed explanation of several categories of VCs.

End State, Site Restoration, and Future Use of the Land. Based on review of the revised draft EIS, Curve Lake FN highlighted that Indigenous Nations, communities and organizations should have the opportunity to provide input to the final site restoration plan.

Protection of Flora and Fauna. Following a webinar held for the WTFN, Curve Lake FN raised specific questions on a number of items including Chimney Swifts.

Protection of the Kichi-Sìbì (Ottawa River). Through engagement, CNL understands that protection of the environment, specifically the Kichi-Sìbì (Ottawa River), is important to Curve Lake FN.

Socio-economic. Based on review of the revised draft EIS, Curve Lake First Nation highlighted effects of colonialism that are reflected in the socioeconomic data.

6.2.4.10.3 Summary Discussion of Interests and Concerns

The key interests and concerns discussed in this Section were derived from various engagements with Curve Lake FN, the details of which are recorded in Table C-21 of Appendix C.5 and described in Section 6.2.4.10.1 of this EIS.

Aquatic Environment

Curve Lake FN expressed that wetlands are sacred to the WTFN and expressed concern that they are not assessed in greater detail within the EIS. Further, Curve Lake FN was seeking additional information about the benthic invertebrate community and whether a detailed survey of mussels was included in the benthic study.

CNL responded to Curve Lake FN to explain the reason why the aquatic environment in the wetlands was not assessed in greater detail is because no project activities will take place on the wetlands, and the groundwater source of the wetlands is not affected at all by groundwater from the NPD site. Groundwater on the NPD site flows towards the Kichi-Sìbì (Ottawa River), so groundwater that interacts with the NPD facility flows away from the wetland, towards the Kichi-Sìbì (Ottawa River). Extensive groundwater monitoring between the facility and the river is planned to enable confirmation of the EIS prediction of little impact to groundwater. CNL has offered to review the Draft Follow-up Groundwater Monitoring Plan with CLFN and hear feedback.

After completion of the version of the EIS reviewed by Curve Lake FN, CNL completed a comprehensive survey of sediment, fish habitat and benthic invertebrates in the Kichi-Sìbì (Ottawa River) upstream, adjacent to and downstream of the NPD property. In response to CLFN interest CNL has shared the study report which contains details about the study design, benthic invertebrate classification and description of the benthic invertebrate community (BIC) composition. If monitoring of the Kichi-Sìbì (Ottawa River) benthic invertebrate community is required in the future, this study can be repeated and metrics compared. The hickorynut mussel was not subject to a targeted survey, but given the healthy state of sediment and benthic biota and no in-water work planned for the project, no adverse effects to freshwater mussels resulting from the NPD Closure Project are anticipated. CNL revised Section 6.3.2 (VCs Identified by Indigenous Nations, Communities and Organizations) to include better explanation of where and how VCs identified by Indigenous Nations, communities and organizations are included and assessed.

Archaeology and Cultural Heritage

Curve Lake FN expressed their interest in any archaeological work conducted at the NPD site. In response, CNL provided Curve Lake with a copy of the Archaeological Assessment report. CNL did not receive comments regarding archaeology at NPD until the May 2020 webinar when Curve Lake FN again requested

the Archaeological Assessment report. A summary of the Archaeological Assessment is also included in Section 8.11.4 of the EIS along with a description of Indigenous Cultural Resources and Ceremonies in Section 8.9. Furthermore, Section 9.9.3.2 in the EIS describes proposed mitigation measures that will be employed if undocumented archaeological resources are discovered during NPD Closure Project activities.

CNL has not received feedback regarding archaeological concerns from Curve Lake FN. CNL will continue to work with Curve Lake FN on any emerging concerns or interests related to archaeology.

Baseline Characterization

Curve Lake FN expressed concern about the tritium levels in the Kichi-Sìbì (Ottawa River), including soil and vegetation, specifically what portion of tritium comes from natural sources versus anthropogenic sources. Baseline conditions for surface water quality (including the Kichi-Sìbì (Ottawa River)) are found in Section 8.3.4 of the EIS. Curve Lake FN and CNL will continue sharing information about tritium levels in the Kichi-Sìbì (Ottawa River) and the local environment, including soil and vegetation to support an improved understanding of natural and anthropogenic sources of tritium, including historic anthropogenic sources.

Engagement

Curve Lake FN expressed interest in greater involvement in the EA process for the NPD Closure Project. In late 2020, Curve Lake FN and CNL initiated discussions to establish a contribution agreement to support involvement in CNL's Environmental Remediation Projects, including NPD. This contribution agreement was signed in November 2021.

During monthly meetings in September 2021, February 2022 and March 2022 Curve Lake First Nation indicated an interest in broader engagement with CNL as a whole and earlier involvement with planning for activities and projects at CNL. CNL is committed to open, transparent and continuing engagement with Curve Lake First Nation. CNL has expanded its engagement with Curve Lake First Nation through monthly meetings that are focused on topics chosen by the WTFN community representatives.

Curve Lake FN highlighted several instances of colonial language and concern about the priority of Indigenous engagement considering its placement within the EIS (i.e., following public engagement). In response, CNL has updated the language within the EIS to remove colonial language and emphasize the importance and priority of Indigenous engagement including reordering the EIS table of contents to have the Indigenous Engagement section moved forward.

At the end of October 2022, CNL was invited to visit Curve Lake First Nation. CNL's visit to the community was a day of listening and experiencing the cultural values of the community; CNL visited and observed the historic and sacred Petroglyphs site, shared in a smudging ceremony, and heard from Elders within the community. The group congregated at the Curve Lake Community Centre and met with the Chief and council. The afternoon followed with informal conversations and perspective-sharing. Later in October, the WTFN communities were invited to tour the NPD facility as part of a two-day visit to the Chalk River Laboratories site and area. Representatives from CNL, Curve Lake FN, Hiawatha FN, Scugog Island,

Chippewas of Rama First Nation and AECL took part in a tour and site walk. The day include a smudging ceremony by the Kichi-Sìbì (Ottawa River) and relationship building.

EA Process and Methodology

Curve Lake FN requested additional detail on several species assessed or not directly assessed within the EIS. Specifically, Curve Lake FN was interested in Fungi, Benthic invertebrates and mussels. CNL has provided an explanation about the broad categories of VCs, which encompass several species (e.g., the "mushroom" VC include all mushroom species, and the "benthic invertebrates" VC includes mussels). CNL has shared the EcoRA TSD where the details of the ecological effects assessment can be found. Further, CNL has revised Section 6.3.2 (VCs Identified by Indigenous peoples/Communities) of the EIS to include better explanation of where and how VCs identified by Indigenous Nations, communities and organizations are included and assessed.

End State, Site Restoration and Future Use of the Land

Curve Lake FN indicated that the discussion of final site restoration in the EIS gives the impression that Indigenous input will not be considered. CNL has clarified AECL's role and will consider input from Indigenous peoples regarding the final site restoration activities. While future land use is linked to the NPD Closure Project, it is not a requirement of the EA that the future land use be determined at this time.

The landowner, AECL, is also committed to engagement and consultation with Indigenous Nations, communities, and organizations, such as Curve Lake FN, on future end state and land use. The potential land options will not be fully determined until the NPD Closure Project EA and license amendment process proceeds further. In the meantime, CNL is preparing a plan for site restoration after decommissioning is complete, which CNL is committed to sharing with Curve Lake FN for feedback and input.

Protection of Flora and Fauna

Curve Lake FN expressed interest in the protection of SAR at the NPD site. CNL received questions from Curve Lake FN regarding the chimney swift as a vulnerable SAR. Section 9.6.3.2 in the EIS describes the mitigation measures that will be implemented during NPD closure activities to ensure effects on chimney swifts are minimized. CNL has also applied for a permit under the *Species at Risk Act* to undertake project activities which may affect chimney swifts. In addition to responses to these questions, CNL provided the Chimney Swift TSD. In response to increased interest in the chimney swift beginning in 2019, CNL invited Indigenous Nations, communities and organizations to participate in the annual National Chimney Swift Roost Counts at the NPD site; the Swift counts demonstrate how the ventilation stack at NPD is used as a roosting site. The 'Swift count nights' transitioned a virtual event as a result of public health restrictions due to the COVID-19 pandemic in 2020. CNL will continue to follow up with Curve Lake FN to address any emerging concerns with respect to this topic.

Protection of the Kichi-Sìbì (Ottawa River)

Curve Lake FN expressed that they deem the protection of the Kichi-Sìbì (Ottawa River) to be critical. As part of the May 2020 webinar, CNL discussed the results of the surface water environment assessment for the NPD Closure Project. Following the webinar, Curve Lake FN provided a list of inquiries related to the

topics discussed during the webinar. Many of Curve Lake FN's concerns regarding the Kichi-Sìbì (Ottawa River) are discussed in the EIS. In the dispositions to Curve Lake FN, CNL noted that Section 4.1 of this EIS describes the in-design features that isolate and contain the waste inventory within the NPD facility; Section 9.3.3 describes the mitigation measures – such as surface water management systems – that will be implemented for the protection of surface water receptors.

CNL will continue to engage with Curve Lake FN and facilitate open dialogue to address emerging concerns about this topic.

Socio-economic

Curve Lake FN highlighted that challenges experienced by their sister community are the direct result of the effects of colonialism and the *Indian Act*. CNL had prepared an Indigenous Socio-economic section for the EIS in response to feedback from other communities on the 2017 draft EIS. In preparing this new section CNL included standard aspects that typically comprise more detailed socio-economic profiles aligning with the information presented in Section 8.11 of the EIS (socio-economic). CNL has been engaging directly with the community flagged by Curve Lake FN on the NPD Closure Project and a number of broader issues. CNL will continue to engage with Curve Lake FN and facilitate open dialogue to address concerns about this topic.

Summary

The project-specific concerns raised by Curve Lake FN are considered in the context of the EIS. As noted above, CNL has shared with Curve Lake FN a preliminary table of commitments that reflect the measures proposed by CNL to address the concerns raised to date by the Curve Lake FN. CNL will continue to respond to questions and concerns from Curve Lake FN through its ongoing engagement efforts. CNL will seek to understand those concerns in the context of the EIS and the NPD Closure Project and commits to work together with Curve Lake FN regarding their feedback on the project.

6.2.4.10.4 Verification

Curve Lake FN have provided many key inputs, identifying several interests and concerns related to the NPD Closure Project including a review of the 2020 revised draft EIS, feedback at meetings and through correspondence. To confirm CNL has adequately captured Curve Lake FN's interests and concerns, position and knowledge, Curve Lake FN and CNL underwent a verification process where CNL provided key documentation to Curve Lake FN for their review and feedback. Through this process, Curve Lake FN has reviewed and provided feedback on their *Table of Interests and Concerns* and confirmed its accuracy. While not all of Curve Lake FN's concerns have been mitigated by this process to date, CNL has made every effort to verify that Curve Lake FN's position, interests and concerns were adequately characterized. CNL continues to work with Curve Lake FN to address their concerns through ongoing discussions.

Details of the interactions that formed the verification process between CNL and Curve Lake are captured in the IER TSD.

6.2.4.10.5 Next Steps

CNL will continue to share project information with Curve Lake FN and continue the scope outlined in the contribution agreement. Should Curve Lake FN bring forward any new concerns or interests through this ongoing engagement or regulatory proceeding, CNL will seek to understand those concerns in the context of the EIS and the project and commits to work together with Curve Lake FN to address the concerns.

6.2.4.11 Hiawatha First Nation

6.2.4.11.1 Engagement

Table C-22 of Appendix C.5 includes a summary of key engagement activities that have occurred with Hiawatha FN on the NPD Closure Project as of March 31, 2024. A complete list of engagement activities can be found in Appendix F (Table F-5) of the IER TSD. CNL has also provided a narrative summary of engagement with Hiawatha First Nation.

Information Sharing

In July 2016, CNL sent the Hiawatha FN a letter to introduce the proposed NPD Closure Project, which included a request for community input on any potential adverse impacts from project activities followed by a second letter in November 2016 which inquired about Hiawatha FN's asserted rights and traditional activities. Hiawatha FN responded with an interest in the NPD Closure Project and particularly in the archaeological assessment. CNL formally responded to this interest in 2017 and shared the archaeological assessment with Hiawatha FN, once it was completed, in early 2017.

In late 2017, CNL shared the draft EIS and the IER with Hiawatha FN. CNL encouraged participation in the public comment period for the draft EIS and requested community input and feedback for incorporation into the project. Hiawatha FN did not submit comments on the draft EIS to the CNSC and CNL did not receive any feedback from Hiawatha FN on this report.

In early 2021, Hiawatha FN began to attend the WTFN monthly meetings coordinated between Curve Lake FN and CNL and open to all.

In October 2022, CNL was invited to visit Curve Lake First Nation. CNL's visit to the community was a day of listening and experiencing the cultural values of the community; CNL visited and observed the historic and sacred Petroglyphs site, shared in a smudging ceremony, and heard from Elders within the community. The group congregated at the Curve Lake Community Centre and met with the Chief and council, and also heard from Elders within the community. The afternoon followed with informal conversations and perspective-sharing. We ended the day congregating near the water and walking along the boardwalk.

Contribution Agreement

In November 2022, Hiawatha FN shared with CNL their interest in having a Contribution Agreement. Hiawatha First Nation noted that some of the activities in the agreements would overlap with the Curve Lake FN agreement, but that the funding would not.

In May 2023, CNL shared the Draft Hiawatha First Nation Contribution Agreement with Hiawatha. CNL encouraged any feedback or comments. The Agreement was signed in July 2023.

Engagement with all of the Williams Treaties First Nations (WTFN)

In May 2020, CNL shared the March 2020 revised draft EIS, which had been submitted to the CNSC, as well as the updated IER TSD and inquired on any Hiawatha FN specific information. Later that month, in follow up to a webinar requested on the NSDF Project, CNL held a webinar on the NPD Closure Project for the WTFN in May 2020. Hiawatha FN participated in this webinar and had specific questions related to the ventilation stack at NPD and monitoring. CNL responded to these questions by providing the requested details on the stack and three previous annual compliance and monitoring reports. Other follow-up from the webinar, which was distributed to all participants, included the Chimney Swift TSD, the ELC TSD and the archaeological assessment for the NPD site.

In late 2020, CNL and Curve Lake FN began discussions on the development of a contribution agreement. As a part of these discussions Curve Lake FN coordinated a recurring monthly meeting between all the WTFN and CNL as a touch point on the various CNL projects and activities of interest to the WTFN communities. The first monthly meeting was in March 2021 and invitations were sent in February 2021 to all WTFN community representatives. After each meeting every community representative receives a copy of the content discussed at the meeting and CNL welcomes questions and comments on the content. Hiawatha FN have attended all 16 of the monthly meetings held to date. All of these have included an update on the NPD Closure Project, topics include an overview of the project, the draft follow-up monitoring plans for the NPD Closure Project, the interests and concerns of Hiawatha FN and Curve Lake FN, the CNL Indigenous Relations Procurement Strategy, and the Curve Lake FN review of the NPD Closure Project's draft EIS and CNL's responses to this review.

In October 2022, CNL welcomed WTFN communities, Curve Lake FN, Hiawatha FN, Scugog Island FN, and the Chippewas of Rama FN to a site tour of the NPD facility as part of a two-day visit of the Chalk River Laboratories site and area visit. The day include a smudging ceremony by the Kichi-Sìbì (Ottawa River) and relationship building including answering questions from the WTFN communities.

Commitments

In April 2021, CNL provided a preliminary table of commitments to Hiawatha FN made through engagements and comment responses for the NPD Closure Project. In October 2022, CNL sent a letter addressed to Hiawatha FN providing a project update and the engagement status with Hiawatha FN. CNL stated it is committed to recording Hiawatha's interests and concerns into the EIS. CNL proposed next steps, including establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for Hiawatha FN's review. CNL offered to discuss capacity through amending the contribution agreement. CNL requested that HFN respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.

In January 2023, HFN shared their review of the updated table of commitments. Noting that a timeline is needed to demonstrate CNL's commitment to engagement. In March 2023, CNL shared the proposed Curve Lake FN and Hiawatha FN NPD table of commitments that addressed the comments from Curve

Lake FN's feedback and added a proposed timeline column to the commitments table. Curve Lake verified the accuracy of the table in June 2023.

Summary of Interests and Concerns

In June 2021, CNL shared a draft summary of interests and concerns for Hiawatha FN. In response to this letter, it was decided that the interests and concerns of the WTFN would be a focus topic for the July monthly meeting. During the July monthly meeting CNL, Curve Lake and Hiawatha discussed additional interests to be incorporated in their respective *Table of Interests and Concerns*. CNL shared an updated table with Hiawatha FN in August 2021. CNL followed up again in September 2021 to confirm that Hiawatha FN interests and concerns brought forward to date have been accurately captured.

In January 2022, the CNSC informed CNL that the December 2021 EIS submission was incomplete. The CNSC staff directed CNL to revise the *Tables of Interests and Concerns* for clarity. CNL revised Hiawatha FN's *Table of Interests and Concerns* and shared the new table with Hiawatha FN in April 2022 asking that Hiawatha FN verify that the new table retained Curve Lake Hiawatha FN's interests and concerns. In June 2022, Curve Lake FN reviewed the table and provided comments to CNL on behalf of three WTFN communities: Curve Lake FN, Alderville FN and Hiawatha FN (Hiawatha verbally agreed to Curve Lake FN providing this review). In May 2022, Curve Lake FN provided initial feedback on the tables and in June 2022, Curve Lake and CNL met to incorporate this feedback. Curve Lake FN shared their final revisions in June 2022 and CNL shared back the revised tables to confirm how CNL had incorporated all three WTFN communities' feedback.

In January 2023, CNL informed Hiawatha FN of the decision to postpone the submission of the NPD Closure Project's draft EIS until May 2023 to allow for additional Indigenous input.

Due to the importance of the summary table of interests and concerns and Hiawatha FN's input on verifying its completeness and accuracy, CNL shared the most updated version of this table in May 2023. HFN provided CNL feedback on the table and verified the table was complete and accurate in June 2023.

6.2.4.11.2 Feedback

Hiawatha FN has not submitted any written comments on the NPD Closure Project Description or EIS. Based on verbal comments during engagement throughout 2020 and 2021, CNL has noted a general interest in Environmental Protection. Hiawatha also indicated in July 2021 that their interests aligned with many of the interests raised by Curve Lake.

The interests and concerns from Hiawatha FN are briefly identified below and then detailed in the Summary Discussion of Interests and Concerns – Section 6.2.4.11.3 and the *Table of Interests and Concerns* in Table C-28 of Appendix C.5.

Aquatic Environment. At the July 2021 monthly meeting with WTFN, Hiawatha FN concurred with the interests highlighted by Curve Lake that wetlands are sacred to the WTFN.

Engagement. As part of the monthly information sharing meetings, Hiawatha FN and other WTFNs have indicated a desire for more holistic engagement with CNL that goes beyond individual projects. Also, at the July 2021 monthly meeting with WTFN, Hiawatha FN concurred with the feedback provided by Curve Lake FN noting several instances of colonial language in the EIS.

EA Process and Methodology. At the July 2021 monthly meeting with WTFN, Hiawatha FN concurred with the feedback provided by Curve Lake requesting more detailed explanation of several categories of VCs.

End State, Site Restoration and Future Use of the Land. At the July 2021 monthly meeting with WTFN, Hiawatha FN concurred with the feedback provided by Curve Lake FN highlighting that Indigenous Nations, communities and organizations should have the opportunity to provide input to the final site restoration plan.

Monitoring. Hiawatha First Nation expressed interest in the monitoring plans for the NPD site.

Protection of Flora and Fauna. The Hiawatha FN Lands and Resources staff had particular interest around the ventilation stack and monitoring at the NPD site.

Socio-economics. At the July 2021 monthly meeting with WTFN, Hiawatha FN concurred with the feedback provided by Curve Lake of the effects of colonialism that are reflected in the socioeconomic data.

6.2.4.11.3 Summary Discussion of Interests and Concerns

The key interests and concerns discussed in this section were derived from various engagements with Hiawatha FN, the details of which are recorded in Table C-22 of Appendix C.5 and described in Section 6.2.4.11.1 of this EIS.

Aquatic Environment

During the July 2021 monthly WTFN meeting, Hiawatha FN expressed that wetlands are sacred to the WTFN and expressed concern that they are not assessed in greater detail within the EIS.

CNL responded to Hiawatha FN to explain the reason why the aquatic environment in the wetlands was not assessed in greater detail is because no project activities will take place on the wetlands, and the groundwater source of the wetlands is not affected at all by groundwater from the NPD site. Groundwater on the NPD site flows towards the Kichi-Sìbì (Ottawa River), so groundwater that interacts with the NPD facility flows away from the wetland, towards the Kichi-Sìbì (Ottawa River). Extensive groundwater monitoring between the facility and the river is planned to enable confirmation of the EIS prediction of little impact to groundwater. CNL has offered to review the Draft Follow-up Groundwater Monitoring Plan with Hiawatha FN and hear feedback.

Recently, CNL completed a comprehensive survey of sediment, fish habitat and benthic invertebrates in the Kichi-Sìbì (Ottawa River) upstream, adjacent to and downstream of the NPD property. In response to Hiawatha FN interest CNL has shared the study report which contains details about the study design, benthic invertebrate classification and description of the benthic invertebrate community (BIC) composition.

If monitoring of the Kichi-Sìbì (Ottawa River) benthic invertebrate community is required in the future, this study can be repeated and metrics compared. The hickorynut mussel was not subject to a targeted survey, but given the healthy state of sediment and benthic biota and no in-water work planned for the project, no adverse effects to freshwater mussels resulting from the NPD Closure Project are anticipated. CNL is revising Section 6.3.2 (VCs Identified by Indigenous peoples/Communities) of the EIS as part of the September 2021 submission to include better explanation of where and how VCs identified by Indigenous Nations, communities and organizations are included and assessed.

EA Process and Methodology

During the July 2021 monthly WTFN meeting, Hiawatha FN requested additional detail on several species assessed or not directly assessed within the EIS. The reiterated the interest expressed by Curve Lake in fungi, benthic invertebrates and mussels. CNL has responded with an explanation of the process to assess exposure-related effects using broad categories when scientific parameters are not available for individual species. CNL has shared the EcoRA TSD where the details of the ecological effects assessment can be found. Further, CNL is revising Section 6.3.2 (VCs Identified by Indigenous peoples/Communities) of the EIS as part of the September 2021 submission to include better explanation of where and how VCs identified by Indigenous Nations, communities and organizations are included and assessed.

Engagement

During monthly meetings in September 2021 and February 2022 Hiawatha First Nation indicated an interest in broader engagement with CNL as a whole and earlier involvement with planning for activities and projects at CNL. CNL is committed to open, transparent and continuing engagement with Hiawatha FN. CNL has expanded its engagement with Hiawatha FN through monthly meetings that are focused on topics chosen by the WTFN community representatives.

Also, in their review of the NPD Closure Project revised draft EIS Curve Lake FN highlighted several instances of colonial language and concern about the priority of Indigenous engagement considering its placement within the EIS (i.e., following public engagement). At the July 2021 monthly meeting, Hiawatha FN concurred that this was an interest for Hiawatha FN as well. In response, CNL has updated language within the EIS to emphasize the importance and priority of Indigenous engagement including reordering the EIS table of contents to have the Indigenous Engagement section moved forward.

End State, Final Site Restoration and Future Use of the Land

In their review of the NPD Closure Project revised draft EIS, Curve Lake FN indicated that the discussion of final site restoration in the EIS gives the impression that Indigenous input will not be considered. In response, CNL clarified that the EIS does confirm that AECL will take into account the Duty to Consult with Indigenous peoples for site restoration activities. At the July 2021 monthly meeting, Hiawatha FN concurred that this was an interest for Hiawatha FN as well. While future land use is linked to the NPD Closure Project, it is not a requirement of the EA that the future land use be determined at this time. Instead, these topics need to be discussed as part with the participation of AECL as the owner of the NPD site. CNL will share the draft site restoration plan with Hiawatha FN once it is complete.

Protection of Flora and Fauna

During the May 2020 NPD Closure Project update webinar, Hiawatha FN representatives expressed interest in environmental protection surrounding the ventilation stack at the NPD site – their greatest concern being the assurance that the chimney swift will be able to safely use the stack as a critical roosting habitat. Hiawatha FN also expressed concern over the environmental monitoring that will be conducted with NPD Closure activities. Following the webinar, CNL responded to questions from Hiawatha FN representatives regarding annual compliance monitoring and the ventilation stack; CNL also provided three annual compliance monitoring reports (ACMR) and the Chimney Swift TSD to support its dispositions to these questions. Other members of the WTFN also expressed similar concerns.

In response to increased interest in the chimney swift beginning in 2019, CNL invited Indigenous Nations, communities and organizations to participate in the annual National Chimney Swift Roost Counts at the NPD site; the Swift counts demonstrate how the ventilation stack at NPD is used as a roosting site. The 'Swift count nights' transitioned a virtual event as a result of public health restrictions due to the COVID-19 pandemic in 2020. CNL will continue to engage with Hiawatha FN and facilitate open dialogue to address emerging concerns about this topic.

Monitoring

During the May 2020 NPD Closure Project update webinar, Hiawatha FN representatives expressed concern over the environmental monitoring that will be conducted with NPD Closure activities. Following the webinar, CNL responded to questions from Hiawatha FN representatives regarding annual compliance monitoring; CNL also provided three annual compliance monitoring reports (ACMR). Other members of the WTFN also expressed similar concerns.

CNL is seeking to incorporate input from Indigenous Nations, communities and organizations, the public and stakeholders before finalizing the EA Follow-up Program. CNL will continue to engage with Hiawatha and facilitate open dialogue to address emerging concerns about this topic.

Socio-economic

During the July 2021 monthly WTFN meeting, Hiawatha FN reinforced the findings of Curve Lake FN that challenges experienced by their sister community are the direct result of the effects of colonialism and the *Indian Act*. CNL had prepared an Indigenous Socio-economic section for the EIS in response to feedback from other communities on the 2017 draft EIS. In preparing this new section CNL included standard aspects that typically comprise more detailed socio-economic profiles aligning with the information presented in Section 8.11 of the EIS (socio-economic). CNL has been engaging directly with AOPFN (the community flagged by CLFN) on the NPD Closure Project and a number of broader issues. The AOPFN have also reviewed and provided comments on the draft EIS for the NPD Closure Project. The AOPFN and CNL are continuing to discuss and work through the AOPFN's interests, comments and concerns with respect to the project.

Summary

At present, this summary of interests and concerns is a consolidation of all the interests and concerns the Hiawatha FN have brought forward on the NPD Closure Project. The project-specific concern, on environmental protection, raised by Hiawatha FN is considered in the context of the EIS. As noted above, CNL has shared with Hiawatha FN a preliminary table of commitments that reflect the measures proposed by CNL to address the concerns raised to date by Hiawatha FN. CNL will continue to respond to questions and concerns from Hiawatha FN through its ongoing engagement efforts. CNL will seek to understand those concerns in the context of the EIS and the NPD Closure Project and commits to continue to work together with Hiawatha FN to receive their feedback on the project.

6.2.4.11.4 Verification

Hiawatha FN have provided many key inputs, identifying several interests and concerns related to the NPD Closure Project through feedback at meetings. To confirm CNL has adequately captured Hiawatha FN's interests and concerns, position and knowledge, Hiawatha FN and CNL underwent a verification process where CNL provided key documentation to Hiawatha FN for their review and feedback. Through this process, Hiawatha FN has reviewed and provided feedback on their *Table of Interests and Concerns*. While not all of Hiawatha FN's concerns have been mitigated by this process to date, CNL has made every effort to verify that Hiawatha FN's position, interests and concerns were adequately characterized. CNL continues to work with Hiawatha FN to address their concerns through ongoing discussions. Details of the interactions that formed the verification process between CNL and Hiawatha FN are captured in the IER TSD.

6.2.4.11.5 Next Steps

CNL will continue to share project information with the Hiawatha FN. Should Hiawatha FN bring forward any new concerns or interests through this ongoing engagement or regulatory proceeding, CNL will seek to understand those concerns in the context of the EIS and the project and commits to continue to work together with the Hiawatha FN to receive their feedback on the project.

6.2.4.12 Mississaugas of Scugog Island First Nation

6.2.4.12.1 Engagement

Table C-23 of Appendix C.5 includes a summary of key engagement activities that have occurred with Mississaugas of Scugog Island FN on the NPD Closure Project as of March 31, 2024. A complete list of engagement activities can be found in Appendix W (Table W-1) of the IER TSD. CNL has also provided a narrative summary of engagement with Mississaugas of Scugog Island FN.

Information-sharing

In July 2016, CNL sent the Mississaugas of Scugog Island FN a letter to introduce the proposed NPD Closure Project, which included a request for community input on any potential adverse impacts from project activities followed by a second letter in November 2016 which inquired about Mississaugas of

Scugog Island FN's asserted rights and traditional activities. CNL did not receive a response from Mississaugas of Scugog Island FN.

In late 2017, CNL shared the draft EIS and the IER with Mississaugas of Scugog Island FN. CNL encouraged participation in the public comment period for the draft EIS and requested community input and feedback for incorporation into the project. Mississaugas of Scugog Island FN did not submit comments on the draft EIS to the CNSC and CNL did not receive any feedback from Mississaugas of Scugog Island FN on this report. In August 2020, CNL met with Scugog Island FN to discuss CNL projects, including the NPD Closure Project.

In 2021, Scugog Island FN began to attend the WTFN monthly meetings coordinated between Curve Lake FN and CNL and open to all.

Engagement with all of the Williams Treaties First Nations (WTFN)

In May 2020, CNL shared the March 2020 revised draft EIS, which had been submitted to the CNSC, as well as the updated IER TSD and inquired on any Mississaugas of Scugog Island FN specific information. Later that month, in follow up to a webinar requested on the NSDF Project, CNL held a webinar on the NPD Closure Project for the WTFN in May 2020. Mississaugas of Scugog Island FN did not participate in this webinar.

In late 2020, CNL and Curve Lake FN began discussions on the development of a contribution agreement. As a part of these discussions Curve Lake coordinated a recurring monthly meeting between all of the WTFN and CNL as a touch point on the various CNL projects and activities of interest to the WTFN communities. The first monthly meeting was in March 2021 and invitations were sent in February 2021 to all WTFN community representatives, including the community consultation specialist with Scugog Island FN. After each meeting every community representative receives a copy of the content discussed at the meeting and CNL welcomes questions and comments on the content. Mississaugas of Scugog Island FN representatives have attended nine of the 16 monthly meetings to date and CNL has not heard any specific concerns or interests through this engagement. All of these have included an update on the NPD Closure Project including an overview of the project, the draft follow-up monitoring plans for the NPD Closure Project, the interests and concerns of Hiawatha FN and Curve Lake FN, the CNL Indigenous Relations Procurement Strategy, and the Curve Lake FN review of the NPD Closure Project's draft EIS and CNL's responses to this review. CNL has not heard any specific concerns or interests through this engagement.

In October 2022, CNL welcomed WTFN communities, Curve Lake FN, Hiawatha FN, Scugog Island FN, and the Chippewas of Rama FN to a site tour of the NPD facility as part of a two-day visit of the Chalk River Laboratories site and area visit. The day include a smudging ceremony by the Kichi-Sìbì (Ottawa River) and relationship building including answering questions from the WTFN communities.

Commitments

In April 2021, CNL provided a project status update and a preliminary table of commitments to the Scugog Island FN. In this letter, CNL requested any feedback on commitments by June 2021.

In June 2021, CNL followed up on the April letter with Scugog Island FN and has had no response from the community. To date, Scugog Island FN has not made CNL aware of specific concerns or interests related to this project. CNL will continue to share project information with Scugog Island FN. Should Scugog Island FN bring forward concerns or interests through this ongoing engagement or regulatory proceeding, CNL will seek to understand those concerns in the context of the EIS and the project and commits to continue to work together with Scugog Island FN to receive their feedback on the project.

In October 2022, CNL sent a letter addressed to Scugog First Nation providing a project update and the engagement status with Scugog FN. CNL stated it is committed to recording Scugog's interests and concerns into the EIS. CNL provided an engagement status and next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for Scugog First Nation's review. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that Scugog First Nation respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.

In April 2023, CNL shared suggested next steps for WTFN to finalize the commitments between CNL and the Mississauga's of Scugog Island FN to ensure that all interests and concerns are addressed and tracked to resolution. CNL encouraged feedback.

6.2.4.12.2 Feedback

The Scugog Island FN has not submitted any written comments on the NPD Closure Project Description or EIS and CNL has not heard any interests or concerns related to engagement on the NPD Closure Project from Scugog Island FN. CNL will continue to engage with the Scugog Island FN and follow up on any outstanding interests and concerns if any arise.

6.2.4.13 Chippewas of Rama First Nation

6.2.4.13.1 Engagement

Table C-24 of Appendix C.5 includes a summary of key engagement activities that have occurred with Chippewas of Rama FN on the NPD Closure Project as of March 31, 2024. A complete list of engagement activities can be found in Appendix T (Table T-1) of the IER TSD. CNL has also provided a narrative summary of engagement with Chippewas of Rama FN.

Information-sharing

In July 2016, CNL sent the Chippewas of Rama FN a letter to introduce the proposed NPD Closure Project, which included a request for community input on any potential adverse impacts from project activities followed by a second letter in November 2016 which inquired about Chippewas of Rama First Nation's asserted rights and traditional activities. CNL did not receive a response from Chippewas of Rama First Nation.

In late 2017, CNL shared the draft EIS and the IER with Chippewas of Rama First Nation. CNL encouraged participation in the public comment period for the draft EIS and requested community input and feedback for incorporation into the project. Chippewas of Rama FN did not submit comments on the draft EIS to the CNSC and CNL did not receive any feedback from Chippewas of Rama FN on this report.

In November 2022, CNL met with Rama FN to discussion CNL EA projects, next steps for engagement and CNL corporate initiatives. The meeting provided CNL and Chippewas of Rama FN the opportunity to connect outside of the WFTN.

In April 2023, CNL and Rama met and CNL provided a project refresher and current status. This meeting was at the request of Rama and was in part to introduce the new consultation worker to the project.

Engagement with all of the Williams Treaties First Nations (WTFN)

In May 2020, CNL shared the March 2020 revised draft EIS, which had been submitted to the CNSC, as well as the updated IER TSD and inquired on any Chippewas of Rama FN specific information. Later that month, in follow up to a webinar requested on the NSDF Project, CNL held a webinar on the NPD Closure Project for the WTFN in May 2020. Chippewas of Rama FN did not participate in this webinar.

In late 2020, CNL and Curve Lake FN began discussions on the development of a contribution agreement. As a part of these discussions Curve Lake coordinated a recurring monthly meeting between all of the WTFN and CNL as a touch point on the various CNL projects and activities of interest to the WTFN communities. The first monthly meeting was in March 2021 and invitations were sent in February 2021 to all WTFN community representatives, including the community consultation coordinator with Rama FN. After each meeting every community representative receives a copy of the content discussed at the meeting and CNL welcomes questions and comments on the content. Rama FN have attended 6 of the 16 monthly meetings held to date. All of these have included an update on the NPD Closure Project including an overview of the project, the draft follow-up monitoring plans for the NPD Closure Project, the interests and concerns of Hiawatha FN and Curve Lake FN, the CNL Indigenous Relations Procurement Strategy, and the Curve Lake FN review of the NPD Closure Project's draft EIS and CNL's responses to this review.

In October 2022, CNL welcomed WTFN communities, Curve Lake FN, Hiawatha FN, Scugog Island FN, and the Chippewas of Rama FN to a site tour of the NPD facility as part of a two-day visit of the Chalk River Laboratories site and area visit. The day include a smudging ceremony by the Kichi-Sìbì (Ottawa River) and relationship building including answering questions from the WTFN communities.

Commitments

In April 2021, CNL provided a project status update and a preliminary table of commitments to the Chippewas of Rama FN developed through engagements on the NPD Closure Project. In this letter, CNL requested any feedback on commitments by June 2021.

In June 2021, CNL followed up on the April letter with Rama FN and has had no response from the community. In October 2022, CNL sent a letter addressed to Rama FN providing a project update and the engagement status with Rama FN. CNL stated it is committed to recording Rama's interests and concerns

into the EIS. CNL provided an engagement status and next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for Rama FN's review. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that Rama FN respond confirming their agreement to proceed with the engagement activities, or modified engagement activities. Rama FN confirmed receipt of the letter and request a meeting with CNL. Both parties met in November 2022 and again in April 2023. During the April 2023 meeting CNL and Rama FN reviewed the table of commitments and Rama RN indicated no other commitments were needed at this time.

Summary of Interests and Concerns

During the April 2023 meeting CNL and Rama FN discussed the importance of recoding interest and concerns from the community and the existing time in the EA process to properly document them.

Due to the importance of the summary table of interests and concerns and Rama FN's input on verifying its completeness and accuracy, CNL used the questions and concerns raised by Rama First Nation to document key interests and concerns. CNL sent the table in May 2023, CNL requested a response on the table. Rama First Nation provided CNL feedback on the table in May 2023, which CNL addressed and sent an updated table in May 2023. In June 2023, Rama First Nation verified that the table was complete and accurate.

6.2.4.13.2 Feedback

Rama FN has not submitted any written comments on the NPD Closure Project Description or the EIS. However, based on verbal comments during a meeting in April 2023, CNL has noted the community's interest in project alternatives, future use of the land and monitoring past and future.

CNL will continue to follow-up and engage with the Chippewas of Rama FN about any outstanding interests and concerns if any arise.

The interests and concerns from Chippewas of Rama FN are briefly identified below and then detailed in the Summary Discussion of Interests and Concerns – Section 6.2.4.13.3 and the *Table of Interests and Concerns* in Table C-28 of Appendix C.5.

Alternatives. During a discussion in April 2023, Chippewas of Rama were interested in the range of alternatives considered, the overall suitability of the in-situ disposal concept and whether in-situ disposal is a proven technology.

End State, Site Restoration and Future Use of the Land. Chippewas of Rama FN is interested to know when the site will be safe for reuse.

Long-term Safety. Chippewas of Rama FN expressed concern about long-term integrity of the concrete cap and engineered cover.

Monitoring. Chippewas of Rama FN is interested to understand CNL's past environmental performance at the NPD site and has also expressed an interest in reviewing the follow up monitoring to ensure transparency and promote confidence in CNL's project performance.

6.2.4.13.3 Summary Discussion of Interests and Concerns

The key interests and concerns discussed in this section were derived from recent engagements with Chippewas of Rama FN, the details of which are recorded in Table C-24 of Appendix C.5 and described in Section 6.2.4.13.1 of this EIS.

Alternatives

Rama First Nation expressed concerned that CNL evaluate a range of options for the decommissioning of the NPD reactor. Rama First Nation was also concerned that solution designs allow for reversibility if improved waste disposal options become available in the future. Rama wants to ensure that changes can be made in the future to ensure the environment remains protected. CNL provided an overview of the alternatives and indicated that in-situ disposal is meant to be a permanent solution and that there is no intention to retrieve waste in the future. This response was provided verbally to Rama FN during a project update in April 2023.

CNL has additionally responded that the waste at NPD has been there for over 55 years. CNL is reducing the waste liability by converting the waste into a form that provides safe, permanent waste disposal. CNL has assessed the suitability of in-situ disposal for NPD, and the EIS demonstrates that such disposal is safe for human health and the environment in the short term and long-term. CNL has considered national and international standards and guidelines and believes that the NPD facility has characteristics that support in-situ disposal.

Rama First Nation was also interested in seeing examples of in-situ disposal used elsewhere and the performance of the technology. Rama wants confidence that this technology will protect humans and the environment. CNL has written a report that summarizes facilities worldwide that use in-situ disposal. This report was shared with Rama First Nation as a follow-up to the April 2023 project update meeting. The report is not limited to nuclear reactors or processing facilities but includes mines and hazardous waste sites. The report also describes what each of the facilities have in common, why in-situ disposal is the preferred approach and how it applies to NPD. 16 projects are described, the majority of the examples are reactors, and all are permanent disposal solutions.

CNL believes that this concern has been addressed with the information shared to Rama FN and remains committed to ongoing engagement with Rama First Nation through the William's Treaty First Nations monthly update.

End State, Site Restoration and Future Use of the Land

Rama First Nation has highlighted the importance that the end state of the NPD site is safe for future land users and also was interested to know when the site would be safe for reuse. CNL acknowledges Rama's

interest in being able to reuse the site in the future and verbally summarized the range of scenarios considered and that the site is safe for a variety of uses following the Institutional Control period.

The PostSA TSD demonstrates that the impact beyond the Institutional Controls period on the public, Indigenous and the environment is negligible under all scenarios. CNL notes that the final end state is the only time when changes to access will occur; the final end state of the NPD site will be an improvement from current conditions. To instil confidence in the EIS findings and the effectiveness of the follow-up monitoring, CNL has committed to involve interested Indigenous Nations, communities and organizations in the monitoring program, which aims to confirm the predictions of the EIS.

CNL believes that this concern has been addressed with the information shared to Rama First Nation and remains committed to ongoing engagement with Rama First Nation through the William's Treaty First Nations monthly update.

Long-term Safety

Rama FN expressed interest in understanding more about the protective layers, concrete cap and engineered barrier, and how long it will take them to degrade. CNL provided a verbal response directly to Rama FN during a meeting that the engineered cover has a design life of 100 years. Following the meeting CNL shared additional details about the multiple barriers in place to contain the radioactivity.

The main features containing the radionuclides, are the thick concrete walls of the facility and the fact that the majority of the radioactivity is present within the matrix of steels and zircaloy that will corrode very slowly in the chemical environment of the decommissioned facility. The facility will also be filled with grout to prevent subsidence but also having the benefit of creating an alkaline environment reducing corrosion. In addition, a reinforced concrete cap will be placed over the Nuclear Area of the facility as a barrier following the completion of grouting. The concrete cap is designed to support the loads of the Engineered Barrier and its construction. A multi-layered engineered cover will be placed over the grouted facility, following placement of the concrete cap. The design life of the cap and cover system is 100 years. The Institutional Control Surveillance Plan has been developed to verify the integrity of accessible passive barriers and support structures, and to enable the prompt identification of conditions that may lead to a migration or release of radionuclides or other contaminants to the environment. CNL's technical assessment shows that there are no long-term effects resulting from the NPD Closure Project as shown through the use of multiple barriers and defense in depth.

CNL believes that this concern has been addressed with the information shared to Rama First Nation and remains committed to ongoing engagement with Rama First Nation through the William's Treaty First Nations monthly update.

Monitoring

Rama is interested to understand CNL's past environmental performance at the NPD site. Rama wishes to ensure the environment has not been impacted by past operations. In response, CNL shared a link to the annual summary or environmental performance as a follow-up to the April 2023 project update meeting and can share other historic monitoring results as requested. CNL conducts a rigorous monitoring program

and is committed to ensuring that the environment around the NPD site, including the Kichi-Sìbì (Ottawa River), is protected. Results demonstrate that the public and the environment around the NPD site continues to be protected.

Rama also expressed interest the project monitoring plans. CNL shared the draft monitoring plans with Rama First Nation as a follow-up to the April 2023 project update meeting.

The follow up monitoring program is described at a high level in Section 12 of the revised draft EIS with significant details developed compared to the 2017 draft EIS. These details come through the development of the 3 draft follow up monitoring plans for effluent, environment and groundwater.

CNL is seeking to incorporate input from Indigenous Nations, communities and organizations, the public and stakeholders before finalizing the EA Follow-up Program. Further, CNL has indicated that it is willing to involve all Indigenous Nations, communities and organizations in its monitoring programs. CNL will continue to engage with Rama First Nation and facilitate open dialogue to address emerging concerns about this topic.

6.2.4.13.4 Verification

Chippewas of Rama FN provided key input, identifying several interests and concerns related to the NPD Closure Project through feedback at meetings. To confirm CNL has adequately captured Chippewas of Rama FN's interests and concerns, position and knowledge, Chippewas of Rama FN and CNL underwent a verification process where CNL provided key documentation to Chippewas of Rama FN for their review and feedback. CNL has attempted to verify that Chippewas of Rama FN's position, interests and concerns were adequately characterized. CNL continues to work with Chippewas of Rama FN to address their concerns through ongoing discussions. Details of the interactions that formed the verification process between CNL and the Chippewas of Rama FN are captured in the IER TSD.

6.2.4.13.5 Next Steps

CNL will continue to share project information with the Chippewas of Rama FN. Should Chippewas of Rama FN bring forward any new concerns or interests through this ongoing engagement or regulatory proceeding, CNL will seek to understand those concerns in the context of the EIS and the project and commits to continue to work together with the Chippewas of Rama FN to receive their feedback on the project.

6.2.4.14 Chippewas of Georgina Island First Nation

6.2.4.14.1 Engagement

Table C-25 of Appendix C.5 includes a summary of key engagement activities that have occurred with Georgina Island First Nation on the NPD Closure Project as of March 31, 2024. A complete list of engagement activities can be found in Appendix S (Table S-1) of the IER TSD. CNL has also provided a narrative summary of engagement with Georgina Island FN.

Information-sharing

In July 2016, CNL sent the Chippewas of Georgina Island FN a letter to introduce the proposed NPD Closure Project, which included a request for community input on any potential adverse impacts from project activities followed by a second letter in November 2016 which inquired about Chippewas of Georgina Island FN's asserted rights and traditional activities. CNL did not receive a response from Chippewas of Georgina Island FN.

In late 2017, CNL shared the draft EIS and the IER TSD with Chippewas of Georgina Island FN. CNL encouraged participation in the public comment period for the draft EIS and requested community input and feedback for incorporation into the project. Chippewas of Georgina Island FN did not submit comments on the draft EIS to the CNSC and CNL did not receive any feedback from Chippewas of Georgina Island FN on this report.

In early 2022, Georgina Island FN began to attend the WTFN monthly meetings coordinated between Curve Lake FN and CNL and open to all.

Engagement with all of the Williams Treaties First Nations (WTFN)

In May 2020, CNL shared the March 2020 revised draft EIS, which had been submitted to the CNSC, as well as the updated IER TSD and inquired on any Chippewas of Georgina Island First Nation specific information. Later that month, in follow up to a webinar requested on the NSDF Project, CNL held a webinar on the NPD Closure Project for the WTFN in May 2020. Follow-up from the webinar, which was distributed to all participants, included information on the Chimney Swift population, the annual compliance and monitoring reports for three previous years and the archaeological assessment for the NPD site.

In late 2020, CNL and Curve Lake FN began discussions on the development of a contribution agreement. As a part of these discussions Curve Lake coordinated a recurring monthly meeting between all of the WTFN and CNL as a touch point on the various CNL projects and activities of interest to the WTFN communities. The first monthly meeting was in March 2021 and invitations were sent in February 2021 to all WTFN community representatives, including the consultation coordinator with Georgina Island FN. After each meeting every community representative receives a copy of the content discussed at the meeting and CNL welcomes questions and comments on the content. As of May 2022, Georgina Island FN has had a representative at three of the 16 monthly meetings held to date and CNL has not heard any specific concerns or interests through this engagement. All of these have included an update on the NPD Closure Project including an overview of the project, the draft follow-up monitoring plans for the NPD Closure Project, the interests and concerns of Hiawatha FN and Curve Lake FN, the CNL Indigenous Relations Procurement Strategy, and the Curve Lake FN review of the NPD Closure Project's draft EIS and CNL's responses to this review. CNL has not heard any specific concerns or interests through this engagement.

Commitments

In April 2021, CNL provided a project status update and a preliminary table of commitments to Georgina Island FN developed through engagements on the NPD Closure Project. In this letter, CNL requested any feedback on commitments by June 2021.

In June 2021, CNL followed up on the April letter with Georgina Island FN and has had no response from the community. To date, Georgina Island FN has not made CNL aware of specific concerns or interests related to this project. CNL will continue to share information with Georgina Island FN. Should Georgina Island FN bring forward concerns or interests through this ongoing engagement or regulatory proceeding, CNL will seek to understand those concerns in the context of the EIS and the project and commits to continue to work together with Georgina Island FN to receive their feedback on the project.

In October 2022, CNL sent a letter addressed to Georgina Island First Nation providing a project update and the engagement status with Georgina Island FN. CNL stated it is committed to recording Georgina Island FN interests and concerns into the EIS. CNL provided an engagement status and next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for Georgina Island First Nation's review. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that Georgina Island First Nation respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.

In January 2023, CNL informed Georgina Island FN of the decision to postpone the submission of the NPD Closure Project's draft EIS until May 2023 to allow for additional Indigenous input.

In April 2023, CNL shared suggested next steps to finalize the commitments between CNL and Georgina Island FN to ensure that all interests and concerns are captured, addressed and tracked to resolution. CNL encouraged feedback.

6.2.4.14.2 Feedback

Georgina Island FN has not submitted any written comments on the NPD Closure Project Description or EIS and CNL has not heard any interests or concerns related to engagement on the NPD Closure Project from Georgina Island FN. CNL will continue to follow-up and engage with the Georgina Island FN about any outstanding interests and concerns if any arise.

6.2.4.15 Beausoleil First Nation

6.2.4.15.1 Engagement

Table C-26 of Appendix C.5 includes a summary of key engagement activities that have occurred with Beausoleil FN on the NPD Closure Project as of March 31, 2024. A complete list of engagement activities can be found in Appendix R (Table R-1) of the IER TSD. CNL has also provided a narrative summary of engagement with Beausoleil FN.

Information-sharing

In July 2016, CNL sent Beausoleil FN a letter to introduce the proposed NPD Closure Project, which included a request for community input on any potential adverse impacts from project activities followed by a second letter in November 2016 which inquired about Beausoleil FN's asserted rights and traditional activities. CNL did not receive a response from Beausoleil FN.

In late 2017, CNL shared the draft EIS and the IER with Beausoleil FN. CNL encouraged participation in the public comment period for the draft EIS and requested community input and feedback for incorporation into the project. Beausoleil FN did not submit comments on the draft EIS to the CNSC and CNL did not receive any feedback from Beausoleil FN on this report.

In early 2022, Beausoleil FN began to attend the WTFN monthly meetings coordinated between Curve Lake FN and CNL and open to all.

Engagement with all of the Williams Treaties First Nations (WTFN)

In May 2020, CNL shared the March 2020 revised draft EIS, which had been submitted to the CNSC, as well as the updated IER TSD and inquired on any Beausoleil FN specific information. Later that month, in follow up to a webinar requested on the NSDF Project, CNL held a webinar on the NPD Closure Project for the WTFN in May 2020. Beausoleil FN did not participate in this webinar.

In late 2020, CNL and Curve Lake FN began discussions on the development of a contribution agreement. As a part of these discussions Curve Lake coordinated a recurring monthly meeting between all of the WTFN and CNL as a touch point on the various CNL projects and activities of interest to the WTFN communities. The first monthly meeting was in March 2021 and invitations were sent in February 2021 to all WTFN community representatives, including the consultation coordinator with Beausoleil FN. After each meeting every community representative receives a copy of the content discussed at the meeting and CNL welcomes questions and comments on the content. The Consultation Coordinator from Beausoleil FN has attended one (August 2021) of the 16 monthly meetings held to date. All of these have included an update on the NPD Closure Project including an overview of the project, the draft follow-up monitoring plans for the NPD Closure Project, the interests and concerns of Hiawatha FN and Curve Lake FN, the CNL Indigenous Relations Procurement Strategy, and the Curve Lake FN review of the NPD Closure Project's draft EIS and CNL's responses to this review. CNL has not heard any specific concerns or interests through this engagement.

Commitments

In April 2021, CNL provided a project status update and a preliminary table of commitments to Beausoleil FN developed through engagements on the NPD Closure Project. In this letter, CNL requested any feedback on commitments by June 2021.

In June 2021, CNL followed up on the April letter with Beausoleil FN and has had no response from the community. To date, Beausoleil FN has not made CNL aware of specific concerns or interests related to this project. CNL will continue to share information with Beausoleil FN. Should Beausoleil FN bring forward concerns or interests through this ongoing engagement or regulatory proceeding, CNL will seek to understand those concerns in the context of the EIS and the project and commits to continue to work together with Beausoleil FN to receive their feedback on the project.

In October 2022, CNL sent a letter addressed to Beausoleil First Nation providing a project update and the engagement status with Georgina Island FN. CNL stated it is committed to recording Beausoleil FN interests and concerns into the EIS. CNL provided an engagement status and next steps, including a site

visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for Beausoleil First Nation's review. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that Beausoleil First Nation respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.

In January 2023, CNL informed Beausoleil FN of the decision to postpone the submission of the NPD Closure Project's draft EIS until May 2023 to allow for additional Indigenous input.

In April 2023, CNL shared suggested next steps to finalize the commitments between CNL and Beausoleil FN to ensure that all interests and concerns are captured, addressed and tracked to resolution. CNL encouraged feedback.

6.2.4.15.2 Feedback

Beausoleil FN has not submitted any written comments on the NPD Closure Project Description or EIS. CNL will continue to follow-up with the Beausoleil FN on any interests and concerns that may arise.

6.2.4.16 Algonquin Nation Secretariat

6.2.4.16.1 Engagement

Table C-28 of Appendix C.6 includes a summary of key engagement activities that have occurred with the Algonquin Nation Secretariat on the NPD Closure Project as of March 31, 2024. A complete list of engagement activities can be found in Appendix Y (Table Y-1) of the IER TSD. CNL has also provided a narrative summary of engagement with Algonquin Nation Secretariat.

Information-sharing

In July 2016, CNL sent the Algonquin Nation Secretariat a letter to introduce the proposed NPD Closure Project, which included a request for input on any potential adverse impacts from project activities might have to the Algonquin Nation Secretariat member communities followed by a second letter in November 2016 which inquired about asserted rights and traditional activities of the Algonquin Nation Secretariat member communities.

In late 2017, CNL shared the draft EIS and the IER with Algonquin Nation Secretariat. CNL encouraged participation in the public comment period for the draft EIS and requested community input and feedback for incorporation into the project. Algonquin Nation Secretariat did not submit comments on the draft EIS to the CNSC and CNL did not receive any feedback from Algonquin Nation Secretariat on this report.

Throughout 2018, 2019, 2020, 2021, 2022 and 2023 the Algonquin Nation Secretariat received invitations to all engagement activities and have not attended any events to date.

In May 2020, CNL shared the 2020 March revised draft EIS, which had been submitted to the CNSC, as well as the updated IER TSD and inquired on Algonquin Nation Secretariat specific information.

Leading up to Part 2 of the CNSC hearing on CNL's NSDF project, two of the Algonquin Nation Secretariat First Nations, Wolf Lake First Nation (WLFN) and the Algonquins of Barriere Lake (ABL) First Nation, submitted interventions stating concern that the CNSC and CNL had not consulted or engaged with the Algonquin Nation Secretariat communities directly on the NSDF project.

In response to these interventions CNL has reached out by email and telephone to connect with all three Algonquin Nation Secretariat communities:

Algonquins of Barriere Lake (ABL)

CNL reached out to ABL by email in April and May 2022 to inquire about how ABL would like to be engaged, who CNL should contact and when ABL could meet with CNL. CNL followed up with a voicemail in May 2022 and reached out three times in June 2022 to the law firm representing ABL, Olthuis Kleer Townshend, seeking accurate contact information for the First Nation. In June 2022, a consultant reached out on behalf of ABL, and CNL responded to the consultant reiterating an interest in meeting to discuss direct engagement.

In October 2022, CNL sent a letter addressed to ABL providing a project update and the engagement status with the ABL. CNL stated it is committed to recording ABL's interests and concerns into the EIS. CNL offered to discuss capacity and ensure all interests and concerns are addressed and tracked establish commitments before December 2022. CNL requested that ABL respond confirming their agreement to proceed.

Wolf Lake First Nation (WLFN)

In May 2022, CNL reached out to WLFN twice by email to inquire about how WLFN would like to be engaged, who CNL should contact and when WLFN could meet with CNL. CNL followed up with a phone call in May 2022 during which a WLFN staff member spoke with the CNL representative and indicated that the Chief would be interested in meeting. CNL left a contact number and name, but did not hear back. In June 2022, CNL's Director of Indigenous Relations made several attempts to contact WLFN, including an email to WLFN's legal counsel and the WLFN Chief, and a phone call to WLFN. Later in June, CNL received a letter from WLFN on the NSDF project, CNL's July 2022 response indicated CNL's interest in engaging with WLFN directly on all of CNL's EA projects, including the NPD Closure Project. In August 2022, CNL and WLFN met in person to share information about the NSDF Project and NPD Closure Project.

Timiskaming First Nation (TFN)

In June 2022, CNL emailed TFN's Chief to inquire about how TFN would like to be engaged, who CNL should contact and when TFN could meet with CNL. In June 2022, CNL followed up with an email to the General Director of TFN asking how to contact the Chief or another appropriate contact. CNL did not hear back from TFN.

In October 2022, CNL sent a letter addressed to TFN providing a project update and the engagement status with TFN. CNL stated it is committed to recording TFN's interests and concerns into the EIS. CNL offered to discuss capacity and ensure all interests and concerns are addressed and tracked establish

commitments before December 2022. CNL requested that TFN respond confirming their agreement to proceed.

Invite to All Three First Nations

In June 2022, CNL's Director of Indigenous Relations reached out to all three First Nations with the following invitation for a joint meeting or individual meetings:

"*We would like to meet with you to provide you and your communities with updates on each of the projects, the potential environmental effects and proposed mitigation and monitoring measures. We are interested in learning more about any asserted rights and interests communities may have, or activities your members might undertake in the local or regional areas in proximity to the projects. We are willing to provide capacity support for a meeting in North Bay, Ontario in July 2022, if your schedules allow. If your preference is to meet in one of your communities, we would welcome the invitation. Lastly, if schedules do not permit a joint meeting with all three First Nations and CNL, and/or your preference is to meet one-on-one, we are happy to accommodate that request as well.*"

In May 2022 Wolf Lake First Nation requested a meeting with CNL. That meeting eventually took place in August 2022, the ensuing engagement with Wolf Lake is covered in Section 6.2.4.17 below.

CNL continues to share updates about the NPD Closure Project and related activated with all of the AND communities.

Commitments

In April 2021, CNL provided a project status update and a preliminary table of commitments to the Algonquin Nation Secretariat. In this letter, CNL requested any feedback on commitments by June 2021.

In June 2021, CNL followed up on the April letter with the Algonquin Nation Secretariat and has had no response from the Secretariat. To date, the Algonquin Nation Secretariat has not made CNL aware of specific concerns or interests related to this project. CNL will continue to share project information with the Algonquin Nation Secretariat. Should the Algonquin Nation Secretariat bring forward concerns or interests through this ongoing engagement or regulatory proceeding, CNL will seek to understand those concerns in the context of the EIS and the project and commits to continue working together with the Algonquin Nation Secretariat to receive their feedback on the project.

6.2.4.16.2 Feedback

The Algonquin Nation Secretariat has not submitted any written comments on the NPD Closure Project Description or EIS and has not engaged with CNL or brought forward any interests or concerns to CNL.

6.2.4.17 Wolf Lake First Nation

6.2.4.17.1 Engagement

Table C-30 of Appendix C.6.1 includes a summary of key engagement activities that have occurred with Wolf Lake First Nation (WLFN) on the NPD Closure Project as of March 31, 2024. A complete list of

engagement activities can be found in Appendix Y (Table Y-1) of the IER TSD. CNL has also provided a narrative summary of engagement with Wolf Lake First Nation.

Communications with Wolf Lake First Nation up until June 2022 were via the Algonquin Nation Secretariat (Section 6.2.4.16.1). In June 2022, WLFN identified that the proper channel of engagement on the NPD Closure Project was through the First Nation's legal counsel. WLFN expressed the need to be engaged as a First Nation, independent from the Algonquin Nation Secretariat, regarding CNL related projects and activities.

Information Sharing

In June 2022, CNL received a letter from WLFN on the NSDF project, CNL's July 2022 response indicated CNL's interest in engaging with WLFN directly on all of CNL's EA projects, including the NPD Closure Project. In August 2022, CNL and WLFN met in person to share information about the NSDF Project and NPD Closure Project.

In October 2022, CNL sent a letter addressed to WLFN ABL providing a project update. CNL stated it is committed to recording WLFN's interests and concerns into the EIS. CNL offered to discuss capacity and WLFN's interest and desired involvement in the project. CNL requested that WLFN respond confirming their agreement to proceed. CNL shared a copy of a contribution agreement.

In November 2022, CNL received a request from WLFN to meet and develop a contribution agreement to fund the review both the technical requirements of the project and a review of the EA report. CNL and WLFN met December 2022, the parties discussed capacity for technical review of the EIS. CNL shared technical supporting documents and documents listed on the IAA Registry to assist in WLFN's review.

During the month of December 2022 CNL and WLFN drafted a contribution agreement to facilitate WLFN's review of the NPD and NSDF EIS' and other technical supporting documents. The agreement was signed at the end of the month. WLFN sent CNL comments on the NPD Closure Project revised draft EIS in March 2023. In June 2023, CNL sent WLFN responses to the comments and recommendations. CNL also shared a draft version of the WLFN *Table of Interests and Concerns* for WLFN verification. CNL continues to reach out to meet with WLFN.

Interests and Concerns

In June 2023, CNL shared a draft summary of interests and concerns for WLFN. CNL drafted the summary based on the comments and recommendations made by WLFN when they completed their review of the revised draft EIS in March 2023.

6.2.4.17.2 Feedback

Wolf Lake FN submitted comments on the NPD Closure Project Description and reviewed the December 2021 revised draft EIS.

The interests and concerns from the WLFN are briefly identified below and then detailed in the Summary Discussion of Interests and Concerns – Section 6.2.4.17.3 and the *Table of Interests and Concerns* in Table C-32 of Appendix C.6.1.

Aquatic Environment. Wolf Lake FN has expressed the importance of wetlands. WLFN highlights that wetlands are significant in facilitating organic decay, filtration of water and contaminants and every effort should be made to not disturb them. Wetlands are connected to surface waters that are significant to WLFN, including the Kichi-Sìbì (Ottawa River).

Baseline Characterization. Wolf Lake FN expressed the importance of understanding baseline conditions in the Kichi-Sìbì (Ottawa River) and is concerned about contamination of the aquatic environment specifically radioactivity/bioaccumulation of radionuclides in fish and within the plant communities near the shore of the Kichi-Sìbì (Ottawa River).

Engagement. Wolf Lake FN is concerned that the perspective of the Algonquin communities in Quebec is represented and is interested in developing a long-term relationship with CNL. WLFN is also looking for meaningful engagement on the NPD Closure Project using best practices.

Environmental Effects and Mitigations. WLFN are interested in discussing accommodations and compensatory measures with CNL in the event that WLFN's VCs are found to be impacted by the proposed project.

Impacts to Rights. Wolf Lake FN expressed concerns about impacts to rights. Fish and wildlife represent the expression of WLFN's rights and their ability to exercise their Aboriginal right to hunt, fish, and trap. The ecosystem as a whole should be considered in making decisions that may potentially impact Aboriginal rights and lead to uncertainties and fear for using staple food sources.

Long-term Safety. WLFN is concerned about the long-term management and monitoring of historic radioactive contamination sites such as NPD. WLFN is looking to ensure the vault safety and durability, as well as understand how the landscape will respond to external forces present a few thousand years after disposal.

Monitoring. WLFN are interested in being involved in follow up monitoring and sharing of reported results for the NPD Closure Project. Further, WLFN is interested in beginning an enhanced information sharing protocol to better understand the landscape from both world perspectives: "Western Science & Traditional Knowledge" to allow a more comprehensive baseline monitoring to take place for the NPD Closure Project. WLFN has requested to be included in a periodic review of the proposed project following the final closure- as part of the long-term relationship building.

National Policy. WLFN are of the view that the Auditor General's nuclear waste management audit and NRCan's policy modernization process should conclude before the NPD facility is decommissioned.

Protection of the Kichi-Sìbì (Ottawa River). WLFN is concerned that radioactive waste not be present near the vicinity of water bodies, like the Kichi-Sìbì (Ottawa River) and St. Lawrence River Basin.

Technical. Based on review of the revised draft EIS, WLFN requested additional information about the point source for contaminants in sediment. WLFN is also concerned about emissions to the atmospheric environment and transport of contaminants in groundwater.

Traditional Land and Resource Use and Cultural Impacts. WLFN is interested in documenting traditional knowledge, land use, occupancy, and values to demonstrate how the proposed project may impact WLFN's land use, occupancy, rights, traditional food harvesting, and citizens. They voiced concerns about safety of harvested and gathered foods, and the impact of perceived contamination in the Kichi-Sìbì (Ottawa River) and the environment on the inherent and protected rights of WLFN citizens.

Valued Components (VCs). Wolf Lake FN has requested the opportunity to provide values identified by their community.

6.2.4.17.3 Summary Discussion of Interests and Concerns

The key interests and concerns discussed in this section were derived from comments on the 2021 draft EIS received from WLFN in March 2023, the details of which are recorded in Table C-32 of Appendix C.6.1 and described in Section 6.2.4.17.1 of this EIS.

Aquatic Environment

In their comments on the draft EIS, received March 2023, WLFN highlighted that the importance of wetlands cannot be overstated. They are significant in facilitating organic decay, filtration of water and contaminants and every effort should be made as to not disturb them. There are surface waters within their traditional territory that are significant to WLFN, including the Kichi-Sìbì (Ottawa River). The water provides not only life, but the waterways were major transportation routes to visit family, access trade goods and resources.

In response CNL has communicated that the potential for contamination to reach the Kichi-Sìbì (Ottawa River) is assessed in the EIS and is supported by detailed groundwater modelling and long-term performance modelling for the proposed disposal facility. The groundwater source of the wetlands is not affected at all by groundwater from the NPD facility. Groundwater on the NPD site flows towards the Kichi-Sìbì (Ottawa River), so groundwater that interacts with the NPD facility flows away from the wetlands onsite, towards the Kichi-Sìbì (Ottawa River). Section 4.1 of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment including the Kichi-Sìbì (Ottawa River). Mitigation measures for the protection of surface water (Section 9.3.3.2) (including the Kichi-Sìbì (Ottawa River)) have been updated and expanded from the 2017 draft EIS. The EIS predicts no effects to surface water (including the Kichi-Sìbì (Ottawa River)).

To verify that the engineered barriers are performing as expected/designed, CNL will monitor groundwater. Groundwater wells will be located between the NPD facility and the Kichi-Sìbì (Ottawa River) in order to monitor groundwater quality after it interacts with the facility and before it reaches the Kichi-Sìbì (Ottawa River). CNL will conduct monitoring for as long as necessary to verify the results of the assessment in the EIS.

CNL is interested in engagement with WLFN to gain a greater understanding of their concerns about watershed sustainability related to the NPD Closure Project.

Baseline Characterization

In their comments on the draft EIS, received March 2023, WLFN requested that CNL include fish tissue sampling within their monitoring programs. WLFN was concerned that proper baseline studies of contaminants in the Kichi-Sìbì (Ottawa River) be completed. WLFN also recommended that CNL and WLFN build on an education and awareness strategy aimed at mutual understating of baseline values for radioactivity/bioaccumulation of radionuclides in fish, and within the plant communities in the near shore of the Kichi-Sìbì (Ottawa River).

CNL's EIS indicates in Appendix B and Section 8.6 which species have been observed on the NPD site and historic environmental monitoring is summarized in the description of the existing environment (Section 8) of the EIS. Specifically, Sections 8.2 Atmospheric Environment, 8.3 Surface Water Environment, 8.5.6 Groundwater Quality and 8.7 Ambient Radioactivity.

Species detected as part of baseline biodiversity surveys within a 200 m area beyond the perimeter of the project footprint have been included as VCs for the NPD Closure Project, and mitigation measures, including buffers, have been developed for protection.

To supplement baseline data, a study of sediment, benthic invertebrates and fish habitat features was undertaken upstream, adjacent to and downstream of the NPD site in 2020 and CNL is happy to provide this report to WLFN. The study determined that the Kichi-Sìbì (Ottawa River) benthic invertebrate community near the NPD site is healthy and typical of what is observed in many large, soft-bottomed, relatively deep river systems. This study can be repeated when decommissioning is complete, to verify if the project has had an impact. CNL is planning to start regular monitoring of Kichi-Sìbì (Ottawa River) water quality before the project begins. CNL is willing to discuss fish tissue sampling with WLFN and review past studies of fish tissue in the NPD area.

The EIS predicts no adverse impacts from the project on the Kichi-Sìbì (Ottawa River) shoreline or on any fish, wildlife or plants within the riparian and aquatic ecosystems. CNL is continuing its efforts to address these concerns by involving the Indigenous Nations, communities and organizations in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help build confidence that the decommissioning strategy and mitigation measures are effective. The development of risk communication tools is also important to achieve a greater understanding of the NPD Closure Project.

CNL is interested in engagement with WLFN to gain a greater understanding of their concerns related to baseline characterization at the NPD site and ways in which WLFN and CNL can work together communicating this information.

Engagement

In their comments on the draft EIS, received March 2023, WLFN was concerned with CNL's statement that "the EIS assumes that Algonquin communities on the Quebec side of the river have a similar perspective". WLFN commits to building a longer-term relationship with CNL provided that capacity resources are available. This is an important matter to WLFN, its citizens and CNL as engagement continues to expand. WLFN also recommended CNL and WLFN continue to work on building a relationship founded on trust that

ensures information, data, results, and findings are shared. Any anomalies or concerns can be discussed and remediated to ensure uncertainties are addressed.

CNL is committed to collaborative, two-way engagement with the WLFN on the NPD Closure Project in the means that WLFN would like to be engaged. CNL has much to learn and hopes to build trust and seek guidance from WLFN. Through meaningful engagement activities, CNL is happy to share information, data, results, and findings, as well as discuss and address issues and concerns with WLFN.

In December 2022, WLFN requested to review the NPD EIS. In December 2022, a Capacity Funding Agreement was signed by WLFN and CNL to support WLFN's involvement in the EA process for the NPD Closure Project. In March 2023, Wolf Lake provided their comments to CNL on the NPD EIS. An in-person discussion of WLFN recommendations is planned in community in June 2023.

CNL has heard WLFN's request to establish a longer-term relationship. As a starting point, CNL is very interested in working together with WLFN to develop a work plan and capacity for NPD specific activities.

Environmental Effects and Mitigations

In their comments on the draft EIS, received March 2023 WLFN requested support and funding for WLFN to complete a land use and occupancy study that would include their value components identified and further protect traditional, cultural and heritage sites for future generations. It is understood there will be overlapping values with other First Nations, and this can be key to identifying the significant and true value of the value components in question. WLFN is also interested to understand how First Nations are accommodated if values are impacted.

CNL acknowledges WLFN's concerns about the potential impacts on the rights of the WLFN to practice traditional activities on, and in the vicinity of, the NPD site. AECL and CNL recognize that, while we don't have the full historical records, we know that the NPD site was very likely established without consulting Indigenous peoples. As the landowner for CNL managed sites, AECL is working to understand all of the considerations around the future of its sites, including considerations for Indigenous consultations through engagements with Indigenous peoples. While we can't change the past, we can look forward and work to establish positive and mutually beneficial relationship with the WLFN.

CNL stands by its conclusion that the project will not interfere with traditional activities or have a negative impact on the biological resources on which they are dependent. Ultimately, the decision of impacts to rights rests with the CNSC. If the CNSC finds any potential impacts to WLFN's Indigenous and/or treaty rights, CNL remains committed to understanding these rights and working collaboratively to ensure that they are appropriately mitigated to the greatest extent possible. CNL is very interested in working together with the WLFN to identify WLFN VCs and develop mitigation measures to address interests and concerns related to VCs.

Impacts to Rights

In their comments on the draft EIS, received in March 2023, WLFN expressed concern that Fish and Wildlife do not recognize borders and migrate through the lands and waters owned by CNL, which represent the expression on WLFN's rights and their ability to exercise their Aboriginal right to hunt, fish, and trap.

Traditional land use occurs on what are known by the federal and provincial governments as Crown Lands, or with permission, on privately owned land. The ecosystem as a whole should be considered in making decision that may potentially impact Aboriginal rights. Cumulative effects impact and impede on the exercising of rights by First Nations by affecting their staple food sources, following traditional teachings and leading to uncertainties, feeding fear- resulting in avoidance of the areas.

Further, WLFN recommended that CNL and WLFN work together on measures that ensure impacts are not infringing the rights of WLFN; and impacts are minimized and WLFN's interests accommodated. Measures are also required that consider cumulative impacts and ensure that they will not result in food security issues or concerns. Sufficient and continued resources are required to maintain a healthy way of life. There are concerns about contamination of the land, water, flora and fauna.

As part of CNL's engagement activities, we seek to understand the interests and concerns of Indigenous Nations and communities while building awareness and understanding of NPD Closure Project activities. CNL seeks to develop a mutual understanding of the perceived effects of NPD Closure Project activities on the environment and any potential negative impacts on Aboriginal and/or treaty rights. This includes, but is not limited to, rights to trap, hunt, fish, gather, or harvest as well as the continuation and uninterrupted access to cultural and spiritual activities on the lands and waters.

CNL acknowledges WLFN's concerns about assessment of impacts to rights and traditional land and resource use, driven by distrust in the safety of the land and water. CNL is open to increased engagement, education and participatory involvement in monitoring activities at its sites to address these concerns. The proposed NPD Closure Project has the potential to help reduce concerns of alienation and/or fears if they exist. The proposed project involves a long-term solution to ensure the waste that currently resides at the NPD site is effectively contained and isolated from the environment, ensuring public safety. This solution has the potential to result in additional lands being freed up for traditional harvest.

CNL conclusion is that the project will not interfere with traditional activities or have a negative impact on the biological resources on which they are dependent. Ultimately, the decision of impacts to rights rests with the CNSC. If the CNSC finds any potential impacts to WLFN's Indigenous and/or treaty rights, CNL remains committed to understanding these rights and working collaboratively to ensure that they are appropriately mitigated to the greatest extent possible.

Long-term Safety

In their comments on the draft EIS, received in March 2023, WLFN expressed concern about long-term vault safety and durability. The facility should have a postclosure environmental safety case that includes a detailed analysis and modelling of a geological environment that contemplates significant, ongoing, projected changes. There also needs to be an assessment of the human health and environmental impacts. WLFN is also concerned that there are significant geological processes interacting with the surface environment and the potential waste site. It is critical to understand the disposal system in terms of both short and long-term performance. WLFN suggests that understanding landscape responses to external forces and further research is needed to have a detailed model of the first few thousand years after disposal. This is significant to the long-term management of historic radioactive contamination sites.

In Section 8.5 of the EIS CNL presents the geological baseline data. Further Section 8.12 of the EIS discusses the relevant natural disasters to which NPD may be exposed and Section 9.14 discusses the potential effects on the project of climate change, forest fires, floods, earthquakes, severe weather such as tornados, lightning strikes, ice storms, and changes to the Kichi-Sìbì (Ottawa River). Additional details and a range of scenarios that encompass the potential impacts from extreme weather and natural hazards are examined in the DecomSA TSD and the PostSA TSD. CNL is open and willing to discuss the geologic and site investigation undertaken to support the project during a dedicated meeting with WLFN. CNL has also offered to share the Geosynthesis report for the project.

CNL acknowledges WLFN's concerns about the long-term safety of the NPD site. CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above-ground natural hazards and extreme temperature change through all project phases (decommissioning, institutional control and post-institutional control), and concludes that these events will have no undue effects on people or the environment around the site.

CNL models several scenarios in its PostSA TSD which take into account how accidents and natural hazards could affect the facility. These scenarios are called disruptive events. One such case models severe erosion (flood) while another models extreme degradation of the facility (the concrete structure and the grout). In both of these cases the predicted doses to receptors are still well below the dose criterion.

In 2018/19, CNL undertook a geoscientific fieldwork campaign to sample and characterize the bedrock around the NPD facility. The fieldwork included coring of 10 boreholes to a depth of 50 meters into bedrock and several overburden boreholes, with installation of wells for sampling and hydraulic property determinations. The Geoscientific Characterization Report was used to revise the Geosynthesis report and the various models (i.e., Groundwater Model, Resaturation Model). The results of these reports were incorporated into the PostSA TSD, enabling CNL to assess potential effects to VCs in the aquatic and terrestrial ecosystems. The additional field investigations and updated models support the conclusion that the NPD Closure Project is protective of human health and the environment.

CNL is interested in engagement with WLFN to gain a deeper understanding of their concerns about geologic characterization of the site and long-term safety of the NPD Closure Project.

Monitoring

In their comments on the draft EIS, received March 2023, WLFN highlighted that follow-up monitoring and sharing of reported results will be a key element in changing public perceptions. Uncertainties bring fear to people who are not aware or educated on this proposed project. WLFN also recommended that CNL and WLFN develop an enhanced information sharing protocol to better understand the landscape from both world perspectives: "Western Science & Traditional Knowledge". This would allow a more comprehensive baseline monitoring to take place for the NPD Closure Project. Further, WLFN requested to be included in the periodic review, every 5 years, following the final closure- as part of the long-term relationship building. WLFN's primary concern is that their traditional territory is not negatively impacted, and that they uphold their sacred responsibility to Mother Earth and her gifts, (the land, water, fish, wildlife, plants, trees), thus protecting the health and well-being of citizens and the environment that sustains them. The citizens of WLFN have a connection with all the Algonquin Nations in both Ontario and Quebec.

CNL acknowledges WLFN's concerns about the long-term safety of the NPD site and the potential impacts on the rights of the WLFN and other Indigenous Nations, communities and organizations to practice traditional activities around the NPD site. The PostSA TSD demonstrates that the impact beyond the Institutional Controls period on the public, Indigenous and the environment is negligible under all scenarios. CNL is open and willing to have a dedicated discussion with WLFN on their desired level of involvement in monitoring. CNL is happy to share technical reports that are available for the project.

At the project level, follow-up monitoring for the NPD Closure Project will include monitoring of environmental components critical to WLFN such as monitoring of surface water, groundwater and air quality. CNL will conduct monitoring for as long as necessary to verify the results of the assessment in the EIS.

CNL is continuing its efforts to address these concerns by:

(i) Involving Indigenous Nations and organizations, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near the AECL properties and build confidence that the decommissioning strategy and mitigation measures are effective.
(ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern.

CNL conducts a rigorous monitoring program and is committed to ensuring that the environment around the NPD site, including the Kichi-Sìbì (Ottawa River), is protected. The results demonstrate that the public and the environment around the NPD site continues to be protected. CNL can share annual summary of environmental performance available on CNL's website and would be pleased to share any other historic monitoring data as requested by WLFN. CNL is open and willing to work together with WLFN to incorporate Traditional Knowledge into its Western Science practices.

In addition to the CNL monitoring program, the CNSC leads an IEMP designed to verify that the public and the environment around licensed nuclear facilities are protected. As part of its IEMP, the CNSC samples and analyzes surface water upstream and downstream of the NPD site (including sampling for non-radiological parameters). The CNSC IEMP results confirm that the public and the environment around the NPD site are protected and that there are no expected health impacts.

CNL is open to working with WLFN to ensure WLFN involvement in reviewing the follow-up monitoring plans and recognizes how such a review can support long-term monitoring programs. Further CNL is willing to involve WLFN and other Indigenous Nations, communities and organizations in the monitoring program, which will help ensure transparency and lend confidence to monitoring activities and results. The aim of monitoring activities is to confirm the accuracy of the EIS predictions around potential effects and develop mitigation measures as needed. CNL invites WLFN for further engagement with CNL on this topic.

National Policy

In their comments on the draft EIS, received March 2023, WLFN requested that the Auditor General's nuclear waste management audit and NRCan's policy modernization process should conclude before the NPD facility is decommissioned. Findings from the audit and hearings may help prevent the proposed project from causing undue financial and environmental impacts to the Kichi-Sìbì (Ottawa River) and traditional territory of WLFN.

CNL has responded that this interest goes beyond the scope of the project. It is AECL's responsibility to manage their historic nuclear obligations now and not leave it for future generations, therefore the decision was made to complete the environmental remediation of the NPD site in a timely manner. The proposal to create a disposal facility on the NPD reactor site through in-situ decommissioning has been chosen as a safe and immediate decommissioning option for the NPD reactor with respect to the environment, workers and the public. It is important to highlight that this closure will reduce historic nuclear liabilities for Canada and, at the same time, reduce the footprint of the NPD site.

CNL is interested in engagement with WLFN to gain a deeper understanding of their concerns related to proceeding with in-situ disposal as the decommissioning strategy for the NPD Facility.

Protection of the Kichi-Sìbì (Ottawa River)

In their comments on the draft EIS, received in March 2023, WLFN requested that the principle of no radioactive waste near the vicinity of water bodies, like the Kichi-Sìbì (Ottawa River) and St. Lawrence River Basin be followed.

CNL has assessed the potential for contamination to reach the Kichi-Sìbì (Ottawa River) in the EIS supported by long-term modelling and detailed groundwater modelling. The EIS predicts no effects to surface water (including the Kichi-Sìbì (Ottawa River)). Follow up monitoring will be implemented to confirm the predictions presented in the EIS. To verify that the engineered barriers as a whole are performing as expected/designed, CNL will monitor groundwater. Groundwater wells will be located between the NPD facility and the Kichi-Sìbì (Ottawa River) in order to monitor groundwater quality after it interacts with the facility and before it reaches the Kichi-Sìbì (Ottawa River).

CNL is open and willing to have a dedicated discussion with WLFN on its conclusion of no adverse impacts on the Kichi-Sìbì (Ottawa River) and the monitoring that is planned to confirm this prediction.

Technical

In their comments on the draft EIS, received in March 2023, WLFN expressed areas of concern and interest related to technical topics. First, they expressed concern with the recorded high concentration levels of several metals found in the sediment samples. The EIS identifies these levels as baseline conditions however WLFN remains concerned that this contamination is occurring from the NPD site. WLFN wishes to better understand where CNL believes this contamination occurred from, as the sediment contamination exceedances must have a point source. Secondly, WLFN requested that reports from the air monitoring stations within the regional study area be shared with WLFN to demonstrate compliance with regulatory requirements and that there is no evidence of cumulative impacts that affects the traditional territory of

WLFN. Finally, WLFN expressed concern about the transport of contaminants through groundwater and ultimately to the Kichi-Sìbì (Ottawa River). WLFN highlighted, that in relation to the vault, there will be groundwater intrusion that will eventually saturate the grout and come in contact with contamination, and the dissolved contaminants will reach the Kichi-Sìbì (Ottawa River). When the vault is completely saturated with groundwater, the infrastructure will be compromised and will transport contaminated groundwater to the Kichi-Sìbì (Ottawa River). WLFN has identified that long-term exposure to contaminants is unacceptable even in small doses that do not exceed the acceptance criteria.

CNL conducts a rigorous monitoring program and is committed to ensuring that the environment around the NPD site, including the Kichi-Sìbì (Ottawa River), is protected. The results demonstrate that the public and the environment around the NPD site continues to be protected. In addition to the CNL monitoring program, the CNSC leads an IEMP designed to verify that the public and the environment around licensed nuclear facilities are protected. As part of its IEMP, the CNSC samples and analyzes surface water upstream and downstream of the NPD site (including sampling for non-radiological parameters). The CNSC IEMP results confirm that the public and the environment around the NPD site are protected and that there are no expected health impacts. CNL can share annual summary of environmental performance available on CNL's website and would be pleased to share any other historic monitoring data as requested by WLFN. However, CNL notes that impacts from past operations are out of scope of this Environmental Assessment.

The potential for contamination to reach the Kichi-Sìbì (Ottawa River) is assessed in the EIS, and is supported by long-term modelling and detailed groundwater modelling. The EIS predicts no effects to surface water (including the Ottawa Fiver), and follow up monitoring will be implemented to confirm these predictions. To verify that the engineered barriers as a whole are performing as expected/designed, CNL will monitor groundwater. Groundwater wells will be located between the NPD facility and the Kichi-Sìbì (Ottawa River) in order to monitor groundwater quality after it interacts with the facility and before it reaches the Kichi-Sìbì (Ottawa River).

CNL is willing to involve WLFN and other Indigenous Nations, communities and organizations in the monitoring program, which will help ensure transparency and lend confidence to monitoring activities and results. The aim of monitoring activities is to confirm the accuracy of the EIS predictions around potential effects and develop mitigation measures as needed. CNL invites WLFN for further engagement with CNL on this topic.

Traditional Land and Resource Use and Cultural Impacts

In their comments on the draft EIS, received in March 2023, WLFN expressed a number of concerns and has made several requests related to traditional land and resource use and cultural impacts. WLFN has recommended that CNL support WLFN in establishing a process that will document traditional knowledge, land use, occupancy, and values within a site radius to be determined by WLFN. WLFN citizens historically and currently continue to use the lands and waters around the proposed NPD Closure Project and other CNL sites. WLFN and CNL to collaborate and take an inventory of the areas of significance, use and occupancy, using a proximity of 50km. This study must be in line with data collected. Data sharing with and among First Nations in the future may be significant if rights are impacted by the project. Further, WLFN

recommended that CNL support WLFN in completing a diet and harvesting study that will look at the importance of traditional food harvesting and the way of life from WLFN's perspective.

WLFN identified that perceived contamination plays a key role in the way First Nations practice harvesting activities that can influence the safety and acceptability of the proposed project. WLFN is not certain that their traditional territory is protected from historic, present and future contamination, which is impacting the way WLFN citizens are exercising their inherent and protected rights. Language used within the EIS does not make the First Nation confident that their traditional territory, and flora and fauna that is relied upon, is not going to be impacted. WLFN cannot positively support the project when statements like "reasonably achievable measures' or "prevent or minimize harm to workers, the public and the environment" are being stated in the reports. These statements assume that impact or influence, that will or may occur, is acceptable provided it is in small doses. Further, the NPD Closure project is significant to WLFN. The proposed project is located on federally owned lands situated on the Kichi-Sìbì (Ottawa River). Directly North and East across the River is Quebec that consists of gently rolling hills interspaced with many small lakes. WLFN citizens in both Ontario and Quebec use these lands and waters, which have the potential to be impacted by the proposed project. This is especially challenging for WLFN, given negotiations for their reserve land base have yet to be resolved. Despite no resolution in the negotiations, Canada continues to decide on projects that have the potential to contaminate the traditional territory of WLFN. Such conduct is not supportive of reconciliation efforts being promoted by both Federal and Provincial governments.

WLFN has recommended that CNL share the results and findings and ensure that citizen uncertainties are addressed through education and awareness that continues from generation to generation for an anticipated 550-year project life span. Further, WLFN recommended that CNL and WLFN work collaboratively to avoid and mitigate impacts to value components identified by WLFN.

CNL recognizes First Nations and the MNO as stewards of the land and CNL is working towards developing long-term meaningful relationships with each Nation that occupies and has traditional territories and modern-day interests near its operations. CNL recognizes that reconciliation is a process to attempt to bring together multiple perspectives, opinions, and approaches. Reconciliation is about recognizing the need to work together in a collaborative way. CNL is open and willing to grow its knowledge and understanding through meaningful interactions, consistent with the Government of Canada's approach to reconciliation with Indigenous peoples.

CNL acknowledges WLFN's concern about the effects on the Kichi-Sìbì and NPD site from various activities in the past, present and future. CNL has assessed potential effects related to the safety of harvesting and consuming local foods, and no significant adverse effects were identified in the assessment. Section 8.9 of the EIS presents information about traditional land and resource use and Section 9.9 of the EIS assesses risk to traditional land and resource use VCs. Further Indigenous health is assessed in Section 9.10 of the EIS. CNL suggests a dedicated conversation to review the Indigenous receptor evaluated as part of the EA for the project.

CNL acknowledges WLFN's concerns about perceived effects from the NPD site. CNL has assessed potential nuisance effects related to dust and noise, loss of connection to the land, safety of harvesting and consuming local foods, and changes to access to the land; no significant adverse effects were identified in

the assessment. The potential for contamination to reach the Kichi-Sìbì (Ottawa River) is assessed in the EIS, and is supported by long-term modelling and detailed groundwater modelling. The EIS predicts no effects to surface water (including the Kichi-Sìbì (Ottawa River)) and follow up monitoring will be implemented to confirm these predictions.

The EIS and supporting studies have assumed that traditional uses do occur adjacent to the NPD site, whether on the Kichi-Sìbì (Ottawa River) or outside the restricted/fenced area. CNL has also assumed that in the future there is an interest to re-establish traditional use activities on the NPD site. In its assessment, CNL concludes that no adverse residual effects on traditional land and resource use, or impact biological resources upon which they are dependent, are expected.

CNL is committed to building positive long-term relationships with Indigenous Nations and communities who have treaty and Aboriginal rights on the lands for the proposed NPD disposal facility, as well as working with other interested Indigenous Nations, communities and organizations. It is important to CNL that we continue our efforts to build a relationship with WLFN through meaningful engagement to address any potential issues and concerns on the proposed project.

CNL agrees that traditional knowledge from WLFN and other Indigenous Nations and organizations should be integrated into the EIS. The NSDF Project and NPD Closure Project have provided capacity to the Algonquin community closest to the NPD site (the AOPFN). AOPFN also completed a traditional knowledge and land use study and a culture and rights study. CNL is open and willing to discuss this topic further with WLFN to fully understand WLFN-specific interests.

Valued Components (VCs)

In their comments on the draft EIS, received in March 2023, WLFN highlighted that WLFN needs an opportunity to provide values identified by the community. Some values that are very similar have been identified by other First Nations. A priority concern is any potential changes in local fishery species; as they are an important and significant indicator of understanding the potential effects and cumulative effects on inherent and protected rights from the proposed NPD Closure Project. WLFN has also highlighted that First Nations have traditional harvesting, and intercommunity harvesting protocols that need to be taken into account. Many of the species at risk listed within the VCs have a connection to WLFN where knowledge and stories that reflect the natural operations of various ecosystems, are held.

The EIS outlines how Indigenous engagement and input data has influenced the VCs used in the assessment. The revised draft EIS addressed potential effects to VCs in the aquatic environment. The assessment covered the aquatic VCs of interest to Indigenous Nations, communities and organizations, including the fish species identified during Indigenous engagement activities. The assessment concludes that there are no adverse residual effects on the aquatic environment expected from the project.

CNL is open and willing to discuss capacity support and funding with WLFN to seek input on VCs and incorporate WLFN’s VCs into the NPD Closure Project.

6.2.4.17.4 Verification

Wolf Lake FN provided key input, identifying several interests and concerns related to the NPD Closure Project through their comments on the 2021 draft EIS. To confirm CNL has adequately captured WLFN's interests and concerns, position and knowledge, WLFN and CNL underwent a verification process where CNL provided the EIS comment responses and a draft table of interests and concerns to WLFN for their review and feedback. CNL has attempted to verify that WLFN's position, interests and concerns were adequately characterized. CNL continues to work with WLFN to address their concerns through ongoing discussions. Details of the interactions that formed the verification process between CNL and the Wolf Lake FN are captured in the IER TSD.

6.2.4.17.5 Next Steps

CNL will continue to share project information with the Wolf Lake FN. Should WLFN bring forward any new concerns or interests through this ongoing engagement or regulatory proceeding, CNL will seek to understand those concerns in the context of the EIS and the project and commits to continue to work together with WLFN to receive their feedback on the project.

6.2.4.18 Anishinabek Nation

6.2.4.18.1 Engagement

Table C-29 of Appendix C.5 includes a summary of key engagement activities that have occurred with the Anishinabek Nation on the NPD Closure Project as of March 31, 2024. A complete list of engagement activities can be found in Appendix X (Table X-1) of the IER TSD. CNL has also provided a narrative summary of engagement with Anishinabek Nation.

Information-sharing

In July 2016, CNL sent the Anishinabek Nation a letter to introduce the proposed NPD Closure Project, which included a request for input on any potential adverse impacts that project activities might have to the Anishinabek Nation's member communities followed by a second letter in November 2016 which inquired about asserted rights and traditional activities of the Anishinabek Nation's member communities. CNL did speak with the Grand Chief in 2016 to confirm how to correctly contact the Anishinabek Nation.

In late 2017, CNL shared the draft EIS and the IER with Anishinabek Nation. CNL encouraged participation in the public comment period for the draft EIS and requested community input and feedback for incorporation into the project. Anishinabek Nation did not submit comments on the draft EIS to the CNSC and CNL did not receive any feedback from Anishinabek Nation on this report.

Throughout 2018, 2019, 2020, 2021, 2022 and 2023 Anishinabek Nation received invitations to all engagement activities and have not attended any events to date.

In May 2020, CNL shared the March 2020 revised draft EIS, which had been submitted to the CNSC, as well as the updated IER TSD and inquired on Anishinabek Nation specific information.

In July 2022, Anishinabek Nation, Deputy Grand Council (DGC) Chief attended CNL's Environmental Stewardship Council meeting held at the Chalk River Laboratories. This included an NPD Closure Project update. Anishinabek Nation expressed interest in attending more ESC meetings as of February 2023. CNL has facilitated the application process.

Throughout 2022 and early 2023, CNL contacted the Anishinabek Nation to invite them to participate in a site tour of the Chalk River Laboratories and area. No definitive responses were received.

Commitments

In April 2021, CNL provided a project status update and a preliminary table of commitments to the Anishinabek Nation. In this letter, CNL requested any feedback on commitments by June 2021.

In June 2021, CNL followed up on the April letter with the Anishinabek Nation and has had no response from the Nation. To date, the Anishinabek Nation has not made CNL aware of specific concerns or interests related to this project. CNL will continue to share project information with the Anishinabek Nation. Should the Anishinabek Nation bring forward concerns or interests through this ongoing engagement or regulatory proceeding, CNL will seek to understand those concerns in the context of the EIS and the project and commits to continue to work together with the Anishinabek Nation to receive their feedback on the project.

6.2.4.18.2 Feedback

The Anishinabek Nation has not submitted any written comments on the NPD Closure Project Description or EIS and has not engaged with CNL on the NPD Closure Project. CNL is aware that the Anishinabek Nation issued a joint declaration in 2017 in opposition to a radioactive waste managed near waterways, and particularly mentions Rolphton, which is in reference to the NPD site.

6.3 VCs

VCs, sometimes referred to in EAs as valued ecosystem components (VECs), are environmental features that may be affected by a project and that have been identified to be of importance by the proponent, government agencies, Indigenous peoples, or the public. The value of a component not only relates to its role in the ecosystem, but also to the value people place on it. For example, it may have been identified as having scientific, social, cultural, economic, historical, archaeological, or aesthetic importance (*CEAA,* 2012).

VCs are often thought of in terms of the aquatic and terrestrial environments where ecological features, individual species, or important groups of species may be identified. In some cases, an environmental component will not have a VC; rather it will be a pathway, or a means for transfer of an effect to a VC in another environmental component. For example, in the atmospheric environment, air quality and noise act as pathways for the transfer of effects to VCs in other environmental components, such as biota in the terrestrial environment.

Discussion of VCs in Section 6 focuses on VCs that reflect Indigenous interests, such as those related to Indigenous traditional land and resource use (Section 9.9.1). Indigenous peoples have also expressed a great deal of interest in other VCs, particularly those related to the natural environment.

6.3.1 Methods

6.3.1.1 Indigenous Engagement

The NPD Closure Project occurs within the general area of the AOO Land Claim (See Figure 6.2-2 in Section 6.2.4.2), where negotiations with the Crown have occurred since 1991. It also overlaps the Mattawa/Lake Nipissing Traditional Harvesting Territory for the MNO. Discussions with WTFN communities and AANTC member communities have also indicated that traditional harvest occurs in the general area surrounding the NPD site.

Indigenous Nations, communities and organizations practice or have practiced some traditional activities within the Local Study Area and Regional Study Area (Section 5.2.1.1) of the NPD Closure Project. Through CNL's engagement process, Indigenous Nations, communities and organizations have conducted traditional knowledge studies to support the NPD Closure Project EIS and have identified VCs of particular interest to them. Through this engagement process, Indigenous interests have been incorporated into the selection of final VCs for the NPD Closure Project.

6.3.1.2 Selection of VCs by Canadian Nuclear Laboratories

Selection of VCs for this project was accomplished via the following steps (full details in Section 5.2.4):

1. Create master list of candidate VC species, by reviewing relevant reference documents and applying EA process and site knowledge. From this, a consolidated master list of candidate VCs was produced. This list is presented in Appendix B. These candidate VCs include biota such as fish or birds, as well as abiotic qualities such as cultural and heritage sites, or socio-economic entities such as fishing.
2. Using the environmental components identified in the project interactions matrix (Table 5.2-1), VCs were selected for and assigned to each environmental component. Some environmental components were identified as pathways, meaning effects in that environmental component would affect VCs in other environmental components. For other environmental components, a VC (from the master list of candidate VCs in Appendix B) was selected and assigned. The list of VCs is presented in Table 5.2-3.
3. Provide opportunity for VC engagement. Once a draft VC list was developed, input was solicited from Indigenous, agency, and public stakeholders.
4. Update Draft VC List to address relevant comments. Provide rationale for any changes and excluded suggestions.
5. Produce Final VC List.

Appendix B provides a Master List of Candidate Valued Components considered for the NPD Closure Project, providing a rationale for including or not including the species as a VC. Appendix B also indicates

where certain species of interest are represented by a VC. For example, fish VCs are walleye and emerald shiner (representing pelagic fish), and Lake Sturgeon and white sucker (representing benthic fish). Any other fish species of interest are 'mapped' to the appropriate representative fish species according to their characteristic (pelagic vs benthic). Effects of the project on fish are assessed through these main categories – pelagic fish and benthic fish – and not by specific species.

6.3.2 VCs Identified by Indigenous Nations, Communities and Organizations

The VCs selected for the NPD Closure Project (Table 5.2-3) reflect a wide range of Indigenous interests. Many of the interests and concerns raised by Indigenous Nations, communities and organizations, and documented in Section 6.2.4 above, correspond directly or indirectly to the VCs selected for the project. Table 6.3-1 summarizes the key interests and concerns related to VCs that were expressed during engagement activities with Indigenous Nations, communities and organizations.

As noted in Section 5.2.4, one of the considerations in the initial selection of VCs was traditional and current importance of a species to Indigenous peoples, based on available information. Based on Indigenous Nation, community and organization feedback received during engagement activities, CNL has added several human and non-human VCs that were identified as being of importance to Indigenous Nations, communities and organizations. Berries, mushrooms, mink, river otter, weasel, red fox, moose and monarch butterflies were added as VCs, as well as soil quality, groundwater quality, groundwater flow and several Indigenous socio-economic and Indigenous health VCs. Table 6.3-1 identifies where VC related feedback has resulted in the addition of a new VC. Where the table indicates that no new VCs have been added, this affirms that direct, representative or related VCs that encompass the value or interest of the Indigenous Nation, community or organization were already included in the assessment. A complete listing of VCs assessed by the project can be found in Table 5.2-3.

In many cases, concerns on a particular VC or topic were expressed by more than one commenter or group; therefore, in the table below, comments may have been consolidated, summarized or included as excerpts from larger submissions. The table indicates how the EIS and supporting TSDs assess or otherwise consider the potential effects from interactions of these VCs with the various project activities.

Table 6.3-1 Indigenous Nations, Communities and Organizations' Key Interests and Concerns related to VCs

(a) Algonquins of Ontario (AOO)

VC-related comment	How is this VC included in the assessment	Main Conclusion
Loss of connection to and use of lands and water.	**Direct and/or Related Project VC:** The EIS discusses concerns about loss of connection to land and water, and loss of land and water use, as part of the assessment of effects on traditional land and resource use (Sections 9.9.3 and 9.9.5). **New VCs added to the assessment:** None. **Discussion:** With respect to loss of land and water use, the lands and waters within the NPD site are not currently used by Indigenous Nations, communities and organizations. As discussed in Section 9.9.3 of the EIS, land use may change during and/or after the Institutional Controls phase. Renaturalization of the site may lead to an increase in wildlife and may benefit trapping, hunting, and gathering activities. In the long-term, these changes are expected to result in increased connection to and use of lands and water. A small licensed area will remain and access will be restricted, which will limit the total additional area of use, thus no measurable effects on land use are expected.	**No adverse residual effects** on traditional land and resource use are expected (Section 9.9.3.5). CNL has programs in place to enhance engagement and address any potential feelings of loss of connection to and use of lands and water (Section 9.9.5).
Protection of the Kichi-Sìbì (Ottawa River): - Kichi-Sìbì (Ottawa River) water quality, and potential for contamination to waterways, plants and animals - Wash out pit - Historic water discharges	**Direct and/or Related Project VC:** Potential impacts on water quality in the Kichi-Sìbì (Ottawa River) are assessed in the EIS by considering the effects of the project on: • surface water environmental component (Section 9.3.3), • plant and animal VCs (Sections 9.4.3 and 9.6.3), • traditional land and resource use VCs (Section 9.9.3), • human health and socio-economic VCs (members of the public and Indigenous Nations, communities and organizations that may use Kichi-Sìbì (Ottawa River) water) (Sections 9.8.3, 9.10.1.3, 9.10.2.3, and 9.11.3). Historic water discharges to the Kichi-Sìbì (Ottawa River) are discussed in the EIS as part of the determination of baseline levels (Section 8.3.3). **New VCs added to the assessment:** VCs related to the aquatic and terrestrial environments, Indigenous socio-economic and health conditions (Section 9.4.1, 9.6.1, 9.10.1, 9.10.2) **Discussion:** The EIS considers the effects of project activities on surface water quality and drainage (Section 9.3.3). It also assesses potential effects on changes to the surface water environment on plant and animal VCs, socio-economic and traditional land use VCs, as well as human health VCs (members of the public and Indigenous Nations, communities and organizations) that may use Kichi-Sìbì (Ottawa River) water (Sections 9.4.3, 9.6.3, 9.8.3, 9.9.3, 9.10.2.3, 9.11.3). As part of the discussion, CNL has identified mitigation measures related to proper design and management of washout pits. Clarification has been added to the EIS, confirming that the washout pit would be lined with a watertight material to prevent infiltration of water into the ground (Section 4.3.1.3).	The EIS concludes that effects on site drainage are temporary and localized, and not expected to affect overall site drainage. **No adverse residual effects** on surface water quality are expected (Section 9.3.3.5). The EIS concludes that based on the assessment conducted, **no adverse residual effects** are expected from the project on Kichi-Sìbì (Ottawa River) water quality (Section 9.2.3.5), plants and animals in the aquatic environment (Section 9.4.3.5), the health and socio-economic conditions of members of the public (Sections 9.8.3.5 and 9.11.3.5), and the health (Section 9.10.2.3.5) and socio-economic conditions (Section 9.10.1.4) of Indigenous peoples. The available baseline monitoring results indicate that the maximum concentrations (of radionuclides and non-radionuclides) in the Kichi-Sìbì (Ottawa River) are well within the federal and provincial environment-based guidelines which ensure protection of aquatic life and drinking water. These results confirm that historical practices of water discharge to the Kichi-Sìbì (Ottawa River) have been safe, and that Kichi-Sìbì (Ottawa River) water quality has not been adversely affected by CNL's historical practices (Section 8.3.3).

VC-related comment	How is this VC included in the assessment	Main Conclusion
	The EIS baseline data includes monitoring data from the Kichi-Sìbì (Ottawa River) near the NPD site (Sections 8.3.3, and 8.3.4.2). The Kichi-Sìbì (Ottawa River) data are collected by CNL as well as independently by the CNSC as part of its IEMP. It is noted that in 2018, in response to public and Indigenous concerns, CNL ceased the practice of discharging liquid effluent from the facility sumps to the Kichi-Sìbì (Ottawa River), and arranged for water to be sent to the Waste Treatment Centre at the CRL site (Section 8.3.3). CNL is also planning an additional baseline monitoring program of non-radiological and radiological parameters of interest in the Kichi-Sìbì (Ottawa River), to document pre-project conditions and enable comparison on follow-up monitoring results to baseline conditions (Sections 9.3.5.2 and 12.3.2).	
Concerns about the safety of harvesting and consuming harvested foods.	**Direct and/or Related Project VC:** Safety of harvesting and consuming harvested foods is assessed using the Human Health Public VCs (Section 9.8.3) and Indigenous peoples Health VCs (Section 9.10.2.3). **New VCs added to the assessment:** VCs related to Indigenous health (Section 9.10.2) **Discussion:** The assessment of risk to human receptors includes consideration of exposures received during harvesting activities and consumption of locally-harvested food. Wherever possible, conservative assumptions about future lifestyles and habits have been adopted in the assessment, to help ensure that potential exposures have not been underestimated (Section 9.8.3.3). As outlined in the PostSA TSD, locally-harvested foods include crops and animal feed grown in local garden soil and irrigated with river water; fish, shellfish, aquatic plants and wildfowl living in the river; livestock grazing on lands adjacent to the river; wild foods obtained from the region of the facility. In addition, the analysis includes assumed occupancy factors for each exposure group. These occupancy factors estimate the fractions of time spent in various outdoor areas, including harvesting, harvesting and fishing locations. The EIS (Section 9.9.5) describes how some participants in the AOO AKLUS indicated concerns about contamination and the risk associated with harvesting and consuming foods from the area. CNL acknowledges this may result in: individuals not using an area or harvesting less food, or a feeling of discomfort or concern associated with contamination and risk. CNL will continue to work with Indigenous Nations, communities and organizations to address any of these negative perceptions. This may include working with each of the communities to ensure that proposed management actions and mitigations are well understood and effective. There are varying levels of confidence in the effectiveness of the proposed mitigation measures and CNL is committed to working with each community uniquely to address outstanding concerns (Section 9.9.5).	The EIS concludes that even considering the conservative assumptions made, **no adverse residual effects** on human health (members of the public and Indigenous Nations, communities and organizations) are anticipated from the project (Section 9.8.3.5, 9.10.2.3.5). CNL has programs in place to enhance engagement and address any potential negative perceptions of land use experiences (Section 9.9.5).
Presence of Algonquin cultural sites (e.g., burial sites, historically significant sites, spiritual sites) and changes, past and present, to accessing these sites.	**Direct and/or Related Project VC:** Impacts and access to cultural sites are discussed in the EIS by considering the presence of these sites on the NPD property (Section 8.9.2), and by assessing the effects of the project on the Cultural Resources and Ceremonies VC under traditional land and resource use (Section 9.9.3). **New VCs added to the assessment:** None	No known cultural sites have been identified on the NPD property. Therefore, there is no potential for a blocking of access to cultural sites (Section 8.9.2). Based on the assessment conducted, the EIS expects **no adverse residual effects** on traditional land and resource use from the project (Section 9.9.3.5). CNL has programs in place to enhance engagement and address any potential negative perceptions of land use experiences (Section 9.9.5).

VC-related comment	How is this VC included in the assessment	Main Conclusion
	Discussion: The EIS discusses cultural sites around the NPD site. No known cultural features have been identified at the NPD site, but the Kichi-Sìbì (Ottawa River) itself is recognized as an important cultural/heritage value for multiple reasons (Section 8.9.2). The Archaeology TSD assessed the NPD site beyond the proposed footprint of the project and determined that there is archaeological potential within the rest of the NPD site, both for historical homesteads and pre-(European) contact period. Although it was determined that there is high potential for cultural material to be present outside of the proposed project footprint, the Archaeology TSD did not recommend further archaeological assessment because these areas will not be impacted by the project. It is also noted that there are some registered archaeological sites outside of the NPD site (Archaeology TSD Section 3.2.2). The EIS assesses potential effects of the project on nearby traditional land use activities (Section 9.9.3). CNL has developed mitigation measures to minimize potential nuisance effects on nearby traditional land uses (Section 9.9.3.3).	
Impacts to Kichi-Sìbì (Ottawa River) shoreline	**Direct and/or Related Project VC:** Impacts to the Kichi-Sìbì (Ottawa River) shoreline are assessed in the EIS by considering the effects of the project on the aquatic habitat-related VCs (Section 9.4.3) and the Landscape and Visual Setting VC (Section 9.11.3). **New VCs added to the assessment:** None **Discussion:** No physical disturbances to the Kichi-Sìbì (Ottawa River) shoreline are expected from the project, because the project does not involve any in-water or near-water work (9.4.3). The EIS also considers changes to the visual character of the shoreline, as viewed from the Kichi-Sìbì (Ottawa River), during project activities. In order to mitigate potential effects to landscape and visual setting, CNL will maintain the existing natural buffer (made up of the treed slope) for the duration of the Decommissioning Execution phase (Section 9.11.3.3).	The EIS concludes that **no adverse residual physical or visual effects** on the Kichi-Sìbì (Ottawa River) shoreline are expected from project activities (Sections 9.4.3.2, 9.11.3.5).
Bioaccumulation of contaminants in fish species	**Direct and/or Related Project VC:** Bioaccumulation of contaminants in fish species is assessed using the fish and fish-eating animal VCs selected in the EIS (Section 9.4.3, 9.6.3). **New VCs added to the assessment:** None **Discussion:** Bioaccumulation of contaminants in fish species was taken into account in the assessment of potential exposure risk to fish and fish-eating animal VCs (Section 9.4.3, 9.6.3). The EcoRA TSD used conservative assumptions wherever possible when estimating concentrations of contaminants in fish tissue, and when modelling transport of contaminants through the food chain. The EA Follow-Up Program (Section 12) includes monitoring of contaminants in fish tissue if any surface water exceedances are identified, during the Decommissioning Execution and Institutional Control phases (Section 12.3.2).	The EIS concludes that **no adverse residual effects** on non-human biota, including fish and fish-eating VCs, are anticipated from exposure to radiological or chemical contaminants, during any phase of the project (Sections 9.4.3.5, 9.6.3.5).

VC-related comment	How is this VC included in the assessment	Main Conclusion
Impacts to Species at Risk, in particular the protection of chimney swifts	**Direct and/or Related Project VC:** Impacts to Species at Risk are assessed using the SAR VCs selected in the EIS, which include monarch butterfly, chimney swift, various bat species, eastern wolf, Blanding's turtle and eastern milksnake (Section 9.6.3). Effects on chimney swifts are assessed using the chimney swift VC in the EIS, and in the Chimney Swift Studies TSD. **New VCs added to the assessment:** Monarch butterfly **Discussion:** The EIS assesses several SAR that have been observed or are potentially present on site, including: monarch butterfly; little brown myotis; chimney swift; eastern wolf; Blanding's turtle; and eastern milksnake (Section 5.2.4, 9.6.3). In the assessments of potential exposure effects to SAR species (in the EcoRA TSD), additional protective measures were applied, such as adding an extra safety factor to the radiological benchmarks for SAR species, and selecting chemical benchmarks protective at the individual level (EcoRA TSD Section 4). CNL has developed a number of mitigation measures to ensure the protection of biota, including SARs. Some of the planned measures are specific to the protection of SAR: chimney swifts, monarch butterflies, bats, migratory birds, amphibians and reptiles (Section 9.6.3.2). To address concerns related to the chimney swift, the EIS assesses potential exposure- and habitat-related effects to the chimney swift (Section 9.6.3.3). CNL has undertaken numerous studies specifically to address potential impacts to chimney swifts from decommissioning activities (Chimney Swift Studies TSD). As discussed above, CNL has developed a number of mitigation measures specifically for minimizing effects on chimney swifts; these include restrictions on: the timing of work activities (i.e., daylight only); placement of the grout batch mixing plant and noisy equipment as far as possible from the stack for work activities; minimizing noise, vibration and lighting levels (Section 9.6.3.2).	The EIS concludes that the project will result in **no adverse residual effects** on SAR species. This result applies to potential habitat-related effects as well as effects from exposure to chemical and radiological contaminants (Sections 9.4.3.5, 9.6.3.5). CNL's follow-up program involves monitoring activities designed specifically to confirm the above conclusions and assess the effectiveness of the mitigation measures for protection of SAR species. As outlined in Section 12.3.2, these include visual inspections, counts and site sweeps during specific periods. Additional mitigation measures and monitoring programs have been developed specifically for protection of the chimney swift (Sections 9.6.3.2, 9.6.5, 12.3.2).
Protection of Migratory bird habitat	**Direct and/or Related Project VC:** Effects on migratory bird habitat are assessed in the EIS by considering the effects of the project on the known chimney swift roost at the NPD site (Section 9.6.3). **New VCs added to the assessment:** None **Discussion:** CNL acknowledges that habitat protection has been expressed as an area of interest for Indigenous Nations, communities and organizations, and it has developed an Environmental Protection Procedure on Management of Land and Habitat (Hawkins 2024). Although the NPD Closure Project does not involve destruction or removal of migratory bird habitat, the EIS does include specific mitigation measures for the protection of migratory birds and their habitat, including avoiding tree clearing (if required) during the breeding bird season, and ground nest surveys (Section 9.6.3.2). The EIS also specifically discusses migratory bird habitat of the chimney swift and bald eagle.	The EIS concludes that **no adverse residual effects** on migratory bird habitat are expected (Section 9.6.3.5).

VC-related comment	How is this VC included in the assessment	Main Conclusion
	Previously, a bald eagle's nest had been identified on the NPD site. The nest was located approximately 875 m away from the facility, where work will be occurring. The nest is no longer present, as the tree was blown down in a storm in 2021. CNL has developed mitigation measures specifically for the protection of migratory birds, such as conducting nest surveys; scheduling activities around nesting season; and establishing buffer zones and setbacks as needed (Section 9.6.3.2). Section 9.6.3.2 also outlines measures to be taken if a nest is found during project execution. Additional mitigation measures and monitoring programs have been developed specifically for protection of the chimney swift and its habitat (Sections 9.6.3, 12.3.2). The EIS notes that migratory bird habitat will continue to be available during the Institutional Controls phase and beyond.	
Socio-economic conditions of Indigenous Nations, communities and organizations that are interacting with the NPD site should be considered	**Direct and/or Related Project VC:** Socio-economic and health conditions of Indigenous Nations, communities and organizations are assessed using the Indigenous Socio-economic and Indigenous Health VCs (Section 9.10.1 and 9.10.2). **New VCs added to the assessment:** VCs related to Indigenous health and socio-economic conditions (Section 9.10.1 and 9.10.2) **Discussion:** Based on feedback from Indigenous Nations, communities and organizations, CNL has added sections on Indigenous Socio-economic and Health conditions to the EIS (Sections 8.10.1, 8.10.2, 9.10.1 and 9.10.2). Several VCs have been selected with respect to this new environmental component, including Indigenous People and Indigenous Worker receptors. The EIS presents information on baseline socio-economic and health conditions in nearby Indigenous communities. Information that was provided to CNL by Indigenous Nations, communities and organizations has been incorporated into Section 8.10. Indicators considered include income, employment, labour force, education, housing, diet and water use in Section 8.10, along with a comparison to regional and provincial statistics where available. Indigenous socio-economic interactions are described and assessed in Section 9.10.1.3. Indigenous health interactions are described and assessed in Section 9.10.2.3 as well as in the DecomSA and PostSA TSDs. Potential economic and employment benefits to Indigenous peoples are discussed in Section 9.10.1.3 of the EIS. Mitigation measures for the protection of Indigenous socio-economic conditions and health are presented in Sections 9.10.1.3.2 and 9.10.2.3.2 respectively. No specific environmental monitoring has been identified for the Indigenous socio-economic environment. Monitoring in other environmental components will confirm the EIS predictions (i.e., that no effects are expected in the Indigenous socio-economic environment). Ongoing Indigenous, public and stakeholder engagement activities will take place throughout the Decommissioning Execution and Institutional Controls phases to identify any changing concerns or perceptions related to the project. Monitoring and follow-up activities related to the health of Indigenous peoples and Indigenous workers are discussed in Section 9.10.2.5.	The EIS concludes that based on the assessment conducted, **no adverse residual effects** on the Indigenous Socio-economic environment or on Indigenous Health (Indigenous People or Indigenous Workers) are expected (Sections 9.10.1.4 and 9.10.2.3.5).

VC-related comment	How is this VC included in the assessment	Main Conclusion
Indigenous Health: • Concerns due to introduction of tritium into the Kichi-Sìbì (Ottawa River) • Postclosure safety and inclusion of an Indigenous receptor group	**Direct and/or Related Project VC:** Potential effects on Indigenous peoples health including impacts from tritium in the Kichi-Sìbì (Ottawa River) are assessed in the EIS using the Indigenous peoples Health VC (Section 9.10.2). **New VCs added to the assessment:** VCs related to Indigenous health: Indigenous People and Indigenous Workers (Section 9.10.2) **Discussion:** CNL has incorporated information on Indigenous health indicators that was provided by Indigenous Nations, communities and organizations into the description of baseline Indigenous health (Section 8.10.2). Based on feedback from Indigenous Nations, communities and organizations, CNL has added sections on Indigenous Socio-economic and Health Conditions to the EIS (Sections 8.10.1, 8.10.2, 9.10.1 and 9.10.2). Several VCs have been selected with respect to this new environmental component, including Indigenous People and Indigenous Worker VCs. The assessment of risk to human receptors includes consideration of exposures received from domestic and agricultural use of the Kichi-Sìbì (Ottawa River), including irrigation, drinking, swimming and fishing activities. Wherever possible, conservative assumptions about future lifestyles and habits of the Indigenous Health VCs have been adopted in the assessment, to help ensure that potential exposures have not been underestimated (Section 9.10.2.3). CNL's planned mitigation measures for the protection of surface water are presented in Section 9.3.3.2.	The EIS concludes that based on the assessment conducted, **no adverse residual effects** on Indigenous health (Indigenous People or Indigenous Workers) are expected (Sections 9.10.1.4 and 9.10.2.3.5). Follow-up monitoring of radionuclide levels in the Kichi-Sìbì (Ottawa River) is planned (see Section 9.3.5.2), to verify the predictions of the EIS and evaluate the effectiveness of the mitigation measures already implemented.
Impact on site's terrestrial and wetland areas from project operations (e.g., grout batch mixing plant and staging areas)	**Direct and/or Related Project VC:** The EIS addresses the potential impacts of these activities to terrestrial and wetland areas, by discussing habitat- and exposure-related effects of the project to VCs in the terrestrial environment as well as the surface water environmental components, including wetlands (Sections 9.2.3, 9.3.3, 9.6.3). The VCs assessed include terrestrial and semi-aquatic VCs. **New VCs added to the assessment:** VCs related to terrestrial and semi-aquatic environment including monarch butterfly, moose, mink and otter **Discussion:** Section 4.3.1.2 of the EIS shows a map indicating the preferred grout batch mixing plant location. The EIS assesses the potential physical effects and exposure-related effects of the project on terrestrial and wetland areas as follows: With respect to the terrestrial environment, an area of approximately 1.2 hectares, currently containing milkweed, will have to be cleared for this project. The milkweed is present on an area where asphalt remains from previous operations of the site. Milkweed is present elsewhere at NPD in smaller areas as well as along the Highway 17. The EIS notes that several varieties of wildflowers, which are an important nectar source for monarch butterflies during the fall migration, are also available on the NPD site (Sections 8.6.4.4, 9.6.3.3). Potential contaminant-related impacts to the terrestrial environment are evaluated in the EIS by assessing exposure-related effects on terrestrial VCs (Section 9.6.3). With respect to wetlands, the EIS notes that no project activities are expected to occur near the wetlands (Section 9.4.3.1). Potential contaminant-related impacts to wetland ecosystems are evaluated in the EIS by assessing exposure-related effects on VCs such as amphibians (e.g., green frog) and waterfowl (e.g., mallard, great blue heron). Mitigation measures for protection of the site's terrestrial areas, and milkweed plants in particular, are presented in Section 9.6.3.2.	Based on the mitigation measures described in the EIS, **no adverse residual habitat-related effects** on terrestrial and wetland areas are expected (Section 9.6.3.5). In addition **no adverse residual exposure-related effects** are expected on VCs in terrestrial or wetland areas (Section 9.6.3.5). The planned follow-up monitoring of air quality, surface water quality and groundwater quality will ensure that terrestrial and wetland areas are protected (Section 12.3.2).

VC-related comment	How is this VC included in the assessment	Main Conclusion
Protection of habitat for wildlife (e.g., moose, white-tailed deer, bear, fox, wolf, five-lined skink and wild turkey)	**Direct and/or Related Project VC:** Protection of wildlife habitat is discussed in the EIS as part of the assessment of physical disturbance and noise effects (Section 9.6.3). **New VCs added to the assessment:** None **Discussion:** CNL acknowledges that habitat protection has been expressed as an area of interest for the communities, and it has developed an Environmental Protection Procedure on Management of Land and Habitat (Hawkins 2024). The EIS notes that project activities are expected to remain within the Site Study Area, which consists primarily of areas previously disturbed by human activity and contains various cultural vegetation communities. This area provides very little suitable habitat to support resident terrestrial species (Section 8.6.1). The EIS assesses effects from physical disturbance, wildlife habitat fragmentation, noise, and roadkill (Sections 9.6.3.1, 9.6.3.3). The EIS proposes mitigation measures for the protection of terrestrial vegetation and wildlife habitat in the Site Study Area (Section 9.6.3.2).	The EIS concludes that there is limited potential for loss of habitat for animals potentially found in the Site Study Area during the Decommissioning Execution phase of the project. The loss of habitat associated with the NPD Closure Project is temporary and minor, displacing wildlife to cultural communities unaffected by project activities, or the surrounding forests. The project is not expected to introduce any physical barriers to wildlife (Section 9.6.3.3). Noise disturbances to wildlife, if any (as they are likely accustomed to noise from Highway 17), will be localized and temporary in nature (Section 9.6.3.3). Mitigation measures have been developed to minimize direct loss of wildlife from vehicle operation on-site as well as wildlife entering the site (Section 9.6.3.2). During the Institutional Controls and Post-Institutional Controls phases, no adverse habitat-related effects are expected in the Site, Local or Regional Study Areas. Renaturalization of the Site Study Area over time may increase habitat for wildlife and would be beneficial for both vegetation and wildlife communities (Section 9.6.3.3). **No adverse residual effects** on wildlife habitat are expected (Section 9.6.3.5).
Protection of habitat for plants (e.g., oak, pine, birch, many other medicines)	**Direct and/or Related Project VC:** Protection of plant habitat is discussed in the EIS as part of the assessment of physical disturbance and noise effects on terrestrial vegetation (Sections 9.6.3). **New VCs added to the assessment:** None **Discussion:** It is noted that NPD Closure Project activities are expected to remain within previously disturbed areas, and no tree clearing is planned (Section 9.6.3.2). The EIS proposes mitigation measures for the protection of terrestrial vegetation habitat in the Site Study Area (Section 9.6.3.2). The EIS considers construction-related effects on vegetation communities (Sections 9.6.3, 9.6.4).	**No adverse habitat-related effects** on terrestrial vegetation are expected in the Site, Local or Regional Study Areas (Sections 9.6.3.5). Construction-related effects on vegetation communities, such as dust, are expected to be localized and temporary (Sections 9.6.3). Mitigation measures and replanting plans have been developed to address milkweed plant removal. Renaturalization of the Site Study Area over time may increase habitat for wildlife and would be beneficial for both vegetation and wildlife communities (Section 9.6.3.3). Overall, **no adverse residual effects** on plant habitat are expected (Section 9.6.3.5).
Commercial trapping Wildlife and harvesting and fishing areas Plant and natural materials gathering areas	**Direct and/or Related Project VC:** Potential effects on trapping (traditional and commercial), harvesting, gathering and trapping areas are assessed using the Trapping, Hunting, Fishing and Gathering VCs under the environmental component of traditional land and resource use (Section 9.9.3). **New VCs added to the assessment:** None **Discussion:** CNL acknowledges that fishing, harvesting, traditional and commercial trapping, and gathering of plants and natural materials are valued traditional and modern-day land use activities (Section 8.9.2). It is noted that these activities do not currently occur on the NPD site, and particularly not in the Site Study Area, where proposed project activities will be conducted. CNL has developed mitigation measures to minimize potential nuisance effects on traditional land uses occurring nearby (Section 9.9.3.2). The EIS assesses potential effects of the project on nearby traditional land use activities (Section 9.9.3). NPD Closure Project activities are expected to remain within previously disturbed areas. Other than the removal of milkweed (a temporary effect discussed earlier), no removal or destruction of wildlife areas is expected.	The EIS concludes that **no adverse residual effects** on traditional land and resource use are expected (Section 9.9.3.5). As discussed in Section 9.9.3 of the EIS, land use may change during and/or after the Institutional Controls phase. Renaturalization of the site may lead to an increase of wildlife and may benefit trapping, hunting, and gathering activities. In the long-term, these changes are expected to result in increased connection to and use of lands and water. Access to the licensed area will be restricted, which will limit the total additional area of use, thus no measurable effects on land use are expected.

VC-related comment	How is this VC included in the assessment	Main Conclusion
	From a habitat perspective, the EIS assesses whether the project will affect vegetation communities in the Site, Local and Regional Study Areas (Section 9.6.3.3).	
Spawning habitat	**Direct and/or Related Project VC:** Protection of spawning habitat is discussed in the EIS (Sections 9.4.3, 12.3). **New VCs added to the assessment:** None **Discussion:** CNL acknowledges the presence of spawning habitat in the Kichi-Sìbì (Ottawa River) (Section 8.9.1.3). No physical disturbances to spawning habitat are expected from the NPD Closure Project, because the project does not involve any in-water or near-water work such as infilling, construction or blasting (Sections 9.4.3). With respect to chemical or radiological effects on habitat, CNL has developed mitigation measures (Section 9.4.3.2) and monitoring plans for the protection of the Kichi-Sìbì (Ottawa River) from chemical and radiological releases. For example, the Draft Follow-up Effluent Monitoring Plan includes monitoring of water collection points and the washout pit (Section 12.3.1); the Draft Follow-up Environmental Monitoring Plan includes monitoring of on-site and Kichi-Sìbì (Ottawa River) surface water quality (Section 12.3.2); and the Draft Follow-up Groundwater Monitoring Plan includes groundwater quality monitoring (Section 12.3.3). The EcoRA TSD considers effects to fish from chemical and radiological releases to the Kichi-Sìbì (Ottawa River) (EcoRA TSD Section 2.2).	The EIS concludes that none of the activities of the project are expected to affect fish habitat; there will be no infilling, construction or blasting in the river, and no activities near the wetlands (Section 9.4.3.1). The EIS also concludes that based on the assessment conducted, **no adverse residual effects** are expected on fish or other VCs in the aquatic environment from exposure to radiological or chemical contaminants (Section 9.4.3.5).
Specific species identified as important by AOO during engagement activities: moose, white-tailed deer, lake trout, northern pike, walleye, sauger, smallmouth bass, muskellunge, beaver, marten, mink, otter, rabbit/hare, muskrat, fox (trapping), elk, black bear (hunting), bald eagle (cultural significance), waterfowl, grouse, cranberries, berries (blueberries, raspberries, serviceberries)	**Direct and/or Related Project VC:** Potential effects of the project on plants and animals are assessed in the EIS using the existing VCs and new VCs (Sections 9.4.3, 9.6.3, 9.9.3, 9.10.1.3, 9.10.2.3). The species of interest identified by AOO during Indigenous engagement have been assessed in the EIS and TSDs (in particular the EcoRA TSD), either directly as VCs or being represented by EcoRA receptors. **New VCs added to the assessment:** CNL added moose, fox, river otter, mink and berries as new VCs specifically in response to feedback from Indigenous Nations, communities and organizations, including AOO. The remainder of the identified species were already included as VCs and/or represented by an EcoRA receptor. **Discussion:** Potential effects of the project to all of these species are assessed in the EIS and EcoRA TSD. See Table 6.3-2 for mapping of these species to EcoRA receptors. In the EIS, some of these VCs are also assessed under existing traditional land and resource use VCs: Trapping, Hunting, Fishing and Gathering (Section 9.9.3).	The EIS concludes that the project will result in **no adverse residual effects** on non-human biota, including the species of interest identified by AOO. This result applies to potential habitat-related effects as well as effects from exposure to chemical and radiological contaminants (Sections 9.4.3.5, 9.6.3.5, EcoRA TSD).

Note:

Federal legislation (*SARA*, 2002) is followed in the EIS for Species At Risk.

(b) AOPFN - Algonquins of Pikwàkanagàn First Nation

VC-related comment	How is this VC included in the assessment	Main Conclusion
Indigenous health receptor: Concern about the assumptions made when developing exposure profiles: dietary pathways (and changes due to perceived contamination), occupancy factors, locations of activities. Where is this information listed, and is it representative of community values? Concern that other factors related to Indigenous determinants of health and well-being were not being focused on, with the strong emphasis on Human Health Risk Assessment.	**Direct and/or Related Project VC:** Potential effects on Indigenous peoples health are assessed in the EIS using the Indigenous peoples Health VC (Section 9.10.2.3.3). **New VCs added to the assessment:** VCs related to Indigenous health: Indigenous People and Indigenous Workers (Section 9.10.2) **Discussion:** The assumptions made in developing the exposure profiles for the Indigenous Health VCs (i.e., Indigenous peoples and Indigenous Workers) are summarized in Section 8.10.2 (food sources and water use) and Section 9.10.2 (dietary intake values, time spent at various outdoor activity locations). CNL acknowledges that there is uncertainty in the characterization of potential effects to Indigenous VCs. This has been accounted for by using conservative assumptions wherever possible. For example, with the exception of hunters, receptors during the Post-Institutional Controls phase were assumed to obtain 100% of their water from the Kichi-Sìbì (Ottawa River), and all foods except grain were obtained 100% locally (Section 9.10.2.3.3). CNL intends to confirm the conservative assumptions related to the diet of this receptor, using the results of the recently completed Diet and Harvest Study. If the survey results indicate that the assumptions made were not conservative enough, then this information will be captured within a future revision of the IER TSD.	The conservative assumptions that were used in developing the exposure profiles for Indigenous Health VCs are expected to be protective of Indigenous peoples during all phases of the project. The EIS concludes that despite the conservative assumptions made, **no adverse residual effects** on Indigenous health (Indigenous People and Indigenous Workers) are anticipated from the project (Section 9.8.3.5, 9.10.2.3.5). **AOPFN Concerns:** This conclusion does not consider the full range of factors that contribute to the health of Indigenous peoples, nor has a monitoring program been set up to capture non-biophysical impacts on health in the EA Follow-up Program.
Impacts on riparian ecosystems	**Direct and/or Related Project VC:** Protection of riparian ecosystems is discussed in the EIS as part of the assessment of potential effects on the surface water environment and aquatic plant and animal VCs. (Sections 9.4.3 and 9.6.3). **New VCs added to the assessment:** VCs that live and/or feed in the aquatic environment: moose, otter and mink. **Discussion:** CNL acknowledges the presence of riparian habitat on the NPD site, along the Kichi-Sìbì (Ottawa River) shoreline. Some of this habitat has been previously disturbed, e.g., a small area that is maintained in a cleared state (with rip-rap on the shoreline) to enable access to the dry hydrant near the shoreline, which was installed to draw water from the river if needed for fire suppression (Section 8.4.2.1). Contaminant-related impacts to riparian ecosystems are evaluated in the EIS by assessing exposure-related effects on riparian VCs such as amphibians (e.g., green frog) and waterfowl (e.g., mallard, great blue heron) (Section 9.6.3.3). CNL has initiated a waterfowl survey along the disturbed shoreline of the NPD property to document usage by waterfowl prior to the start of NPD Closure Project activities. This initiative also supports CNL's biodiversity monitoring program. The planned follow-up monitoring of air quality, surface water quality and groundwater quality will ensure that riparian areas are also protected.	Project activities are not expected to have any physical impacts on the current riparian habitat, because no project activities will occur near the shoreline (Section 9.4.4.3). The EIS concludes that **no adverse residual effects** (physical or exposure-related) are expected on riparian VCs from the project (Sections 9.4.3.5, 9.6.3.5). **AOPFN Concerns:** AOPFN is concerned that moose and deer have not been a focus of this assessment, as those are critical ungulates for traditional land and resource use purposes for the Nation. AOPFN has expressed a desire at CNL-operated, AECL-owned facilities, to be informed of any animal collisions or other morbidity/mortality incidents, and to involve the Neya Wabun Guardian Program in investigations of any such incident through the EA Follow-up Program.

VC-related comment	How is this VC included in the assessment	Main Conclusion
Reducing animal road mortality of sensitive species	**Direct and/or Related Project VC:** Effects to sensitive species from road mortality are assessed in the EIS using the Blanding's turtle and eastern milksnake VCs (Section 9.6). **New VCs added to the assessment:** None **Discussion:** The EIS assesses the potential for direct loss of wildlife on the NPD site as roadkill from on-site transportation as well from vehicles travelling to and from the site (Section 9.6.3.3). Mitigation measures have been developed to minimize direct loss of wildlife from on-site transportation site as well as vehicle travel entering the site. These measures, described in detail in Section 9.6.3.2, include fencing, speed limits, signage, surveys, training and sweeps. CNL notes that to date, no eastern milksnakes or Blanding's turtle have been seen on the road at NPD. Due to the fact that the estimated traffic density and speed limit will remain low during this project, and that animals are expected to avoid areas of project activity, the mitigation measures to be implemented for the protection of the species during decommissioning operations will focus on staff and contractor behavior.	The EIS concludes that roadkill incidents are likely to be infrequent, and that **no adverse residual effects** on these species are expected (Section 9.6.3.5). CNL's EA Follow-up Program includes roadkill mortality surveys during key time periods, to verify EIS predictions (Section 12.3.2.1).
Dust	**Direct and/or Related Project VC:** Effects from dust emissions are assessed using aquatic and terrestrial soil, plant and animal VCs as well as geological and hydrogeological, public and Indigenous health, land use and socio-economic VCs (Sections 9.4, 9.5, 9.6, 9.8, 9.9, 9.10 and 9.11). **New VCs added to the assessment:** None **Discussion:** The EIS discusses effects from dust emissions in nearly every environmental compartment: atmospheric, surface water, aquatic, geological, terrestrial, human health, traditional land and resource use, Indigenous socio-economic and health, socio-economic environment (Sections 9.2.3.2 to 9.11.3.2). CNL will employ mitigation measures associated with standard construction practices to control dust, such as spray misting, covering of haulage trucks, paving of roads, dust suppression technologies and communications with Indigenous Nations, communities and organizations (Sections 9.2.3.2, 9.3.3.2, 9.9.3.2). Monitoring of dust and noise are incorporated into the Draft Follow-up Effluent Monitoring Plan and Draft Follow-up Environmental Monitoring Plan (Sections 12.3.1 and 12.3.2).	Any effects on plant and animal VCs from project-related dust emissions are expected to be minor, localized and temporary. Based on the planned mitigation measures, **no adverse residual effects** on aquatic or terrestrial plant or animal VCs are expected from dust emissions from project activities (Sections 9.3.3.5, 9.4.3.5, 9.5.3.5, 9.6.3.5). The EIS concludes that no measurable changes in air quality are predicted at human receptor locations. Though minor, temporary and localized nuisance effects may occur, **no adverse residual effects** are expected on members of the public, workers, traditional land and resource use, Indigenous peoples or Indigenous workers from dust emissions (Sections 9.8.3.5, 9.9.3.5, 9.11.3.5).
Effluent discharges to the aquatic environment	**Direct and/or Related Project VC:** Potential effects from project releases to the aquatic environment are assessed using the aquatic plant and animal VCs selected in the EIS, as well as the public and Indigenous human health, land use and socio-economic VCs. (Sections 9.4.3, 9.6.3, 9.8.3, 9.9.3, 9.10.3 and 9.11.3). **New VCs added to the assessment:** VCs related to the aquatic and terrestrial environments, Indigenous socio-economic and health conditions (Section 9.4.1, 9.6.1, 9.10.1, 9.10.2)	The EIS concludes that **no adverse residual effects** on non-human biota in the aquatic environment are anticipated from exposure to radiological or chemical contaminants (Section 9.4.3.5). The EIS concludes that based on the predicted impacts after applied mitigation measures, **no adverse residual effects** on human health or socio-economics (including Indigenous receptors) are expected to result from the project (Sections 9.8.3.5, 9.10.1.3, 9.10.2.3.5, 9.11.3.5).

VC-related comment	How is this VC included in the assessment	Main Conclusion
	Discussion: The EIS assesses the potential impacts of project-related emissions to non-human biota VCs in the aquatic environment (Section 9.4.3.3). It also assesses impacts related to health and socio-economic use of the Kichi-Sìbì (Ottawa River) by Indigenous Nations, communities and organizations and members of the public (Sections 9.8.3, 9.10.1.3, 9.10.2.3, 9.11.3.3). Section 9.3.3.2 of the EIS provides a series of mitigation measures focused on protection of surface water, including CNL's process for non-routine discharges. No un-assessed liquid effluent releases are permitted. Mitigation measures for the protection of surface water have been updated and expanded from the 2017 draft EIS, and include consideration of stormwater flows. CNL has developed mitigation measures and monitoring plans for the protection of the Kichi-Sìbì (Ottawa River) from chemical and radiological releases. For example, the Draft Follow-up Effluent Monitoring Plan includes monitoring of water collection points and the washout pit (Section 12.3.1); the Draft Follow-up Environmental Monitoring Plan includes monitoring of on-site and Kichi-Sìbì (Ottawa River) surface water quality (Section 12.3.2); and the Draft Follow-up Groundwater Monitoring Plan includes groundwater quality monitoring (Section 12.3.3).	
Preservation of cultural resources	**Direct and/or Related Project VC:** Preservation of cultural resources is discussed in the EIS as part of the assessment of effects on traditional land and resource use (Section 9.9.3). **New VCs added to the assessment:** None **Discussion:** The EIS discusses cultural sites around the NPD site. The AOPFN AKLUS report does not identify any known cultural features at the NPD site, and particularly not where proposed project activities will be conducted; however, the Kichi-Sìbì (Ottawa River) itself is recognized as an important cultural/heritage value for multiple reasons by AOPFN AKLUS participants (Section 8.9.2). The EIS assesses potential effects of the project on nearby traditional land use activities (Section 9.9.3). CNL has developed mitigation measures to minimize potential nuisance effects on nearby traditional land uses (Section 9.9.3.3).	Based on the assessment conducted, the EIS expects **no adverse residual effects** on traditional land and resource use from the project (Section 9.9.3.5). CNL has programs in place to enhance engagement and address any potential negative perceptions of land use experiences (Section 9.9.5). During the Institutional Controls and Post-Institutional Controls phases, renaturalization of the site may lead to an increase of wildlife and may benefit trapping, hunting, and gathering activities (Section 9.9.3.3). **AOPFN Concerns:** This conclusion does not examine the factors that influence connectedness and alienation from cultural/traditional use areas. The findings from the three AOPFN studies are in disagreement with this conclusion. AOPFN has also highlighted the need for improved risk communication. AOPFN is also opposed to using a "damaged baseline" – i.e., cultural and traditional use practices at the NPD site today – as the starting point for this assessment, as this is punitive to Indigenous peoples because the site has been cut off from use and occupancy by Indigenous peoples against their will since the 1960s.
Perceptions of safety and quality of experience on the land	**Direct and/or Related Project VC:** Safety of using the land is assessed in the EIS using the Indigenous peoples Health VC (Section 9.10.2). Quality of experience on the land is discussed in the EIS as part of the assessment of effects on traditional land and resource use. (Section 9.9.3). **New VCs added to the assessment:** VCs related to Indigenous health – Indigenous People and Indigenous Workers (Section 9.10.2)	The EIS concludes that based on the assessment conducted, **no adverse health effects** to Indigenous receptors are expected during the Decommissioning Execution phase or Postclosure period (Section phase (Section 9.10.2.3.5). The EIS predicts **no adverse residual effects** on traditional land and resource use (Section 9.9.3.5). CNL has programs in place to enhance engagement and address any potential negative perceptions of land use experiences (Section 9.9.5).

VC-related comment	How is this VC included in the assessment	Main Conclusion
	Discussion: CNL has added to the sections on Indigenous Socio-economic and Health (Sections 8.10.1, 8.10.2, 9.10.1 and 9.10.2). Several VCs have been selected with respect to this new environmental component, including Indigenous People and worker receptors. With respect to quality of experience on the land: The lands and waters within the NPD site are not currently used by Indigenous Nations, communities and organizations, but activities adjacent to the site are still possible and recorded, including along the Kichi-Sìbì. As discussed in Section 9.9.3 of the EIS, land use may change during and/or after the Institutional Controls phase. Renaturalization of the site may lead to an increase of wildlife and may benefit trapping, hunting, and gathering activities. In the long-term, these changes are expected to result in increased connection to and use of lands and water. Access to the licensed area will continue to be restricted, which will limit, by a small amount, the total additional area of use.	**AOPFN Concerns:** This conclusion does not examine the factors that influence connectedness and alienation from cultural/traditional use areas. The findings from the three AOPFN studies are in disagreement with this conclusion and find that a future with in-situ disposal has the potential to continue existing effects on traditional use and culture into the far future (potentially permanently), meaning an increase in the temporal scope of alienation, loss of use, fear and stigma associated with the site. AOPFN has also highlighted the need for improved risk communication. AOPFN is also opposed to using a “damaged baseline” – i.e., cultural and traditional use practices at the NPD site today – as the starting point for this assessment.
AOPFN preferred harvesting sites	**Direct and/or Related Project VC:** Potential effects on harvesting areas are assessed using the Gathering VC under the environmental component of traditional land and resource use (Section 9.9.3). **New VCs added to the assessment:** None **Discussion:** CNL acknowledges that harvesting and gathering of plants and natural materials are valued traditional and modern-day land use activities (Section 8.9.2). It is noted that these activities do not currently occur on the NPD site, and particularly not in the Site Study Area, where proposed project activities will be conducted. CNL has developed mitigation measures to minimize potential nuisance effects on traditional land uses occurring nearby (Section 9.9.3.2). The EIS assesses potential effects of the project on nearby traditional land use activities (Section 9.9.3). NPD Closure Project activities are expected to remain within previously disturbed areas. Other than the removal of milkweed (a temporary effect discussed earlier), no removal or destruction of wildlife areas is expected.	The EIS concludes that **no adverse residual effects** on traditional land and resource use are expected (Section 9.9.3.5). As discussed in Section 9.9.3 of the EIS, land use may change during and/or after the Institutional Controls phase. Renaturalization of the site may lead to an increase of wildlife and may benefit harvesting activities. In the long-term, these changes are expected to result in increased connection to and use of lands and water. Access to the licensed area will be restricted, which will limit the total additional area of use, thus no measurable effects on land use are expected. **AOPFN Concerns:** This conclusion does not examine the factors that influence connectedness and alienation from cultural/traditional use areas. The findings from the three AOPFN studies are in disagreement with this conclusion. AOPFN has also highlighted the need for improved risk communication. AOPFN is also opposed to using a “damaged baseline” – i.e., cultural and traditional use practices at the NPD site today – as the starting point for this assessment.
AOPFN preferred fishing sites, fish and fish habitat	**Direct and/or Related Project VC:** Potential effects on fishing areas, fish, and fish habitat are assessed using the Fishing VC under the environmental component of traditional land and resource use (Section 9.9.3) and by assessing the effects of the project on fish and fish habitat (Section 9.4.3). **New VCs added to the assessment:** None **Discussion:** CNL acknowledges that fishing is a valued traditional and modern-day land use activity (Section 8.9.2). There is no fishing on the NPD site or within the boundaries of the AECL property surrounding the NPD site. But there can be fishing in the Kichi-Sìbì (Ottawa River) adjacent to the site, and property. CNL has developed mitigation measures to minimize potential nuisance effects on traditional land uses occurring nearby (Section 9.9.3.2).	The EIS concludes that **no adverse residual effects** on traditional land and resource use are expected (Section 9.9.3.5). As discussed in Section 9.9.3 of the EIS, land use may change during and/or after the Institutional Controls phase. The EIS concludes that none of the activities of the project are expected to affect fish or fish habitat; there will be no infilling, construction or blasting in the river, and no activities near the wetlands (Section 9.4.3.1). **AOPFN Concerns:** CNL has evaluated exclusively impacts on fish (a biophysical value) without considering impacts on AOPFN preferred fishing sites (a human value). CNL has not characterized the many considerations that Indigenous would-be harvesters factor into decisions on whether, where, when and what to fish for. AOPFN remains concerned both that there is no detailed Algonquin baseline for fish and

VC-related comment	How is this VC included in the assessment	Main Conclusion
	The EIS assesses potential effects of the project on nearby traditional land use activities (Section 9.9.3). NPD Closure Project activities are expected to remain within previously disturbed areas. Fish species are included in the assessment of potential effects to fish from chemical and radiological contamination. Representative 'pelagic' fish (which inhabit the main water column of the river) and 'benthic' fish (bottom-feeding fish) are assessed, ensuring that all fish species in the Kichi-Sìbì (Ottawa River) are considered. No physical disturbances to fish habitat are expected from the project, because the project does not involve any in-water or near-water work such as infilling, construction or blasting (Sections 8.4.3.2, 9.4.3.1, 9.4.3.2).	fish habitat in the project-affected area, nor is there a proper characterization of potential factors influencing AOPFN willingness to fish in this area in the project case.
Kichi-Sìbì as a cultural landscape	**Direct and/or Related Project VC:** Impacts and access to cultural sites are discussed in the EIS by considering the presence of these sites on the NPD property (Section 8.9.2), and by assessing the effects of the project on the Cultural Resources and Ceremonies VC under traditional land and resource use (Section 9.9.3). **New VCs added to the assessment:** None **Discussion:** The EIS discusses cultural sites around the NPD site. The Kichi-Sìbì (Ottawa River) itself is recognized as an important cultural/heritage value for multiple reasons (Section 8.9.2), as noted in the AOPFN AKLUS. CNL acknowledges the presence of aquatic and riparian habitat on the NPD site, along and in the Kichi-Sìbì (Ottawa River). Some of this habitat has been previously disturbed, e.g., a small area that is maintained in a cleared state (with rip-rap on the shoreline) to enable access to the dry hydrant near the shoreline, which was installed to draw water from the river if needed for fire suppression (Section 8.4.2.1). Contaminant-related impacts to riparian ecosystems are evaluated in the EIS by assessing exposure-related effects on aquatic and riparian VCs (Sections 9.4.3.3 and 9.6.3.3). CNL has initiated a waterfowl survey along the disturbed shoreline of the NPD property to document usage by waterfowl prior to the start of NPD Closure Project activities. This initiative also supports CNL's biodiversity monitoring program. The planned follow-up monitoring of air quality, surface water quality and groundwater quality will ensure that aquatic riparian areas are also protected.	Based on the assessment conducted, the EIS expects **no adverse residual effects** on cultural resources from the project (Section 9.9.3.5). Project activities are not expected to have any physical impacts on aquatic and riparian habitat, because no project activities will occur in the water or near the shoreline (Section 9.4.4.3). The EIS concludes that **no adverse residual effects** (physical or exposure-related) are expected on aquatic and riparian VCs from the project (Sections 9.4.3.5, 9.6.3.5). CNL has programs in place to enhance engagement and address any potential negative perceptions of land use experiences (Section 9.9.5). **AOPFN Concerns:** This conclusion does not examine the factors that influence connectedness and alienation from cultural/traditional use areas. The findings from the three AOPFN studies are in disagreement with this conclusion. AOPFN has also highlighted the need for improved risk communication. AOPFN has also highlighted that basing an impact assessment on a human VC (like the Kichi-Sìbì as a cultural landscape) purely or primarily on a set of findings re: biophysical VCs (in this case VCs associated with aquatic and riparian habitat and species), is not an accurate way to conduct such an assessment. This "biophysical proxy" approach is not best practice in current Canadian EA.
Species at Risk including lake sturgeon, eel and bald eagles (note that the bald eagle was delisted from SARO and is no longer a Species at Risk)	**Direct and/or Related Project VC:** Impacts to Species at Risk are assessed using the SAR VCs selected in the EIS, which include the bald eagle (Section 9.6.3). Lake sturgeon (listed as Threatened under COSEWIC, and provincially as Endangered) is included as a VC, and is assessed in Section 9.4.3. The American eel (listed as Threatened under COSEWIC, and provincially as Endangered) are represented as benthic fish receptor in the EcoRA. **New VCs added to the assessment:** None **Discussion:** Impacts to SAR are assessed using the SAR VCs selected in the EIS, which include the bald eagle	The EIS concludes that the project will result in **no adverse residual effects** on SAR species. This result applies to potential habitat-related effects as well as effects from exposure to chemical and radiological contaminants (Sections 9.4.3.5, 9.6.3.5). CNL's follow-up program involves monitoring activities designed specifically to confirm the above conclusions and assess the effectiveness of the mitigation measures for protection of SAR species. As outlined in Section 12.3.2, these include visual inspections, counts and site sweeps during specific periods.

VC-related comment	How is this VC included in the assessment	Main Conclusion
	(Section 9.6.3). Lake sturgeon is included as a VC and is listed as Threatened under COSEWIC, and is assessed in Section 9.4.3. The American eel are represented as benthic fish receptor in the EcoRA. In the assessments of potential exposure effects to SAR species (in the EcoRA TSD), additional protective measures were applied, such as adding an extra safety factor to the radiological benchmarks for SAR species, and selecting chemical benchmarks protective at the individual level (EcoRA TSD Section 4). CNL has developed a number of mitigation measures to ensure the protection of biota, including SARs. Some of the planned measures are specific to the protection of bald eagle (Section 9.6.3.2). The EIS notes that American eels were once abundant in this stretch of the Kichi-Sìbì (Ottawa River), but the range of the eel has been reduced due to barriers in the Kichi-Sìbì (Ottawa River) (e.g., dams). Eels are uncommon upstream of the Cheneaux generating station (>100 km downstream) (Section 8.4.3.2, Appendix B).	
Specific species identified as important by AOPFN during engagement activities: badger, bear, beaver, coyote, fisher, fox, marten, moose, muskrat, otter, rabbit/hare, raccoon, squirrel, weasel, white-tailed deer, wolf (Algonquin), bait fish, bass, brook trout, burbot, catfish, chub, jackfish/northern pike, lake sturgeon, lake trout, lake whitefish, mud pout/brown bullhead, muskellunge, pickerel/walleye, speckled trout, sucker, sunfish, yellow perch, bald eagle, barn swallow, ducks, goose, grouse, partridge, turtle, birch (tea and topical medicine), cedar (in medicinal pouches), pine, poplar (tea and topical medicine), spruce, tamarack (medicinal: tea and topical), willow (teething relief), blueberries, cattails (medicinal rub), dandelions, fiddleheads, juniper bush (medicinal tea), Labrador tea, wiken (muskrat root or sweet flag), prickly ash, raspberry (berries, leaves), red willow, gzibimkshk (scouring rush), magajim mashkiai (sweet fern) (medicinal and ceremonial), wild leek or onion, chaga.	**Direct and/or Related Project VC:** Potential effects of the project on plants and animals are assessed in the EIS using the existing VCs and new VCs (Sections 9.4.3, 9.6.3, 9.9.3, 9.10.1.3, 9.10.2.3). The species of interest identified by AOPFN during Indigenous engagement have been assessed in the EIS and TSDs (in particular the EcoRA TSD), either directly as VCs or being represented by EcoRA receptors. **New VCs added to the assessment:** CNL added moose, fox, otter, weasel, mushrooms and berries as new VCs specifically in response to feedback from Indigenous Nations, communities and organizations, including AOPFN. The remainder of the identified species were already included as VCs and/or represented by an EcoRA receptor. **Discussion:** Potential effects of the project to all of these species are assessed in the EIS and EcoRA TSD. See Table 6.3-4 for mapping of these species to EcoRA receptors. In the EIS, some of these VCs are also assessed under existing traditional land and resource Use VCs: Trapping, Hunting, Fishing and Gathering (Section 9.9.3).	The EIS concludes that the project will result in **no adverse residual effects** on non-human biota, including the species of interest identified by AOPFN. This result applies to potential habitat-related effects as well as effects from exposure to chemical and radiological contaminants (Sections 9.4.3.5, 9.6.3.5, EcoRA TSD). **AOPFN Concerns:** This conclusion does not include involvement of on-the-ground Indigenous Knowledge data collection nor has it been verified by AOPFN's Algonquin Advisory Committee.

Note:

Federal legislation (*SARA*, 2002) is followed in the EIS for Species At Risk.

(c) Métis Nation of Ontario (MNO)

VC-related comment	How is this VC included in the assessment	Main Conclusion
Separate consideration of Indigenous Health and Indigenous Socio-economic conditions. Inclusion of Métis use and enjoyment of the area surrounding the NPD site as a sub-component of the socio-economic environment. Inclusion of MNO data, e.g., existing vegetation types and in the description of baseline Indigenous socio-economic conditions.	**Direct and/or Related Project VC:** In response to feedback received during Indigenous engagement activities, CNL has added Indigenous health and Indigenous socio-economic VCs (Section 9.10). Indigenous resident use and enjoyment of the area is included as a VC under the Indigenous socio-economic component. **New VCs added to the assessment:** VCs related to Indigenous health: Indigenous People and Indigenous Workers (Section 9.10.2) **Discussion:** CNL has added new environmental components (and associated VCs) to the EIS (Section 8.10), describing current Indigenous socio-economic and Indigenous health conditions. Information from the TKLUS undertaken for the MNO (KnowHistory 2019), such as on Métis harvesting regions, baseline socio-economic conditions, existing vegetation types, and the importance of walleye, has been incorporated into this new Section 8.10.1, as well as into Sections 7 (Indigenous Engagement) and 8.9 (traditional land and resource Use). Several VCs have been selected with respect to these new environmental components, including Indigenous resident use and enjoyment of land, Indigenous People health and Indigenous worker health receptors. Potential effects of the project on these VCs are assessed in Section 9.10.1.3 and 9.10.2.3.	Overall, the EIS concludes that based on the assessment conducted, **no adverse residual effects** on the Indigenous Socio-economic environment or on Indigenous health (Indigenous members of the public or workers) are expected (Sections 9.10.1.3 and 9.10.2.3.5).
Inclusion of Métis rights and interests in the assessment, particularly, MNO's perception and intangible aspects of Métis way-of-life.	**Direct and/or Related Project VC:** The EIS and IER now reference Aboriginal and/or treaty rights to be inclusive of Métis rights (Sections 5, 6, 8 and 9). Métis rights and interests and the MNO's perception and intangible aspects of Métis way-of-life are discussed in the EIS as part of the assessment of effects on traditional land and resource use (Section 9.9.3). **New VCs added to the assessment:** None. **Discussion:** Specific references to Métis rights and interests have been added to the EIS (Sections 5, 6, 8 and 9). The EIS assesses potential project effects on several VCs that have been identified as rights-based activities, under the traditional land and resource Use component (Section 9.9). Perceptions about performing traditional land use activities are discussed in Section 9.9.5 of the EIS. CNL and the MNO continue to discuss critical aspects of MNO's rights, particularly, the MNO's perception and intangible aspects of the Métis way-of-life to determine whether they can be incorporated into the project.	Based on the assessment conducted, the EIS predicts **no adverse residual effects** on traditional land and resource use (Section 9.9.3.5). CNL has programs in place to enhance engagement and address any potential negative perceptions of land use experiences (Section 9.9.5).
Potential long-term impacts on Métis harvesting rights	**Direct and/or Related Project VC:** Impacts on harvesting activities are considered in the EIS assessment of potential effects on traditional land and resource use VCs (Section 9.9.3). **New VCs added to the assessment:** None.	The EIS predicts **no adverse residual effects** on traditional land and resource use (Section 9.9.3.5). CNL has programs in place to enhance engagement and address any potential negative perceptions of land use experiences (Section 9.9.5).

VC-related comment	How is this VC included in the assessment	Main Conclusion
	Discussion: Harvesting does not currently occur on the NPD site, and particularly not in the Site Study Area, where proposed project activities will be conducted. The EIS assesses potential effects of the project on nearby Indigenous land use activities (Section 9.9.3). CNL has developed mitigation measures to minimize potential nuisance effects on nearby traditional land uses (Section 9.9.5).	
No VCs have been selected for the Atmospheric Environment	**Direct and/or Related Project VC:** The atmospheric environment has been identified as a "pathway", meaning that changes in the atmospheric environment could result in effects to VCs in other environmental compartments. Therefore, the EIS assesses the potential effects of the project on the atmospheric environment, using human and non-human biota VCs in other environmental compartments. **New VCs added to the assessment:** None. **Discussion:** The EIS identifies potential interactions of the project with the atmospheric environment (Section 9.2.3.1) and presents mitigation measures to reduce air and noise emissions (Section 9.2.3.2). The potential effects of releases to air from the project are assessed throughout the remainder of Section 9, to VCs in: the aquatic environment (Section 9.4), the terrestrial environment (Section 9.6), human health (Section 9.8), traditional land and resource use (Section 9.9), Indigenous socio-economic and health (Section 9.10) and socio-economic (Section 9.11).	The EIS predicts **no adverse residual effects** related to air and noise emissions (Sections 9.4.3.5, 9.6.3.5, 9.8.3.5, 9.9.3.5, 9.10.1.3, 9.10.2.3.5, 9.11.3.5).
Effects of the project and sediment quality on Métis rights to fish	**Direct and/or Related Project VC:** Impacts on Métis rights to fish are assessed in the EIS using the Fishing activities VC under the environmental component of Traditional Land and Resource Use (Section 9.9.3), and by assessing the effects of the project on fish and fish habitat (Section 9.4.3). **New VCs added to the assessment:** None. **Discussion:** With respect to sediment quality, Section 2.6.2 of the EIS has been updated to reflect new information, stating "Recently, radiological and non-radiological sediment sampling was undertaken as part of Phase II Environmental Site Assessment (ESA). Based on the results of the Phase II ESA, it is considered unlikely that the NPD site has impacted sediment quality in the Kichi-Sìbì (Ottawa River)." In addition, before the NPD Closure Project begins, CNL is planning to undertake additional sediment and surface water monitoring to provide baseline values to compare future 'follow-up' surface water and sediment monitoring results against. Follow-up monitoring will ensure that there is minimal impact to surface water and sediment (and in turn to fish). The description of traditional Fishing activity in the EIS (Section 8.9.1.5) includes a listing of the fish species harvested in the MNO TKLUS (KnowHistory 2019). These species are included in the assessment of potential effects to fish from chemical and radiological contamination. Representative 'pelagic' fish (which inhabit the main water column of the river, like Walleye and Emerald Shiner) and 'benthic' fish (bottom-	The EIS concludes that none of the activities of the project are expected to affect fish habitat; there will be no infilling, construction or blasting in the river, and no activities near the wetlands (Section 9.4.3.1).

VC-related comment	How is this VC included in the assessment	Main Conclusion
	feeding fish) like White Sucker are assessed, ensuring that all fish species in the Kichi-Sìbì (Ottawa River) are considered. No physical disturbances to fish habitat are expected from the project, because the project does not involve any in-water or near-water work such as infilling, construction or blasting (Sections 8.4.3.2, 9.4.3.1, 9.4.3.2).	
Effects from dust and noise on aquatic species of importance that may extend beyond the property line	**Direct and/or Related Project VC:** The EIS assesses the potential effects of dust and noise emissions to aquatic VCs, including those beyond the NPD property line (Section 9.4.3.3). **New VCs added to the assessment:** None. **Discussion:** Aquatic VCs are assessed in areas extending beyond the NPD property line: the Local Study Area, which extends 50m into the Kichi-Sìbì (Ottawa River), and the Regional Study Area (Section 5.2.1.1), which includes the stretch of the Kichi-Sìbì (Ottawa River) from near the Des Joachims Generating Station, to 30 km downstream of the NPD site (which includes CRL), and extends across the river to include the Quebec shoreline (Section 8.3.1). CNL will employ mitigation measures associated with standard construction practices to control dust, such as spray misting, covering of haulage trucks, paving of roads, dust suppression technologies and communications with Indigenous Nations, communities and organizations (Sections 9.2.3.2, 9.3.3.2, 9.9.3.2). Monitoring of dust and noise are incorporated into the Draft Follow-up Effluent Monitoring Plan and Draft Follow-up Environmental Monitoring Plan (Sections 12.3.1 and 12.3.2)	The EIS concludes that **no adverse residual effects** on non-human biota in the aquatic environment (in the Site, Local or Regional Study Areas) are anticipated from exposure to dust or noise emissions (Section 9.4.3.5).
Habitat for plants (e.g., oak, ground hemlock and berries) and wildlife (e.g., moose, partridge, grouse, rabbit, deer, duck, goose).	**Direct and/or Related Project VC:** Protection of plant and animal habitat is discussed in the EIS as part of the assessment of physical disturbance and noise effects (Section 9.6.3). **New VCs added to the assessment:** None. **Discussion:** It is noted that NPD Closure Project activities are expected to remain within previously disturbed areas, and no tree clearing is planned (Section 9.6.3.2). The EIS proposes mitigation measures for the protection of terrestrial vegetation habitat in the Site Study Area (Section 9.6.3.2). The EIS considers construction-related effects on vegetation communities (Sections 9.6.3, 9.6.4).	**No adverse habitat-related effects** on terrestrial vegetation are expected in the Site, Local or Regional Study Areas. Construction-related effects on vegetation communities, such as dust, are expected to be localized and temporary (Sections 9.6.3.5). Renaturalization of the Site Study Area over time may increase habitat for wildlife and would be beneficial for both vegetation and wildlife communities (Section 9.6.3.3). Overall, **no adverse residual habitat-related effects** on terrestrial vegetation or wildlife are expected (Section 9.6.3.5).
Small and large game harvesting areas Fish harvesting areas Plant and natural materials harvesting areas	**Direct and/or Related Project VC:** Potential effects on harvesting, gathering and trapping areas are assessed using the Gathering and Trapping activities VCs under the environmental component of Traditional Land and Resource Use (Section 9.9.3). **New VCs added to the assessment:** None. **Discussion:** CNL acknowledges that fishing, harvesting, traditional and commercial trapping, and gathering of plants and natural materials are valued traditional and modern-day land use activities (Section 8.9.2). It is noted that	The EIS concludes that **no adverse residual effects** on traditional land and resource use are expected (Section 9.9.3.5). As discussed in Section 9.9.3 of the EIS, land use may change during and/or after the Institutional Controls phase. Renaturalization of the site may lead to an increase of wildlife and may benefit trapping, hunting, and gathering activities. In the long-term, these changes are expected to result in increased connection to and use of lands and water. Access to the licensed area will be restricted, which will limit the

VC-related comment	How is this VC included in the assessment	Main Conclusion
Trapping	these activities do not currently occur on the NPD site, and particularly not in the Site Study Area, where proposed project activities will be conducted. CNL has developed mitigation measures to minimize potential nuisance effects on traditional land uses occurring nearby (Section 9.9.3.2). The EIS assesses potential effects of the project on nearby traditional land use activities (Section 9.9.3). NPD Closure Project activities are expected to remain within previously disturbed areas. Other than the removal of milkweed (a temporary effect discussed earlier), no removal or destruction of wildlife areas is expected. From a habitat perspective, the EIS assesses whether the project will affect vegetation communities in the Site, Local and Regional Study Areas (Section 9.6.3.3).	total additional area of use, thus no measurable effects on land use are expected.
Métis cultural practice sites	**Direct and/or Related Project VC:** Potential impacts on Métis cultural practice sites are discussed in the EIS by considering the presence of these sites on the NPD property (Section 8.9.3) and by assessing the effects of the project on the traditional land and resource use VCs, which include traditional activities as well as cultural resources and ceremonies.(Section 9.9.3). **New VCs added to the assessment:** None. **Discussion:** The EIS discusses cultural sites around the NPD site. No known cultural features have been identified at the NPD site, but the Kichi-Sìbì (Ottawa River) itself is recognized as an important cultural/heritage value for multiple reasons (Section 8.9.2). No cultural practices are currently conducted on the NPD site, and particularly not where proposed project activities will be conducted. The EIS assesses potential effects of the project on nearby traditional land use activities (Section 9.9.3). CNL has developed mitigation measures to minimize potential nuisance effects on nearby traditional land uses (Section 9.9.3.3).	Based on the assessment conducted, the EIS predicts **no adverse residual effects** on traditional land and resource use (Section 9.9.3.5). CNL has programs in place to enhance engagement and address any potential negative perceptions of land use experiences (Section 9.9.5). During the Institutional Controls and Post-Institutional Controls phases, renaturalization of the site may lead to an increase of wildlife and may benefit trapping, hunting, and gathering activities (Section 9.9.3.5).
Kichi-Sìbì (Ottawa River) water quality	**Direct and/or Related Project VC:** Potential impacts on water quality in the Kichi-Sìbì (Ottawa River) are assessed in the EIS by considering the effects of the project on: • surface water environmental component (Section 9.3.3), • plant and animal VCs (Sections 9.4.3 and 9.6.3), • human health and socio-economic VCs (members of the public and Indigenous Nations, communities and organizations that may use Kichi-Sìbì (Ottawa River) water) (Sections 9.8.3, 9.10.1.3, 9.10.2.3, and 9.11.3). **New VCs added to the assessment:** VCs related to the aquatic and terrestrial environments, Indigenous socio-economic and health conditions (Section 9.4.1, 9.6.1, 9.10.1, 9.10.2) **Discussion:** The EIS considers the effects of project activities on surface water quality and drainage (Section 9.3.3). It also assesses potential effects on changes to the surface water environment on plant and animal VCs, socio-economic and traditional land use VCs, as well as human health VCs (members of the public and Indigenous	The EIS concludes that based on the assessment conducted, **no adverse residual effects** are expected from the project on Kichi-Sìbì (Ottawa River) water quality (Section 9.2.3.5), plants and animals in the aquatic environment (Section 9.4.3.5), the health and socio-economic conditions of members of the public (Sections 9.8.3.5 and 9.11.3.5), and the health (Section 9.10.2.3.5) and socio-economic conditions (Section 9.10.1.3) of Indigenous peoples.

VC-related comment	How is this VC included in the assessment	Main Conclusion
	Nations, communities and organizations) that may use Kichi-Sìbì (Ottawa River) water (Sections 9.4.3, 9.6.3, 9.8.3, 9.9.3, 9.10.2.3, 9.11.3).	
Better understanding of the groundwater flow system	**Direct and/or Related Project VC:** The existing groundwater flow around the NPD site is discussed in the EIS as part of the determination of baseline hydrogeological conditions (Section 8.5.5) **New VCs added to the assessment:** CNL has added a groundwater flow VC. **Discussion:** In response to feedback from Indigenous Nations, communities and organizations, CNL completed additional geoscientific characterization and updated its Geosynthesis TSD to better understand the local geology and hydrogeology. These additional findings are summarized in Section 8.5.3 and 8.5.5 of the EIS. CNL also has a detailed, calibrated groundwater flow model (Groundwater Modelling TSD) used to define hydrogeological conditions into the future to support the PostSA TSD.	The available information on local and regional baseline groundwater flow conditions is presented in Sections 8.5.3 and 8.5.5. Additional geoscientific characterization work conducted by CNL has improved our understanding of the groundwater flow system.
Current and future impacts to groundwater quality	**Direct and/or Related Project VC:** The EIS considers project impacts to groundwater quality in Section 9.5.3. The baseline groundwater quality conditions, which are summarized in Section 8.5.6, are indicative of past impacts on groundwater. **New VCs added to the assessment:** Groundwater quality and soil quality VCs. **Discussion:** The EIS also assesses impacts to VCs in other environmental compartments (e.g., the aquatic environment) from changes to groundwater conditions associated with the project. As part of the discussion, CNL has identified mitigation measures related to proper design and management of washout pits. Clarification has been added to the EIS, confirming that the washout pit would be lined with a watertight material to prevent infiltration of water into the ground (Section 4.3.1.3).	The available baseline groundwater data, which represent past impacts on groundwater, indicate that baseline groundwater radionuclide levels are below the Maximum Acceptable Concentrations. Some non-radionuclide levels were detected in amounts exceeding guideline limits; this is discussed further in EIS Section 8.5.6. With respect to future groundwater quality: The EIS concludes that based on the assessment conducted, **no adverse residual effects** are expected from the project on groundwater quality (Section 9.5.3.5).
Specific species identified as important by MNO during engagement activities: moose, berries (chokecherries, blueberries, raspberries), bass, northern pike/jackfish, trout, walleye, partridge, goose, grouse, turkey, rabbit, sturgeon, wintergreen, chaga, fiddleheads, trees suitable for the traditional Métis craft of canoe building (cedar, oak, ash, yellow birch)	**Direct and/or Related Project VC:** Potential effects of the project on plants and animals are assessed in the EIS using the existing VCs and new VCs (Sections 9.4.3, 9.6.3, 9.9.3, 9.10.1.3, 9.10.2.3). The species of interest identified by MNO during Indigenous engagement have been assessed in the EIS and TSDs (in particular the EcoRA TSD), either directly as VCs or being represented by EcoRA receptors. **New VCs added to the assessment:** CNL added moose, mushrooms and berries as new VCs specifically in response to feedback from Indigenous Nations, communities and organizations, including MNO. **Discussion:** Potential effects of the project to all of these species are assessed in the EIS and EcoRA TSD. See Table 6.3-3 for mapping of these species to EcoRA receptors. In the EIS, some of these VCs are also assessed under existing Traditional land and resource Use VCs: Trapping, Hunting, Fishing and Gathering (Section 9.9).	The EIS concludes that the project will result in **no adverse residual effects** on non-human biota, including the species of interest identified by MNO. This result applies to potential habitat-related effects as well as effects from exposure to chemical and radiological contaminants (Sections 9.4.3.5, 9.6.3.5, EcoRA TSD). The EIS concludes that based on the predicted impacts after applied mitigation measures, **no adverse residual effects** on Indigenous health or Indigenous socio-economics are expected to result from the project.(Sections 9.10.1.4, 9.10.2.4).

(d) Algonquin Anishinabeg Nation Tribal Council (AANTC)

VC-related comment	How is this VC included in the assessment	Main Conclusion
Effluent discharges at the NPD Closure Project site and overall surface water and stormwater management	**Direct and/or Related Project VC:** Potential effects from effluent discharges are assessed using the plant and animal VCs selected in the EIS, as well as human health VCs, i.e., members of the public and Indigenous Nations, communities and organizations that may use Kichi-Sìbì (Ottawa River) water (Sections 9.4.3, 9.6.3, 9.8.3, 9.10.3, 9.11.3). The potential effects of the projects on surface water quality (i.e., in the Kichi-Sìbì (Ottawa River)) are also assessed in the EIS (Section 9.3). In addition to assessment of effects, surface water management is discussed in the EIS in the context of mitigation measures and monitoring (Section 9.3.3.2 and 9.3.3.5). **New VCs added to the assessment:** None **Discussion:** It is noted that in 2018, in response to concerns raised by the AANTC, CNL ceased the practice of discharging liquid effluent from the facility sumps to the Kichi-Sìbì (Ottawa River), and arranged for water to be sent to the Waste Treatment Centre at the CRL site (Section 8.3.3). The EIS assesses the potential impacts of project-related emissions to non-human biota VCs that may use the Kichi-Sìbì (Ottawa River) (Sections 9.4.3.3, 9.6.3.3). It also assesses impacts related to health and socio-economic use of the Kichi-Sìbì (Ottawa River) by Indigenous Nations, communities and organizations and members of the public (Sections 9.8.3, 9.10.1.3, 9.10.2.3, 9.11.3.3). Section 9.3.3.2 of the EIS provides a series of mitigation measures focused on protection of surface water, including CNL's process for non-routine discharges. No un-assessed liquid effluent releases are permitted. Mitigation measures for the protection of surface water have been updated and expanded from the 2017 draft EIS, and include consideration of stormwater flows. CNL has developed mitigation measures and monitoring plans for the protection of the Kichi-Sìbì (Ottawa River) from chemical and radiological releases. For example, the Draft Follow-up Effluent Monitoring Plan includes monitoring of water collection points and the washout pit (Section 12.3.1); the Draft Follow-up Environmental Monitoring Plan includes monitoring of on-site and Kichi-Sìbì (Ottawa River) surface water quality (Section 12.3.2); and the Draft Follow-up Groundwater Monitoring Plan includes groundwater quality monitoring (Section 12.3.3).	The EIS concludes that **no adverse residual effects** on non-human biota in the aquatic environment are anticipated from exposure to radiological or chemical contaminants (Section 9.4.3.5). The EIS concludes that based on the predicted impacts after applied mitigation measures, **no adverse residual effects** on human health or socio-economics are expected to result from the project (Sections 9.8.3.5, 9.10.1.3, 9.10.2.3.5, 9.11.3.5). Based on the mitigation measures for the protection of surface water, **no adverse residual effects** on surface water quality are expected from the project (Section 9.3.3.5).
Potential effects to the aquatic environment	**Direct and/or Related Project VC:** Potential effects to the aquatic environment are assessed using the aquatic plant and animal VCs selected in the EIS (Section 9.4.3). **New VCs added to the assessment:** VCs that live and/or feed in the aquatic environment: moose, otter and mink. **Discussion:** The EIS assesses the potential impacts of project-related emissions to non-human biota VCs in the aquatic environment (Section 9.4.3.3).	The EIS concludes that **no adverse residual effects** on non-human biota in the aquatic environment are anticipated from exposure to radiological or chemical contaminants (Section 9.4.3.5).

VC-related comment	How is this VC included in the assessment	Main Conclusion
	Based on feedback received during Indigenous engagement, CNL confirmed that fish species of Indigenous importance were captured in the assessment, specifically in the EcoRA calculations (Section 6.3). The aquatic environment is protected by the mitigation measures employed in the other environmental components, e.g., surface water environment, atmospheric environment and geological and hydrogeological environment (Section 9.4.3.2).	
Historic releases to the aquatic environment	**Direct and/or Related Project VC:** Historic releases to the aquatic environment are discussed in the EIS as part of the baseline characterization of the surface water environment (Section 8.3.3). **New VCs added to the assessment:** None **Discussion:** The EIS considers monitoring data from the Kichi-Sìbì (Ottawa River) near the NPD site, in order to determine the baseline levels, which are indicative of historic water discharges (Sections 8.3.3, and 8.3.4.2). The Kichi-Sìbì (Ottawa River) data are collected by CNL as well as independently by the CNSC as part of its IEMP. CNL is also planning a baseline monitoring program of non-radiological and radiological parameters of interest in the Kichi-Sìbì (Ottawa River), to document pre-project conditions and enable comparison on follow-up monitoring results to baseline conditions (Sections 8.3.4.2, 9.3.5.2, 12.3.2). It is noted that in 2018, in response to concerns raised by the AANTC, CNL ceased the practice of discharging liquid effluent from the facility sumps to the Kichi-Sìbì (Ottawa River), and arranged for water to be sent to the Waste Treatment Centre at the CRL site (Section 8.3.3).	The available baseline monitoring results indicate that the maximum concentrations (of radionuclides and non-radionuclides) in the Kichi-Sìbì (Ottawa River) are well within the federal and provincial environment-based guidelines which ensure protection of aquatic life and drinking water. These results confirm that historical practices of water discharge to the Kichi-Sìbì (Ottawa River) have been safe, and that Kichi-Sìbì (Ottawa River) water quality has not been adversely affected by CNL's historical practices (Section 8.3.3).
Better understanding of the bedrock groundwater flow system	**Direct and/or Related Project VC:** The existing groundwater flow around the NPD site is discussed in the EIS as part of the determination of baseline hydrogeological conditions (Section 8.5.5). **New VCs added to the assessment:** CNL has added a groundwater flow VC. **Discussion:** In response to feedback from Indigenous Nations, communities and organizations, CNL completed additional geoscientific characterization and updated its Geosynthesis TSD, including information on bedrock groundwater. These additional findings are summarized in Section 8.5.2 and 8.5.5 of the EIS. CNL also has a detailed, calibrated groundwater flow model (Groundwater Modelling TSD) used to define hydrogeological conditions into the future to support the PostSA TSD.	The available information on the baseline bedrock groundwater flow is presented in Section 8.5.5, and includes a descriptive hydrogeological framework for the NPDWF site and surrounding area. Additional geoscientific characterization work conducted by CNL has improved our understanding of the groundwater flow system.

(e) Kitigan Zibi Anishinabeg (KZA)

VC-related comment	How is this VC included in the assessment	Main Conclusion
Impacts to biota, specifically chimney swifts	**Direct and/or Related Project VC:** Effects on chimney swifts are assessed using the chimney swift VC, in the EIS and in the Chimney Swift Studies TSD. Additional terrestrial and aquatic VCs, including species identified during Indigenous engagement activities, have been selected to represent other biota in the effects assessment (Section 5.2.4.2). **New VCs added to the assessment:** None **Discussion:** The EIS assesses exposure-related effects to all non-human biota VCs, and habitat-related effects to non-human biota VCs that could potentially experience disturbance to their habitat, including chimney swifts (Sections 9.4.3 and 9.6.3). CNL has developed a number of mitigation measures to ensure the protection of biota. Some of the planned measures are specific to the protection of chimney swift, other migratory birds, amphibians and reptiles (Section 9.6.3.2). CNL has developed a number of mitigation measures specifically for minimizing effects on chimney swifts. As outlined in Section 9.6.3.2, these include restrictions on: the timing of work activities (i.e., daylight only); placement of the grout batch mixing plant and noisy equipment as far as possible from the stack; minimizing noise, vibration and lighting levels. CNL has undertaken numerous studies specifically to address potential impacts to chimney swifts from decommissioning activities (Chimney Swift Studies TSD). CNL's follow-up program involves monitoring activities designed specifically to confirm the above conclusions and assess the effectiveness of the chimney swift-related mitigation measures. As outlined in Section 12.3.2, these include roost observations and roost counts during specific periods.	With respect to habitat-related effects, the EIS concludes that during the Decommissioning Execution phase, there is limited potential for loss of habitat and noise disturbances for animals potentially found in the Site Study Area. The loss of habitat and noise disturbances are temporary and minor. **No adverse residual habitat-related effects** on biota are expected (Section 9.6.3.5). During the Institutional Controls and Post-Institutional Controls phases, **no adverse habitat-related effects** are expected in the Site, Local or Regional Study Areas. Renaturalization of the Site Study Area over time may increase habitat for wildlife and would be beneficial for both vegetation and wildlife communities (Section 9.6.3.3). With respect to exposure-related effects, the EIS concludes that **no adverse residual effects** on non-human biota in the terrestrial or aquatic environments are anticipated from exposure to radiological or chemical contaminants (Section 9.6.3.5).
Monarch butterflies	**Direct and/or Related Project VC:** As a result of feedback from KZA staff and technical experts, CNL added monarch butterflies as a VC. Impacts related to habitat and exposure are assessed in the EIS (Section 9.6). **New VCs added to the assessment:** Monarch butterfly **Discussion:** The EIS assesses project-related habitat and exposure effects to monarch butterfly (Section 9.6.3.3). Mitigation measures for the protection of monarch butterflies, such as sweeping of work areas and avoiding vegetation removal during periods of monarch presence, are outlined in Sections 9.6.3.2 and 9.6.3.3. In addition, during site restoration, the cleared area will be reseeded with milkweed (Section 9.6.3.3). CNL's follow-up program includes conducting presence and habit surveys, to verify the prediction of no adverse residual effects, and to determine the effectiveness of the mitigation measures (Section 12.3.2). Surveys will be conducted for a period of 3 years and information on milkweed establishment and Monarch larvae and chrysalis occupancy will be monitored (Section 9.6.3.3).	Based on the mitigation measures described in the EIS**, no adverse residual exposure or habitat-related effects** on the Monarch butterfly are expected, during any phase of the project (Section 9.6.3.5).

VC-related comment	How is this VC included in the assessment	Main Conclusion
Indigenous rights	**Direct and/or Related Project VC:** Indigenous rights are assessed in the EIS using the VCs under traditional land and resource use (Section 9.9). These include traditional activities as well as cultural resources and ceremonies. **New VCs added to the assessment:** None **Discussion:** The EIS assesses potential effects of the project on nearby traditional land use activities (Section 9.9.3). CNL has developed mitigation measures to minimize potential nuisance effects on nearby traditional land uses (Section 9.9.3.2).	Based on the assessment conducted, the EIS predicts **no adverse residual effects** on traditional land and resource use (Section 9.9.3.5). CNL has programs in place to enhance engagement and address any potential negative perceptions of land use experiences (Section 9.9.5).
Protection of the environment, in particular water.	**Direct and/or Related Project VC:** Protection of the environment is assessed throughout the EIS, including: consideration of how the project may interact with the various environment components; developing mitigation measures to minimize project impacts and protect the environment; assessing potential impacts of the project on relevant VCs; determining whether any adverse residual effects may occur; and developing monitoring programs to confirm the findings of the assessment. With respect to protection of water in particular: Potential effects to surface water are assessed using the plant and animal VCs and human (public and Indigenous health) receptor VCs selected in the EIS (Sections 9.4, 9.6, 9.8, 9.10). **New VCs added to the assessment:** VCs related to the aquatic and terrestrial environments, groundwater, Indigenous socio-economic and health conditions (Section 9.4.1, 9.5.1, 9.6.1, 9.10.1, 9.10.2) **Discussion:** The EIS considers the effects of project activities on surface water quality and drainage (Section 9.3.3). It also assesses potential effects on changes to the surface water environment on plant and animal VCs, socio-economic and traditional land use VCs, as well as human health VCs (members of the public and Indigenous Nations, communities and organizations) that may use Kichi-Sìbì (Ottawa River) water (Sections 9.4.3, 9.6.3, 9.8.3, 9.9.3, 9.10.2.3, 9.11.3). Mitigation measures have been developed for the protection of the environment surrounding the facility, including the Kichi-Sìbì (Ottawa River) (Section 10).	The EIS concludes that the project will result in **no adverse residual effects** on plants or animals in the terrestrial or aquatic environments. This result applies to potential habitat-related effects as well as effects from exposure to chemical or radiological contaminants (Sections 9.4.3.5, 9.6.3.5). The EIS concludes that based on the assessment conducted, **no adverse residual effects** are expected from the project on surface water quality (Section 9.3.3.5), plants and animals in the aquatic environment (Section 9.4.3.5), the health and socio-economic conditions of members of the public (Sections 9.8.3.5 and 9.11.3.5), and the health (Section 9.10.2.3.5) and socio-economic conditions (Section 9.10.1.3) of Indigenous peoples.

(f) Williams Treaties First Nations (WTFN): includes comments from Alderville First Nation, Curve Lake First Nation and Hiawatha First Nation

VC-related comment	How is this VC included in the assessment	Main Conclusion
Protection of the Chimney Swift	**Direct and/or Related Project VC:** Effects on chimney swifts are assessed using the chimney swift VC, in the EIS (Section 9.6.3) and in the Chimney Swift Studies TSD. **New VCs added to the assessment:** None **Discussion:** The EIS assesses potential exposure-related effects and habitat-related effects to the chimney swift (Section 9.6.3.3). CNL has developed a number of mitigation measures specifically for minimizing effects on chimney swifts. As outlined in Section 9.6.3.2, these include restrictions on: the timing of work activities (i.e., daylight only); placement of the grout batch mixing plant and noisy equipment as far as possible from the stack; minimizing noise, vibration and lighting levels. CNL has undertaken numerous studies specifically to address potential impacts to chimney swifts from decommissioning activities (Chimney Swift Studies TSD). CNL's follow-up program involves monitoring activities designed specifically to confirm the above conclusions and assess the effectiveness of the chimney swift-related mitigation measures. As outlined in Section 12.3.2, these include roost observations and roost counts during specific periods.	The EIS concludes that based on the studies and assessment conducted**, no adverse residual effects** on the chimney swift are expected from habitat or exposure-related project impacts (Section 9.6.3.5).
Species at Risk (SAR)	**Direct and/or Related Project VC:** Impacts to Species at Risk are assessed using the SAR VCs selected in the EIS, which include monarch butterfly, chimney swift, various bat species, eastern wolf and Blanding's turtle (Section 9.6.3). **New VCs added to the assessment:** Monarch butterfly **Discussion:** The EIS assesses several SAR that have been observed or are potentially present on site, including: monarch butterfly; little brown myotis; chimney swift; eastern wolf; Blanding's turtle; and eastern milksnake (Section 5.2.4, 9.6.3). In the assessments of potential exposure effects to SAR species (in the EcoRA TSD), additional protective measures were applied, such as adding an extra safety factor to the radiological benchmarks for SAR species, and selecting chemical benchmarks protective at the individual level (EcoRA TSD Section 4). CNL has developed a number of mitigation measures to ensure the protection of biota, including SARs. Some of the planned measures are specific to the protection of SARs: chimney swifts, monarch butterflies, bats, migratory birds, amphibians and reptiles (Section 9.6.3.2). CNL's follow-up program involves monitoring activities designed specifically to confirm the above conclusions and assess the effectiveness of the mitigation measures for protection of SAR species. As outlined in Section 12.3.2, these include visual inspections, counts and site sweeps during specific periods.	The EIS concludes that the project will result in **no adverse residual effects** on SAR species. This result applies to potential habitat-related effects as well as effects from exposure to chemical and radiological contaminants (Sections 9.4.3.5, 9.6.3.5).

VC-related comment	How is this VC included in the assessment	Main Conclusion
Protection of the Environment (specifically Kichi-Sìbì (Ottawa River))	**Direct and/or Related Project VC:** Protection of the environment is assessed throughout the EIS, including: consideration of how the project may interact with the various environment components; developing mitigation measures to minimize project impacts and protect the environment; assessing potential impacts of the project on relevant VCs; determining whether any adverse residual effects may occur; and developing monitoring programs to confirm the findings of the assessment. With respect to protection of the Kichi-Sìbì (Ottawa River) in particular: Potential effects to the Kichi-Sìbì (Ottawa River) are assessed using plant and animal VCs, socio-economic and human (public and Indigenous health) receptor VCs selected in the EIS (Sections 9.4, 9.6, 9.8, 9.10.1, 9.10.2). **New VCs added to the assessment:** VCs related to the aquatic and terrestrial environments, Indigenous socio-economic and health conditions (Section 9.4.1, 9.6.1, 9.10.1, 9.10.2) **Discussion:** The EIS considers the effects of project activities on surface water quality and drainage (Section 9.3). It also assesses potential effects of changes to the surface water environment on plant and animal VCs as well as human health VCs (members of the public and Indigenous Nations, communities and organizations) that may use Kichi-Sìbì (Ottawa River) water. Mitigation measures have been developed for the protection of the environment surrounding the facility, including the Kichi-Sìbì (Ottawa River) (Section 10).	The EIS concludes that the project will result in **no adverse residual effects** on plants or animals in the terrestrial or aquatic environments. This result applies to potential habitat-related effects as well as effects from exposure to chemical or radiological contaminants (Sections 9.4.3.5, 9.6.3.5). The EIS concludes that based on the assessment conducted, **no adverse residual effects** are expected from the project on Kichi-Sìbì (Ottawa River) water quality (Section 9.3.3.5), plants and animals in the aquatic environment (Section 9.4.3.5), the health and socio-economic conditions of members of the public (Sections 9.8.3.5 and 9.11.3.5), and the health (Section 9.10.2.3.5) and socio-economic conditions (Section 9.10.1.3) of Indigenous peoples.
Aquatic Environment (specifically that wetlands are sacred to WTFN and interest in the benthic invertebrate community)	**Direct and/or Related Project VC:** The EIS addresses the potential impacts of these activities to the aquatic environment and wetland areas, by discussing habitat- and exposure-related effects of the project to VCs in the aquatic and terrestrial environments as well as the surface water environmental components, including wetlands (Sections 9.2.3, 9.3.3, 9.4.3, 9.6.3). The VCs assessed include aquatic and terrestrial VCs. **New VCs added to the assessment:** VCs related to terrestrial and semi-aquatic environment including moose, mink and otter **Discussion:** EIS assesses the potential physical effects and exposure-related effects of the project on aquatic and wetland areas as follows: With respect to wetlands, the EIS notes that no project activities are expected to occur near the wetlands (Section 9.4.3.1). Potential contaminant-related impacts to wetland ecosystems are evaluated in the EIS by assessing exposure-related effects on VCs such as benthic invertebrates, amphibians (e.g., green frog) and waterfowl (e.g., mallard, great blue heron), and semi-aquatic mammals (e.g., moose, mink, otter). Mitigation measures for protection of the site's terrestrial areas, and milkweed plants in particular, are presented in Section 9.6.3.2.	Based on the mitigation measures described in the EIS, **no adverse residual habitat-related effects** on VCs in aquatic and wetland areas are expected (Section 9.4.3.5, 9.6.3.5). The planned follow-up monitoring of air quality, surface water quality and groundwater quality will ensure that terrestrial and wetland areas are protected (Section 12.3.2).

VC-related comment	How is this VC included in the assessment	Main Conclusion
Specific species identified by Curve Lake and Hiawatha: mushrooms and benthic invertebrates (specifically mussels)	**Direct and/or Related Project VC:** Potential effects of the project on plants and animals, including mushrooms and benthic invertebrates, are assessed in the EIS using the existing VCs and new VCs (Sections 9.4.3, 9.6.3, 9.9.3). The species of interest identified by WTFN during Indigenous engagement have been assessed in the EIS and TSDs (in particular the EcoRA TSD), either directly as VCs or being represented by EcoRA receptors. **New VCs added to the assessment:** CNL added mushrooms as a new VC specifically in response to feedback from Indigenous Nations, communities and organizations, including WTFN. **Discussion:** Potential effects of the project to all of these species are assessed in the EIS and EcoRA TSD. See Table 6.3-5 for mapping of these species to EcoRA receptors. In the EIS, mushrooms are also assessed under the existing Gathering VC in Traditional land and resource use (Section 9.9).	The EIS concludes that the project will result in **no adverse residual effects** on non-human biota, including the species of interest identified by WTFN. This result applies to potential habitat-related effects as well as effects from exposure to chemical and radiological contaminants (Sections 9.4.3.5, 9.6.3.5, 9.9.3.5, EcoRA TSD).

Note:

Federal legislation (*SARA*, 2002) is followed in the EIS for Species At Risk.

(f) Wolf Lake First Nation

VC-related comment	How is this VC included in the assessment	Main Conclusion
Aquatic Environment (specifically the importance of wetlands)	**Direct and/or Related Project VC:** The EIS addresses the potential impacts of these activities to the aquatic environment and wetland areas, by discussing habitat- and exposure-related effects of the project to VCs in the aquatic and terrestrial environments as well as the surface water environmental components, including wetlands (Sections 9.2.3, 9.3.3, 9.4.3, 9.6.3). The VCs assessed include aquatic and terrestrial VCs. **New VCs added to the assessment:** VCs related to terrestrial and semi-aquatic environment including moose, mink and otter **Discussion:** EIS assesses the potential physical effects and exposure-related effects of the project on aquatic and wetland areas as follows: With respect to wetlands, the EIS notes that no project activities are expected to occur near the wetlands (Section 9.4.3.1). Potential contaminant-related impacts to wetland ecosystems are evaluated in the EIS by assessing exposure-related effects on VCs such as benthic invertebrates, amphibians (e.g., green frog) and waterfowl (e.g., mallard, great blue heron), and semi-aquatic mammals (e.g., moose, mink, otter). Mitigation measures for protection of the site's terrestrial areas, and milkweed plants in particular, are presented in Section 9.6.3.2.	Based on the mitigation measures described in the EIS, **no adverse residual habitat-related effects** on VCs in aquatic and wetland areas are expected (Section 9.4.3.5, 9.6.3.5). The planned follow-up monitoring of air quality, surface water quality and groundwater quality will ensure that terrestrial and wetland areas are protected (Section 12.3.2).
Protection of the Kichi-Sìbì (Ottawa River), and contamination of the aquatic environment	**Direct and/or Related Project VC:** Protection of the environment is assessed throughout the EIS, including: consideration of how the project may interact with the various environment components; developing mitigation measures to minimize project impacts and protect the environment; assessing potential impacts of the project on relevant VCs; determining whether any adverse residual effects may occur; and developing monitoring programs to confirm the findings of the assessment. With respect to protection of the Kichi-Sìbì (Ottawa River) in particular: Potential effects to the Kichi-Sìbì (Ottawa River) are assessed using plant and animal VCs, socio-economic and human (public and Indigenous health) receptor VCs selected in the EIS (Sections 9.4, 9.6, 9.8, 9.10.1, 9.10.2). Potential effects to the aquatic environment are assessed using the aquatic plant and animal VCs selected in the EIS (Section 9.4.3). **New VCs added to the assessment:** VCs that live and/or feed in the aquatic environment: moose, otter and mink. **Discussion:** The EIS assesses the potential impacts of project-related emissions to non-human biota VCs in the aquatic environment (Section 9.4.3.3). The aquatic environment is protected by the mitigation measures employed in the other environmental components, e.g., surface water environment, atmospheric environment and geological and hydrogeological environment (Section 9.4.3.2).	The EIS concludes that **no adverse residual effects** on non-human biota in the aquatic environment are anticipated from exposure to radiological or chemical contaminants (Section 9.4.3.5).

VC-related comment	How is this VC included in the assessment	Main Conclusion
Potential impacts on traditional land and resource use and culture, including the safety of harvested food and impacts on perceived contamination	**Direct and/or Related Project VC:** Impacts on harvesting activities are considered in the EIS assessment of potential effects on traditional land and resource use VCs (Section 9.9.3). **New VCs added to the assessment:** None. **Discussion:** Harvesting does not currently occur on the NPD site, and particularly not in the Site Study Area, where proposed project activities will be conducted. The EIS assesses potential effects of the project on nearby Indigenous land use activities (Section 9.9.3). CNL has developed mitigation measures to minimize potential nuisance effects on nearby traditional land uses (Section 9.9.5).	The EIS predicts **no adverse residual effects** on traditional land and resource use (Section 9.9.3.5). CNL has programs in place to enhance engagement and address any potential negative perceptions of land use experiences (Section 9.9.5).

CNL will continue to work with Indigenous Nations, communities and organizations to address the above indicated interests and concerns, and ensure that proposed management actions and mitigations are well understood and effective.

As noted in Table 6.3-1, several Indigenous Nations, communities and organizations (AOO, AOPFN, MNO, Curve Lake and Hiawatha) have also shared VC species of interest either through their comments on the draft EIS, engagement activities or traditional knowledge, land use or other studies. The species of interest for each community are outlined in individual community specific tables below. The Indigenous-identified VCs were reviewed against the VCs selected by CNL for the EIS and EcoRA TSD. Moose, fox, otter, mink, short-tailed weasel, berries, and mushrooms were added to the EcoRA assessment specifically in response to Indigenous feedback on VCs. The remainder of species identified as VCs through Indigenous engagement are already represented through receptors in the EcoRA. The mapping of VCs to receptor species is outlined in Table 6.3-2 through Table 6.3-5 below.

Table 6.3-2 VCs identified by the Algonquins of Ontario (AOO) through Comments on the EIS

Identified VC (species)	Represented by receptors (see EcoRA TSD)
Moose	Moose
White-tailed deer	White-tailed deer
Lake trout	Pelagic Fish
Northern pike	Pelagic Fish
Walleye	Pelagic Fish
Sauger	Pelagic Fish
Smallmouth bass	Pelagic Fish
Muskellunge	Pelagic Fish
Beaver	Muskrat
Marten	Short-tailed weasel
Mink	Mink
Otter	Otter
Rabbit/hare	Meadow vole
Muskrat	Muskrat
Fox (trapping)	Fox
Elk	White-tailed deer
Black bear (hunting)	Black bear
Bald eagle (cultural significance)	Bald eagle
Waterfowl	Mallard
Grouse	Ruffed Grouse
Cranberries	Aquatic vegetation
Berries (blueberries, raspberries, serviceberries)	Berries

Table 6.3-3 VCs Identified by Métis Nation of Ontario through the TKLUS

VC (species)	Represented by receptors (see EcoRA TSD)
Moose	Moose
Berries (chokecherries, blueberries, raspberries)	Berries
Bass	Pelagic Fish
Northern pike/jackfish	Pelagic Fish
Trout	Pelagic Fish
Walleye	Pelagic Fish
Partridge	Ruffed grouse
Goose	Mallard
Grouse	Ruffed grouse
Turkey	Ruffed grouse
Rabbit	Meadow vole
Sturgeon	Benthic Fish
Kichi-Sìbì (Ottawa River) water quality	Environmental component, pathway to human health and non-human biota
Wintergreen	Terrestrial vegetation
Chaga	Fungi (mushrooms)
Fiddleheads	Terrestrial vegetation
Trees suitable for the traditional métis craft of canoe building (cedar, oak, ash, yellow birch)	Terrestrial vegetation

Table 6.3-4 VCs identified by AOPFN through the Report on the AKLUS

VC (species)	Represented by receptors (see EcoRA TSD)
Badger	Short-tailed Shrew
Bear	Black Bear
Beaver	Muskrat
Coyote	Eastern Wolf (SAR)
Fisher	Short-tailed Weasel
Fox	Red Fox
Marten	Short-tailed Weasel
Moose	Moose
Muskrat	Muskrat
Otter	Northern River Otter
Rabbit/Hare	Meadow vole
Raccoon	Muskrat
Squirrel	Meadow Vole
Weasel	Short-tailed Weasel
White-tailed Deer	White-tailed deer
Wolf (Algonquin)	Eastern Wolf
Bait Fish	Benthic Fish & Pelagic Fish
Bass	Pelagic Fish
Brook Trout	Pelagic Fish

VC (species)	Represented by receptors (see EcoRA TSD)
Burbot	Benthic Fish
Catfish	Benthic Fish
Chub	Pelagic Fish
Eel	Pelagic & Benthic Fish
Jackfish/Northern Pike	Pelagic Fish
Lake Sturgeon	Benthic Fish
Lake Trout	Pelagic Fish
Lake Whitefish	Benthic Fish
Mud Pout (or Brown Bullhead)	Pelagic Fish
Muskellunge	Pelagic Fish
Pickerel/Walleye	Pelagic Fish
Speckled Trout	Pelagic Fish
Sucker	Benthic Fish
Sunfish	Pelagic Fish
Yellow Perch	Pelagic Fish
Bald Eagle	Bald Eagle
Barn Swallow	Chimney Swift
Ducks	Mallard
Goose	Mallard
Grouse	Ruffed grouse
Partridge	Ruffed grouse
Turtle	Blanding's turtle (SAR)
Birch (tea and topical medicine)	Terrestrial Vegetation
Cedar (in medicinal pouches)	Terrestrial Vegetation
Pine	Terrestrial Vegetation
Poplar (tea and topical medicine)	Terrestrial Vegetation
Spruce	Terrestrial Vegetation
Tamarack (medicinal: tea and topical)	Terrestrial Vegetation
Willow (teething relief)	Terrestrial Vegetation
Blueberries	Berries
Cattails (medicinal rub)	Terrestrial Vegetation
Dandelions	Terrestrial Vegetation
Fiddleheads	Terrestrial Vegetation
Juniper bush (medicinal tea)	Terrestrial Vegetation
Labrador Tea	Terrestrial Vegetation
Wiken (Muskrat Root or Sweet Flag)	Terrestrial Vegetation
Prickly Ash	Terrestrial Vegetation
Raspberry (berries, leaves)	Berries
Red Willow	Terrestrial Vegetation
Gzibimkshk (Scouring Rush)	Terrestrial Vegetation
Magajim mashkiai (Sweet Fern) (medicinal and ceremonial)	Terrestrial Vegetation
Wild Leek or Onion	Terrestrial Vegetation
Chaga	Fungi (mushrooms)

Table 6.3-5 VCs identified by Williams Treaties First Nations

VC (species)	Represented by receptors (see EcoRA TSD)
Benthic Invertebrates (including mussels)	Benthic Invertebrates
Mushrooms	Fungi (mushrooms)

6.3.2.1 AOPFN Perspective on the use of Representative Species, and other VC-Related Issues

The AOPFN have raised several concerns about the comprehensiveness and representativeness of some of the VCs chosen by CNL for this EA. AOPFN has the following remaining concerns with the VCs and how they are discussed in Table 6.3-1(b) and Table 6.3-4 above:

- In relation to human health, CNL has adopted a relatively narrow perspective on human health that is focused on biophysical impacts to human health, with little or no emphasis on other factors that influence Indigenous population health. This is particularly concerning to AOPFN because of the fear, stigma, and alienation felt by AOPFN members associated with the nuclear industry in general, and actively stated concerns with the proposed project to create a permanent radioactive waste disposal facility in AOPFN territory. AOPFN has recommended an approach be adopted by CNL that considers Indigenous determinants and overall impacts of health in a more detailed and holistic fashion recognizing that health is an overall state of well-being caused by a combination of social, economic, cultural, mental and biophysical factors. To date, CNL has not revised its assessment of Indigenous human health in relation to the NPD Closure Project to adopt a more holistic evaluation of human health.
- Where CNL has adopted certain species to “represent” other species, this decision was not informed by Algonquin Knowledge. In addition, AOPFN was not subject to detailed consultation with our elders and land users about the appropriateness of using certain species as “proxies” for other species. Algonquin Knowledge recognizes that each species is unique, with its own special characteristics and responses to external stimuli. AOPFN has called for an Algonquin Knowledge baseline data collection period to collect more detailed information about habitat and hazard conditions for terrestrial and aquatic species at and around the NPD site. In 2022/23 AOPFN knowledge holders completed four 1-day seasonal inventory visits for the area of the site potentially affected by the project. AOPFN provided recommendations from these inventory visits including the need for a more comprehensive inventory covering the entire NPD property. CNL and AOPFN are still discussing next steps for collection of AOPFN Algonquin knowledge baseline data for the broader NPD property.
- AOPFN has raised concerns about species where “representativeness” as understood by CNL’s western science (Table 6.3-4) may not be appropriate when understood through an Algonquin lens. Non-exclusively, examples include rabbits being “represented” by meadow vole, and beaver being “represented” by muskrat. Also notable is that the many fish species that AOPFN has identified are not considered on their specific merits, but rather with two generic categories – pelagic and benthic. Most concerning to AOPFN is that our members provided information about specific vegetation species used for medicines, food and other traditional purposes. Even though the attributes of these

different vegetation species (and their uses by AOPFN members) are varied and specific, they are housed under a single “representative” VC of “terrestrial vegetation”. This is not appropriate to AOPFN and additional work to understand the values, distribution, abundance, and risks to impacts of specific aquatic and terrestrial vegetation is required.

- AOPFN notes as well that final decisions on what VCs to include was made by CNL, and was not verified as appropriate by AOPFN, which suggests that Algonquin Knowledge is still not treated as of equivalent value to western science in CNL’s EA.
- AOPFN is strongly opposed to the use of a “damaged” current baseline for the assessment of effects, rather than focusing on the rightful ability of AOPFN members to use and occupy the area for cultural and traditional use purposes. The adoption of this approach to consider effects of the project only as against “current” use by AOPFN members is fundamentally punitive to AOPFN members because Canada has imposed alienation and loss of use of the area against AOPFN members since the 1960s, against AOPFN’s will and without consultation of AOPFN. In addition, using a current “damaged” baseline to assess impacts of a decommissioning project, which should be designed to make things better for the environment and Indigenous peoples, is not an appropriate approach, as it is not designed to identify the best future for these VCs, but only to identify one that doesn’t make things worse. This is not acceptable to AOPFN and AOPFN considers it beneath the honour of the Crown to accept this approach.
- AOPFN has also highlighted that basing an impact assessment on a human VC (like the Kichi-Sìbì as a cultural landscape) purely or primarily on a set of findings re: biophysical VCs (in this case VCs associated with aquatic and riparian habitat and species), is not an accurate way to conduct such an assessment. This “biophysical proxy” approach is not best practice in current Canadian EA.
- As a general comment about VCs, CNL identifies a number of elements of its Follow-up Monitoring Program in Table (b) above. To date, no Indigenous-led or even Indigenous-informed monitoring elements are in place for existing on-site and off-site environmental monitoring, nor are there any details on how Algonquin Knowledge and AOPFN members will be involved in applying the Follow-up Monitoring Program. Given that Indigenous Nations, communities and organizations (and not only AOPFN) have identified extensive concerns about impacts on traditional land and resource use, culture, and Indigenous health that are not echoed in CNL’s findings, building Indigenous objectives, indicators, thresholds and responses into the follow-up monitoring is critical, regardless of what decommissioning strategy is eventually adopted. In addition, AOPFN notes that for many of the VCs of concerns to AOPFN, there is not yet an appropriate risk communication strategy set up for the NPD facility to communicate risks to AOPFN members in a fashion that will demonstrably gain their trust and reduce impacts on AOPFN use and occupancy at and around the NPD site.

AOPFN has identified additional remaining concerns on VCs in Table 6.3-1 (b) above, under “AOPFN Concerns”. AOPFN remains open to filling some of the identified knowledge, baseline and assessment gaps with CNL prior to the completion of the EA.

6.4 Canadian Nuclear Laboratories' Long-term Relationship with Indigenous peoples

CNL recognizes First Nations and the MNO as stewards of the land and CNL is working towards developing long-term meaningful relationships with each Nation that occupies and has traditional territories and modern-day interests near its operations. CNL recognizes that such relationships may take a long time to form but believes this is consistent with the Government of Canada's approach to reconciliation with Indigenous peoples. This is particularly important as engagement with Indigenous peoples on the NPD Closure Project has highlighted other interests related to CNL projects and operations in the Ottawa Valley. Some of the broader CNL issues that have been raised by Indigenous Nations, communities and organizations include historical take up of the lands, concerns around the protection of the environment into the future (following decommissioning), future land use, land transfer and long-term operations, and observations and beliefs that result in fear or anxiety associated with traditional uses occurring adjacent to and near the sites CNL operates. CNL respects and appreciates that broader view and is shifting to a more holistic, relationship-based approach to engagement with each Nation, working closely with AECL, to help address interest and concerns regarding all aspects of the project and CNL operations within this territory.

CNL works closely with AECL on engagement activities with Indigenous Nations, communities and organizations. CNL is working to evolve these relationships beyond the scope of a single project, such as the NPD Closure Project, into long-term, productive relationships built on mutual respect and understanding, and cultivated through ongoing opportunities for dialogue and participation. This also includes, without limitation, employment and contracting opportunities for Indigenous peoples and businesses and opportunities to address areas of concern wholistically at CNL's sites.

CNL is not able to address original take up of the lands by the Crown, ownership of the lands, land transfer and future uses of the land. These questions are more appropriately directed to AECL, but CNL commits to help facilitate this dialogue between AECL and interested Indigenous Nations, communities and organizations.

The discussion on long-term relationships and on specific aspects of projects such as the NPD Closure Project will be on-going up to and beyond the Commission Hearing for the NPD Closure Project. Due to the on-going nature of these discussions and relationship, CNL intends to provide a complementary IER TSD as part of the Commission Member Document package for the CNSC Commission hearing on the NPD Closure Project. That updated IER TSD will document the on-going engagement, discussions and negotiations with Indigenous peoples generally and specifically to the NPD Closure Project.

6.5 Continued Engagement Activities

Engagement activities with Indigenous Nations, communities and organizations regarding the NPD Closure Project continue as appropriate, necessary and requested as EA and project planning activities progress. The nature of additional engagement activities will be consistent with CNL's Indigenous engagement objectives identified in Sections 6.2.1 and 6.4. CNL will evaluate and integrate information provided by these communities into the final submission or the IER TSD and, where appropriate, into the project.

CNL has identified additional engagement activities that are planned to take place as the NPD Closure Project progresses. In general, these additional activities may include, without limitation:

- involving Indigenous Nations, communities and organizations in development of commitments to be include in the Final EIS submission;
- notifying identified Indigenous Nations, communities and organizations of Final EIS submission;
- sharing updated IERs with identified Indigenous Nations, communities and organizations;
- on-going engagement with identified Indigenous Nations, communities and organizations, including meetings and/or community information sessions to provide project updates, solicit feedback on the project and traditional land use activities;
- obtaining input on the draft follow-up monitoring plans to consider incorporation of Indigenous VCs and traditional knowledge into the EA Follow-up Program being developed;
- involvement in CNL's environmental monitoring, where interested and appropriate programs or procedures are in place, and discussions on environmental activities and findings;
- obtaining input on the draft restoration plan to consider the perspectives from Indigenous peoples who have interest in future use of the land on, and in the vicinity of, the NPD site;
- hosting technical meetings or workshops, upon request, to provide interested parties with more in depth information and opportunities to question subject matter experts on the project;
- sharing with Indigenous Nations, communities and organizations any studies or reports specifically requested, to the extent possible;
- identification of Indigenous Nation, community and organization's needs for capacity assistance to effectively participate in the project through a collaborative work plan;
- participating in various targeted community initiatives, when appropriate, such as educational events, fairs, science fairs and career days;
- on-going NPD Closure Project notifications (e.g., letters, email correspondence, newspaper advertisements, updates to project website); and
- on-going tracking and recording of comments, questions, interest and concerns and other feedback provided by Indigenous Nations, communities and organizations, and providing responses.

Indigenous Nation-, community- and organization-specific engagement activities will be determined through discussions and identification of community interests. CNL will continue to engage with Indigenous Nations, communities and organizations (i.e., Chief and Council, representative bodies, community members) to address community information requirements and input. This activity will address a variety of topics such as VCs, potential environmental effects of the NPD Closure Project and mitigation identified. On-going engagement will also outline a schedule of the documentation that will be shared with Indigenous Nations, communities and organizations for their review and comment (e.g., follow-up monitoring plans). Where outstanding concerns or disparities in views are communicated by Indigenous Nations, communities and organizations following submission of the revised draft EIS, CNL will track, respond to and report this feedback in the final EIS and an updated IER TSD.

7 PUBLIC AND STAKEHOLDER ENGAGEMENT

Public and Indigenous engagement is a key component of the EA process and reflects the corporate social responsibility of CNL. Indigenous engagement for the NPD Closure project is discussed in Section 6.

This section describes past, ongoing and proposed public and stakeholder engagement activities and events in accordance with the Generic Guidelines for the Preparation of an Environmental Impact Statement (CNSC 2016a), which state:

"…the EIS will describe the ongoing and proposed participation activities that the proponent will undertake or that it has already conducted on the project. It will describe efforts made to distribute project information, as well information and materials that were distributed during the public consultation process. The EIS will indicate the methods used, where the consultation was held, the persons and organizations consulted, the concerns voiced and the extent to which this information was incorporated in the design of the project as well as in the EIS. The EIS will provide a summary of key issues raised related to the project and its potential environmental effects, as well as describe any outstanding issues and ways to address them."

In addition, CNSC and *CEAA* guidance documents require that the following topics are to be included as part of public engagement activities:

- Current project information (CNSC 2016a Section 2.3);
- Alternative Means (CEAA 2015);
- Valued Components (CNSC 2016a Section 5.2.1);
- Spatial and Temporal Boundaries (CNSC 2016a Section 5.2.2);
- Follow-up monitoring program (CNSC 2016a Section 12).

This chapter summarizes the public engagement activities undertaken for the NPD Closure Project that fulfill the requirements above.

7.1 Engagement Objectives

CNL is required to ensure that project information is made available to local and host communities and stakeholder groups through a variety of mechanisms to ensure accessibility of fact-based information. Communication activities are conducted in support of this requirement; CNL's communication objectives include the following:

1. Initiate and maintain two-way communication channels between CNL and host communities and with other stakeholders, determining the best methods for communicating NPD Closure Project information and facilitating input at appropriate junctures in the NPD Closure Project schedule, so that stakeholder feedback can be integrated into the NPD Closure Project planning and design, as appropriate.

2. Develop meaningful, user-friendly information and communication products geared for host communities and stakeholders, ensuring access to current information on NPD Closure Project activities.
3. Demonstrate CNL's long-term commitment and approach to safely managing radioactive waste and decommissioning activities for the benefit of the future generations.
4. Inform and educate host communities and stakeholders about nuclear decommissioning, environmental remediation and radioactive waste management.
5. Meet all regulatory-based communication and engagement requirements.

CNL has employed a variety of methods and activities to achieve the stated objectives. The following section (Section 7.2) outlines these methods.

CNL has completed two Stakeholder Engagement Reports. Engagement activities from 2015 to 2017 are included in Revision 0 of the report (Thompson 2017). Revision 2, also referred to as the Stakeholder Engagement TSD (Chennette 2023), includes engagement activities from 2017 to the end of 2023. The reports detail the engagement methods and activities through which communication objectives were achieved; each method or activity was applied to inform, educate and discuss the project with specific stakeholders. These methods and activities provided valuable feedback for the project to incorporate, as presented in Section 7.3 below.

Since March 2020, the COVID-19 pandemic has directly impacted face-to-face and public interactions around the world, including those under CNL's public engagement program. CNL successfully transitioned to virtual activities as the standard for engagements in 2021, ensuring that its engagement strategies were resilient in the face of the challenges presented by the pandemic.

Social media platforms were a useful means of communicating and connecting with stakeholders and Indigenous Nations, communities and organizations during the pandemic when in-person engagements were restricted.

7.1.1 Evaluation

The engagement objectives discussed in Section 7.1 above are used to measure the effectiveness of communication activities as well as the evolving nature of the communication strategy of the NPD Closure Project. At events and activities, CNL evaluates several public engagement indicators including: level of participant satisfaction, audience representation, level of engagement with SMEs, level of understanding of the project, and level of increased project understanding of community and stakeholder issues.

Through the use of various flexible modes of communication and public engagement, CNL has been able to engage a wider audience (demographically and geographically) who may have a stake in the development of the NPD Closure Project. By enabling two-way dialogue and implementing these accessible engagement mechanisms in the planning of the project, CNL has been able to adapt and respond to stakeholders' changing need for information. The project's routine self-assessment of its public

engagement activities as well as public feedback will enable CNL to continuously evaluate the effectiveness of its engagement efforts.

Objective 1: Initiating and maintaining two-way communication channels between CNL and host communities and stakeholder groups, determining the best methods for communicating project information and facilitating input at appropriate junctures in the project schedule.

CNL has initiated and maintained a progressive number of communication channels between CNL host communities and stakeholder groups. Since CNL first initiated dialogue on the NPD Closure Project at an Environmental Stewardship Council (ESC) meeting on October 2015, CNL has adapted and evolved techniques for communicating project information and facilitating input. Two early techniques included providing regular updates at ESC meetings and hosting public information sessions in local communities. Over the past four years, updates to the ESC have been consistently maintained at each of the three annual ESC meetings.

In response to public feedback, public information sessions, which were originally held in seven local communities (14 times in 2016), were expanded geographically to include Arnprior and L'Isle-aux-Allumettes (Chapeau) in 2017. Finally, the format of public information sessions evolved into an online webinar in 2018, held on a quarterly basis. This adaption was in response to continued interest in having more information available in French, for Quebec, the Ottawa-Gatineau region and more. The newer online webinar format ensures accessibility for stakeholders in a wide range of places and for both French- and English-speaking stakeholders. Other feedback on engagement techniques emphasized the need to creating ongoing channels of communications with the local community of scientific experts. In response, CNL established semi-monthly Breakfast Briefings in Deep River and more recently Pembroke, as well. CNL has started to offer one-on-one meetings with intervenors, with simultaneous translation if applicable.

The feedback that was used to evolve these techniques was obtained through both comments on the draft EIS and from CNL's own feedback mechanism, which have themselves been improved. Hard copy feedback forms were supplanted with an online feedback form and email has been a common tool used to connect stakeholders with CNL. CNL's email distribution list (has continued to grow and be used to disseminate information, project milestones and timeline activities), social media, traditional media, telephone, ESC, Ottawa Valley Economic Development (OVED), municipal council meetings, meetings with service clubs and at public events/fairs. CNL continues to receive, track and assess feedback for future planning.

Objective 2: Developing meaningful, user-friendly information and communication products geared for host communities and stakeholders, ensuring accessible and current information on project activities.

CNL has developed a variety of simple, user-friendly communications products that are accessible and meaningful to a broad audience in both official languages. One example of this is the NPD timeline graphics. The original timeline graphic was posted in 2018 and has since been regularly updated to reflect the ongoing regulatory process. This was developed to address public interest in the progress and steps in the Environmental Assessment. The use of video was also essential to create user-friendly and accessible communications. Online webinars were posted to YouTube. Additionally, CNL created three videos on

themes that were discerned from public feedback, including a video tour of the NPD facility. This video has garnered over 1,500 views since its publication in 2018.

Other innovations in CNL's communication techniques for the NPD Closure Project included open houses at the facility where visitors could tour certain parts including the former control room, and virtually view inaccessible parts of the facility with 3-D goggles. CNL also opened up the NPD site to the public for a number of Chimney Swift Count Nights where attendees could watch the chimney swifts roost at the NPD ventilation stack and hear more about the NPD Closure Project and CNL's efforts to protect this SAR. In 2020, due to public health restrictions, CNL modified the Chimney Swift Count Night to be a virtual online event.

To address accessibility concerns, document repositories have been functionally created by providing the EIS at local libraries and municipal offices. Online content has also been updated and continually refreshed and reorganized, while simultaneously maintaining old content to ensure transparency with stakeholders. CNL has also consistently been responsive to feedback on online content. A notable comment from early in the process suggested that posters CNL used at public information sessions be available online. This suggestion was immediately implemented. To ensure ease of understanding and user-friendliness and provision of meaningful information, CNL also adheres to internal and external standards on communications. Communication products like presentations align with CNL Corporate Branding Guidelines. Communication activities are audited annually through CNL's environmental protection program's ISO:14001 certification.

Objective 3: Demonstrating CNL's long-term commitment and approach to safely and cost-effectively reducing Canada's nuclear historic liabilities.

To demonstrate CNL's long-term commitment and approach to safely and cost-effectively reducing Canada's nuclear historic liabilities in relation to the NPD Closure Project, CNL has focused on refining its messaging. To this end, CNL has attempted to share the story of why decommissioning the NPD facility is part of the solution to safely reducing Canada's nuclear historic liability. The message that in-situ disposal is a permanent, safe and proven solution to address the historic liability of the NPD reactor facility is now a primary message of all communications on the NPD Closure Project.

Tours related to the NPD Closure Project – which have been given to members of the public, elected officials and media – visit current waste storage areas at CRL and the NPDWF and site. These tours have effectively given insight into CNL's waste management practices, why CNL uses different waste storage solutions and has different plans for disposing of different waste streams. For media outreach, 'detect and correct' media responses have been another technique CNL has used to effectively share CNL's side of the story and disseminate the facts on CNL's management and disposal plans for nuclear waste. Information on alternatives and cost associated with the NPD Closure Project and alternative options has also been shared publicly in webinars and online poster content, as well as in this EIS.

Objective 4: Informing and educating host communities and stakeholders about nuclear decommissioning, environmental remediation and radioactive waste management.

At both a basic level and a technical level, CNL has informed and educated host communities and stakeholders about environmental remediation and radioactive waste management. In particular, presentations prepared for stakeholder groups have included details on the in-situ disposal technique by referencing examples in other countries and in Canada (for mines), and included a video clip of grouting to allow for visualization of this technique. CNL has also shared information on the basics of radiation and on CNL's current waste management practices and future plans for all CNL waste streams via presentations, meetings and the sharing of documents. In response to public interest in the grout used for the in-situ disposal technique, CNL created an infographic (available online) specifically on grout and its role in the in-situ disposal.

CNL has also shared information on specific impacts the in-situ disposal solution – and creation of the NPDDF – would have on humans and the environment in terms of radiation dose. This has also been done as a user-friendly "peak dose" graphic used in presentations with stakeholder groups and other communication products. While CNL has had feedback that information on the NPD Closure Project needs to be basic, there has been simultaneous feedback, particularly in the host communities, that there should be more in-depth technical information available. One way CNL has addressed this is to have CNL's experts available at open houses and information sessions to answer technical questions on the science underpinning the project.

Another way CNL has communicated with host communities with more basic information is through annual attendance at public events like DownTown Connect in Pembroke and the Petawawa Showcase, the Ottawa Valley's largest home show. At annual public events in the community, CNL representatives regularly share updates on the NPD Closure Project and use communication products, such as videos and models, to engage local stakeholders.

Objective 5: Meeting all regulatory-based communication and engagement requirements.

CNL has aligned its stakeholder engagement strategy with regulatory requirements and communication. CNL began stakeholder engagement in support of the NPD Closure Project in October 2015 when CNL leadership introduced the project at the final ESC meeting for that year. By the end of 2016, engagement activities were fully underway. For more than six years, CNL has modelled its engagement on the regulatory requirements found in REGDOC-3.2.1 *Public Information and Disclosure* (CNSC 2018a) and other regulatory guidance, such as the *Generic Guidelines for the Preparation of an Environmental Impact Statement*. The goals of CNL's stakeholder engagement program, outlined in the NPD Closure Project Stakeholder Engagement TSD, are aligned with both the REGDOC-3.2.1 (CNSC 2018a) and CNL's *Public Information and Disclosure Program*, which itself is aligned with REGDOC-3.2.1 (CNSC 2018a).

7.2 Engagement Methods and Activities

Engagement activities commenced on October 29, 2015, with the introduction of CNL's near and longer term plans, including high-level introduction to the project, to the CNL ESC, discussed below (see Appendix B of the Stakeholder Engagement TSD for the information shared at this meeting). This section details project-specific engagement methods and activities, including the following:

- presentations to various stakeholders (members of the public, industry, elected officials and employees);
- publishing and updating project specific webpage content;
- posting and publishing of infographics (i.e., fact sheets);
- publishing and distribution of newsletters with project content (i.e., CONTACT, Voyageur);
- conduct of site visits and tours;
- conduct of public information sessions and open houses at the NPD Facility;
- conduct of quarterly online webinars;
- meetings and information sessions for interested stakeholders;
- bi-monthly breakfast briefings and webinars;
- participation in public and community events;
- increased use of social media, including uploading project specific videos to YouTube;
- hosting virtual open houses;
- advertising campaigns (online, intranet, newspapers, flyer insert, radio public service announcement, social media, paid Facebook advertising);
- distribution of draft EIS to local libraries, to function as an information repository and support public input; and
- emails to stakeholders with updates, including notifications of the draft EIS submission and responses to questions submitted.

Webinars were conducted in English with simultaneous translation to French. Meetings and other activities were also conducted with simultaneous translations. Project materials were prepared and distributed in both French and English. The following subsections outline specific engagement methods and activities already undertaken for the project, at the time of preparation of this EIS report (i.e., up to January 2024). Engagement activities will continue as part of the EA process. The final EIS (or EIS addendum) will include an update on public engagement activities and feedback.

7.2.1 Presentations, Conferences, Meetings, Site Tours and Open Houses

CNL uses presentations to help inform and educate stakeholders on the project. These presentations have triggered discussion that inform the project through the regulatory process.

As part of its Public Information Program, CNL periodically hosts public visits to the NPD site. These presentations and visits provide an opportunity for information sharing and open dialogue about the project between CNL and stakeholders. These visits are used as one of several means of engaging with stakeholders, fostering discussion and helping to inform the project throughout the regulatory process.

See Appendix A of the Stakeholder Engagement TSD for an example of a meeting agenda.

See Appendix B of the Stakeholder Engagement TSD for an example of a presentation.

Environmental Stewardship Council Meeting – October 2015

Established in 2006, the ESC meets three times annually with the objective of building working relationships and creating opportunities for open dialogue between various stakeholder groups, local communities and CNL. These conversations are integral in providing CNL with a wide range of viewpoints. During meetings, ESC members are presented with information about CNL, CNL's environmental practices, and have the opportunity to ask questions and discuss the information presented. Each meeting is documented, and members are asked to take meeting information back to their respective constituents, organizations and communities. Since October 2015 the ESC has received regular project updates at subsequent meetings.

On October 29, 2015, the NPD Closure Project was first introduced to the members of the ESC as a part of a Decommissioning and Waste Management update. See Appendix C of the Stakeholder Engagement TSD for this update.

Stakeholder(s): Local elected officials, local environmental organizations and non-governmental organizations (NGO).

Environmental Stewardship Council Meeting – March 2016

At a meeting held on March 24, 2016, a presentation was provided on the NPD Closure Project by the Health, Safety, Security & Environment Director of the NPD Closure Project. The presentation encompassed the proposed decommissioning approach, measures to minimize impacts to SARs and the near-term schedule. Following this presentation, ESC members had the opportunity to seek clarification and raise any concerns they had with the project.

Stakeholder(s): Local elected officials, local environmental organizations and NGOs.

Environmental Stewardship Council Meeting – June 2016

ESC members visited the NPD site in the evening, and were given the opportunity to view the evening roosting of the chimney swifts and ask questions related to the project.

Stakeholder(s): Local elected officials, local environmental organizations and NGOs.

World Nuclear University Site Visit – July 2016

The World Nuclear University (WNU) is an organization that provides training to young professionals in the nuclear industry. The WNU brings an international industry perspective with participants from more than 20 countries.

Every year during their six-week summer institute, the WNU arranges tours of the local nuclear institutions in the host country. In 2016, the WNU was hosted in Ottawa and on July 15, 2016, 80 nuclear industry representatives/ students toured CNL's CRL and NPD sites. Students were able to tour the NPD site where subject matter experts presented on the proposed in-situ disposal technique (previously called in-situ decommissioning). Comment cards on the project were provided to this group to receive international nuclear industry feedback.

Stakeholder(s): Industry.

Non-Governmental Organizations Site Visit – July 2016

Northwatch, the Canadian Environmental Law Association (CELA), and the Concerned Citizens of Renfrew County represent three stakeholder groups interested in the EA activities for the project. Northwatch and CELA provided their comments to the CNSC on the project description.

The site visit included discussion about the project, SAR and groundwater monitoring. Questions from the group focused on groundwater monitoring and management of the chimney swift habitat to ensure the success of the species.

Stakeholder(s): NGOs.

Organization of Canadian Nuclear Industries Suppliers' Day – September 2016

On September 8, 2016, the Organization of Canadian Nuclear Industries (OCI) Suppliers Day was held at the CRL site. This event was open to OCI and local non-OCI member companies and provided an opportunity for CNL to engage representatives from more than 45 companies in the Canadian nuclear supply chain. A presentation on CNL D&WM initiatives informed the industry participants about the plan for the project.

Stakeholder(s): Industry.

Nuclear Waste Management, Decommissioning and Environmental Restoration Conference – September 2016

At this industry conference, hosted by the Canadian Nuclear Society (CNS) and held in Ottawa, ON between September 11 and 14, 2016, the General Manager of the NPD Closure Project, gave a presentation on the project. It was an opportunity to inform, educate and receive feedback within the nuclear industry.

Stakeholder(s): Industry, local elected officials.

Canadian Nuclear Society Site Visit – September 2016

A group of 19 individuals from the CNS Conference on Nuclear Waste Management, Decommissioning and Environmental Restoration visited the NPD site on September 15, 2016. The site visit provided an opportunity to elicit feedback on the project from a cross-section of the nuclear industry. The site visit included a tour of the NPD site.

Stakeholder(s): Industry.

Ontario Power Generation Tour of NPD Site – September 2016

On September 26, 2016 Ontario Power Generation (OPG) employees, mostly from the Des Joachims Generating Station, located approximately 1.5 km north west of the NPD site, visited the site to learn about the project. The visit included a presentation and tour. One goal of this meeting was to solicit information from OPG on planned upgrades to dams, for consideration in the cumulative effects assessment (Section 9.13).

Stakeholder(s): Industry.

Canadian Nuclear Society and Women in Nuclear Seminar – September 2016

The CNS and Women in Nuclear (WiN) jointly hosted the Manager of NPD Operations, to give a talk, called “In-Situ Decommissioning of the Nuclear Power Demonstration (NPD) Reactor” at the Chalk River Legion on September 27, 2016. It was open to the public, advertised in a local newspaper and on CNL’s intranet with approximately 40 individuals in attendance. A question and answer period following the presentation provided an opportunity for members of the public to learn more about the project and voice their queries.

Stakeholder(s): All stakeholders.

Environmental Stewardship Council Meeting – October 2016

On October 13, 2016, the ESC was briefed on updates to the NPD Closure Project. Following these updates, members had the opportunity to seek clarification and raise any concerns they had with the project.

Stakeholder(s): Local elected officials, local environmental organizations and NGOs.

Municipality of Laurentian Hills NPD Site Visit – November 2016

Councilors and municipal staff were invited to the NPD site to learn more about the project. The visit included a presentation and a tour of the site and structures. It was an opportunity for local government stakeholders to learn more about the project, which is considered especially important given that residents of the municipality may have questions about the project. Subject matter experts were available to provide further information in response to questions.

Stakeholder(s): Local elected officials.

Renfrew County Council Meeting and Presentation – December 2016

In December, CNL hosted the Renfrew County Council. The meeting included an overview presentation of CNL, as well as a specific presentation on the project. It provided an opportunity to offer updated information to local elected officials and answer questions.

Stakeholder(s): Local elected officials.

Ottawa Valley Economic Development Meeting (OVED) – December 2016

The OVED Committee is comprised of economic development officers from the local municipalities, as well key regional employers, for example, Garrison Petawawa, CNL and Algonquin College. OVED holds bi-monthly meetings to discuss economic issues and opportunities throughout Ottawa Valley and Eastern Ontario. On December 15, 2016, CNL hosted a meeting which included a presentation on the project.

Stakeholder(s): Municipality, Industry.

Meeting and Project Briefing with Pontiac MP – December 2016

At the request of the Pontiac Member of Parliament (MP), CNL attended a meeting at the MP's constituency office in Campbell's Bay, Quebec. The meeting, held on December 21, 2016, briefed the MP on the project and enabled the MP to discuss the project with CNL.

Stakeholder(s): Local elected officials.

Technical Discussion Meeting – January 2017

A meeting to discuss technical aspects of the project with former employees and other members of the local scientific community was held on January 19, 2017 in Deep River, Ontario. This meeting was planned in response to a request from a local community member, who assisted in coordinating the discussion.

Stakeholder(s): Public within local community, industry.

Presentation and Meeting with Renfrew County Council – January 2017

On January 25, 2017 CNL representatives met with the Renfrew County Council. The meeting included more in-depth updates on the project. It also provided an opportunity to answer questions.

Stakeholder(s): Local elected officials.

Presentation to the Town of Deep River – January 2017

On January 25, 2017 CNL representatives presented to the Deep River Town Council at an open council meeting. The presentation was an overview of CNL activities with specific updates on the project. It also provided an opportunity to answer questions to local government and members of the public.

Stakeholder(s): Local elected officials, public within the local and host communities.

Presentation to the Upper Ottawa Valley Chamber of Commerce – January 2017

On January 27, 2017 CNL representatives presented to the Upper Ottawa Valley Chamber of Commerce at the organization's annual general meeting in Pembroke, Ontario. The presentation was an overview of CNL activities with specific updates on the project. It also provided an opportunity to answer questions to the local business community and share information on CNL's economic impact.

Stakeholder(s): Public within local and host communities.

Presentation to the Eastern Ontario Wardens' Caucus – January 2017

On January 31, 2017 CNL representatives attended the Rural Ontario Municipal Association conference and presented to the Eastern Ontario Wardens' Caucus on CNL's activities, with a specific look at the project. It led to another presentation with the United Counties of Prescott Russell.

Stakeholder(s): Local elected officials.

Presentation to the United Counties of Prescott Russell – February 2017

CNL representatives attended the United Counties of Prescott and Russell's council meeting, by invitation, on February 8, 2017. The presentation included an overview of CNL, with a focus on the Near Surface Disposal Facility (NSDF) project and the NPD Closure Project.

Stakeholder(s): Local elected officials, media.

Presentation to (MRC) Pontiac Regional County Municipality – February 2017

CNL representatives attended the MRC Pontiac's council meeting on February 14, 2017. The presentation included an overview of CNL, with a focus on the NSDF project and the NPD Closure Project.

Stakeholder(s): Local elected officials.

Environmental Stewardship Council Meeting – March 2017

On March 23, 2017, one of the three annual ESC meetings was held. Members were briefed on updates to the NPD Closure Project. Following these updates, members had the opportunity to seek clarification and raise any concerns they had with the project.

Stakeholder(s): Local elected officials, local environmental organizations and NGOs.

Environmental Stewardship Council Meeting – June 2017

On 2017 June 22 the ESC was briefed on current environmental performance monitoring and proposed follow-up monitoring for the NPD Closure Project.

Stakeholder(s): Host communities, local elected officials, Indigenous Nations, communities and organizations, NGOs.

MRC Pontiac Council Site Visit – July 2017

CNL hosted members of the MRC (Municipalité régionale de comté) Pontiac at the NPD site. Subject matter experts gave a presentation on the NPD Closure Project, answered questions and dialogued on the project with the MRC Pontiac. The visit also included a visit to the reactor facility. A member of the local media attended and covered the visit.

Stakeholder(s): Local elected officials, media.

Old Fort Williams Cottagers' Association Meeting – July 2017

CNL had offered to meet with the Old Fort William Cottagers' Association (OFWCA) and the Association invited CNL to hold a meeting on the proposed NSDF in Fort William. CNL's Vice President of Decommissioning and Waste Management (D&WM) gave a presentation, which included an overview of the NPD Closure Project, and there was approximately one and a half hours of questions and answers. The event was featured in the local media. An estimated 80 individuals attended the event.

Stakeholder(s): Members of the local community, media, NGOs.

Meeting with the Bloc Québécois – August 2017

CNL hosted Martine Ouellet, the leader of the Bloc Québécois, to Chalk River Laboratories (CRL) to discuss CNL's activities, in particular the proposed NPD Closure Project and NSDF. The meeting included a presentation and dialogue on both projects. A reporter with the Canadian Press also attended and reported on the meeting.

Stakeholder(s): Elected official, media.

CNL Open House – August 2017

CNL hosted an Open House on the CRL site. The Open House had over 2,000 people attend. As a part of the day, presentations and tours of the NPDWF were offered. Approximately 85 people attended the NPD tours. Interested attendees could learn about the project, see the facility and meet and discuss the project with subject matter experts.

Nuclear Energy Agency Site Tour – October 2017

The CNSC and Natural Resources Canada hosted a meeting of the Nuclear Energy Agency's Working Party on Decommissioning and Dismantling in 2017 October. This included a visit to the NPD site to learn more about CNL's proposal to close the facility. International representatives from the member nations had the opportunity to tour the site and discuss the project with experts from the project team.

Stakeholder(s): Industry.

Environmental Stewardship Council – October 2017

In 2017 October, the NPD Closure Project team shared an overview of the draft EIS in advance of the submission of the document to the CNSC in November. Information on how the public can participate in

the EA process was also shared. A second presentation was given to members on the proposed VCs of the NPD Closure Project. Throughout these updates, members had the opportunity to seek clarification and raise any concerns they had with the project.

Stakeholder(s): Local elected officials, local environmental organizations, local Indigenous peoples and NGOs.

Take Our Kids to Work Day – November 2017

CNL participates annually in Take Our Kids to Work Day for students in grade nine to introduce them to different careers and areas of work. Approximately 80 students came to the CRL site and a presentation and tour component were included about the NPD Closure Project.

Stakeholder(s): Employees, general public (students).

Canadian Nuclear Society Site Tour – November 2017

CNL hosted members of the local branch of the Canadian Nuclear Society (CNS) and their families for a tour of the NPDWF to learn more about the proposed decommissioning project. Participants had the opportunity to discuss the project with subject matter experts.

Stakeholder(s): Industry, public within the local community.

Algonquin Chapter of PEO Site Tour – November 2017

CNL hosted members of the local branch of the Professional Engineers of Ontario (PEO) and their families for a tour of the NPDWF to learn more about the proposed decommissioning project. Participants had the opportunity to discuss the project with subject matter experts.

Stakeholder(s): Industry, public within the local community.

NPD Open House – December 2017

The first Open House hosted at the NPDWF during the public comment period on the draft EIS was held in 2017 December. 35 members of the public attended, including members of special interest groups, students and former employees. The event included a presentation, a poster board session and virtual reality glasses, to enable a “tour” of inaccessible parts of the facility.

Stakeholder(s): General public.

The NPD Closure Project Meeting with CELA – January 2018

CNL offered to meet with all intervenors during the public comment period. CELA was interested in meeting with subject matter experts and hosted members of the project team at their offices in Toronto. CNL shared more technical details on the project with CELA, their client and their technical consultant. Questions were answered there, and information was provided in follow-up to CELA after the meeting.

Stakeholder(s): Interest groups.

NPD Open House – January 2018

The second Open House hosted at the NPDWF during the public comment period on the draft EIS was held in January. Around 58 members of the public attended, including members of special interest groups, students and former employees. The event included a presentation in the control room, a poster board session and virtual reality glasses, to enable a "tour" of inaccessible parts of the facility.

Stakeholder(s): General public.

Canadian Nuclear Association Conference – February 2018

CNL has a presence at the Canadian Nuclear Association conference annually and at the 2018 conference had information on CNL as well as both the proposed NSDF and the NPD Closure Project on interactive touch screens, as well as informational handouts at the booth.

Meeting with Hull-Aylmer MP – February 2018

At the request of the Member of Parliament (MP) for Hull-Aylmer, project staff met with the MP to discuss the proposed NPD Closure Project and the NSDF. This gave the MP the opportunity to gain understanding of the project.

Stakeholder(s): Government officials.

Waste Management Symposium – March 2018

CNL attended the Waste Management Symposium and had information on CNL as well as both the proposed NSDF and the NPD Closure Project at the corporate booth. Subject matter experts also attended to discuss the projects as part of conference sessions.

Town Hall with MP for Hull-Aylmer – March 2018

At the invitation of the MP for Hull-Aylmer, CNL attended an open Town Hall for the public in Gatineau, Quebec to share information about CNL, in particular, the proposed NPD Closure Project and the proposed NSDF.

Stakeholder(s): Members of the public, elected officials.

Renfrew-Nipissing-Pembroke MPP Site Visit – April 2018.

The Member of Provincial Parliament (MPP) for Renfrew-Nipissing-Pembroke, attended the Deep River offices of CNL to learn about the proposed NSDF and the NPD Closure Project. He had the opportunity to speak directly with subject matter experts about concerns constituents had raised to him and gain understanding of the projects and CNSC processes that are being adhered to for the proposed projects.

Stakeholder(s): Government official.

Pontiac MP Site Visit – April 2018.

The Member of Parliament (MP) for Pontiac visited the CRL site to learn about the proposed NSDF and the proposed NPD Closure Project. He had the opportunity to speak directly with subject matter experts about concerns constituents had raised to him. He also had the opportunity to gain understanding of the projects and CNSC processes that are being adhered to for the proposed projects.

Stakeholder(s): Government official.

Environmental Stewardship Council Meeting – April 2018

In 2018 April, the ESC was briefed on the outcomes of the public comment period on the draft EIS for the NPD Closure Project and what themes had arisen from the comments. Following this update, members had the opportunity to seek clarification and raise any concerns they had with the NPD Closure Project. Information on upcoming public engagements was shared, as well.

Stakeholder(s): Local elected officials, local environmental organizations and local NGOs.

Canadian Nuclear Society Conference – June 2018

CNL has a presence at the Canadian Nuclear Society conference annually, and at the 2018 conference had information on CNL as well as both the proposed NSDF and the NPD Closure Project on interactive touch screens, as well as informational handouts on both projects at the booth. A paper on the NPD Closure Project was also presented at the conference.

Stakeholder(s): Industry.

Real Property Institute of Canada Federal Contaminated Sites National Workshop – June 2018

At the 2018 Real Property Institute of Canada (RPIC) workshop, the NPD Closure Project shared poster material and a presentation to help inform, share ideas and obtain expert feedback from this industry group.

Stakeholder(s): Industry.

Environmental Stewardship Council Meeting – June 2018

In 2018 June, the ESC was updated on the project timelines, the site's most recent environmental performance reports, grout development and public engagements. Following these updates, members had the opportunity to seek clarification and raise any concerns they had with the NPD Closure Project.

Stakeholder(s): Local elected officials, local environmental organizations and local NGOs.

Virtual NPD Facility Tour – July 2018

In 2018 April, CNL posted a virtual tour of the NPDWF to its YouTube channel. As of 2020 January, this virtual tour had been viewed 1,098 times.

Stakeholder(s): General public.

Canadian Ecology Centre Site Visit – 2018 July and August

Around 20 students from the Canadian Ecology Centre, which is a non-profit outdoor and environmental education facility, near Mattawa, Ontario, visited the NPD site on two separate occasions to learn about the project and CNL as a part of a summer course for high school credit. Subject matter experts gave an overview of NPD and provided the opportunity for students and faculty to ask questions and share concerns.

Stakeholder(s): General public, students.

NPD Open Houses – August 2018

More than 30 members of the public attended the August 2018 Open House at NPD. Event attendees were able to tour inside the facility. Team members were on hand to answer questions on the project and a presentation was shared.

Stakeholder(s): General public.

Environmental Stewardship Council Meeting – October 2018

The ESC was briefed on the current environmental monitoring and surveillance at the NPD site proposed follow-up monitoring for the project. Following these updates, members had the opportunity to seek clarification and raise any concerns they had with the NPD Closure Project.

Stakeholder(s): Local elected officials, local environmental organizations and local NGOs.

Eastern Ontario Water Works Association Conference – October 2018

CNL staff attended the Eastern Ontario Water Works Association Conference to present on the proposed NSDF and NPD Closure Projects. The presentation offered attendee's fact-based information about both projects and the opportunity to gain understanding of what is being proposed as well as opportunity to ask questions.

Stakeholder(s): Municipal water works professionals.

Technical Discussion – November 2018

With assistance from a third-party facilitator, CNL and local CNL/AECL alumni coordinated a technical meeting to discuss specific aspects of the NPD Closure Project and the EA process, including the safety case and international guidance. 15 alumni attended and six subject matter experts presented.

Stakeholder(s): Interest group, general public.

Carleton University Journalism Master's Students Presentation and Site Visit – November 2018

Two Master's students, who were writing a piece for the media, from Carleton University (Ottawa, ON) were given a CNL overview presentation with a focus on the proposed NSDF and the NPD Closure Project. Following the presentations, they had the opportunity to seek clarification and raise any concerns they had with the projects.

Stakeholder(s): Media.

MRC Pontiac Warden and MRC Pontiac Staff Presentation and Site Visit – December 2018

The MRC Pontiac Warden and MRC Pontiac staff were given a CNL overview presentation with a focus on the proposed NSDF and the NPD Closure Project. Following the presentations, they had the opportunity to seek clarification and raise any concerns they had with the projects.

Stakeholder(s): Local elected officials.

Renfrew and Pontiac Counties Elected Officials Information Day – February 2019

Local elected officials from both Renfrew and Pontiac County were invited to the CRL site for updates and presentations on CNL, the proposed NSDF and the NPD Closure Project. Throughout the day officials had the opportunity to seek clarification and raise any concerns they had with the projects and ask questions about CNL.

Stakeholder(s): Local elected officials.

Meeting with Representatives of the Province of Quebec – February 2019

NSDF Project and NPD Closure Project staff went to Quebec City to meet with representatives from the Province of Quebec to discuss the proposed NSDF and the NPD Closure Project. Throughout the day representatives had the opportunity to seek clarification and raise any concerns they had with the projects.

Stakeholder(s): Government of Quebec officials.

Carleton University Civil and Environmental Engineering Students Presentation and Site Tour – March 2019

Students from Carleton University (Ottawa, ON) visited the CRL site for a tour and presentations on the proposed NSDF and the NPD Closure Project. Throughout the day students had the opportunity to seek clarification and raise any concerns they had with the projects and ask questions about CNL.

Stakeholder(s): Academia (engineering).

Environmental Stewardship Council Meeting – March 2019

The ESC was given and overview on the geology of the NPD site and the geoscience characterization program for the project, which was information relevant to some of the themes from the draft EIS comments. The Council was also briefed on the ongoing public and Indigenous engagement related to the NPD Closure Project. Following these updates, members had the opportunity to seek clarification and raise any concerns they had with the project.

Stakeholder(s): Local elected officials, local environmental organizations and local NGOs.

Breakfast Briefing – April 2019

Bi-monthly Breakfast Briefings were introduced in 2019. The Breakfast Briefings offer an opportunity for Alumni and interested members of the public to gain a further technical understanding of the NPD Closure Project. At this session, the project team presented on the proposed follow-up monitoring for the NPD site,

and attendees had the opportunity to seek clarification and raise any concerns they had with the project to subject matter experts.

Stakeholder(s): Alumni, Interested members of the public, local elected officials.

Presentation to Laurentian Valley Township Council – May 2019

Project staff attended the Laurentian Valley Township's council meeting and gave a presentation on the NPD Closure Project. Council members had the opportunity to seek clarification and raise any concerns they had with the project.

Stakeholder(s): Local elected officials

Gatineau Moderated Forum Councillor Duggan – May 2019

At the invitation of a Gatineau City Councillor CNL attended a moderated forum for the public in Gatineau, Quebec to share information about CNL, in particular, the proposed NSDF and the NPD Closure Project. Council members and members of the public had the opportunity to seek clarification and raise any concerns they had with the project. NPD Closure Project subject matter experts were in attendance.

Stakeholder(s): Members of the public, elected officials.

Environmental Stewardship Council Meeting – June 2019

The ESC was given and overview of applicable Canadian regulations and international guidance for the project, which was information relevant to some of the themes from the draft EIS comments. Following these updates, members had the opportunity to seek clarification and raise any concerns they had with the NPD Closure Project.

Stakeholder(s): Local elected officials, local environmental organizations and local NGOs.

CNS Annual Conference – June 2019

CNL had a booth at the annual Canadian Nuclear Society (CNS) conference, where CNL representatives shared information on the NPD Closure Project.

Stakeholder(s): Industry

Breakfast Briefing – June 2019

The Bi-Monthly Breakfast Briefings offer an opportunity for Alumni and interested members of the public to gain a further technical understanding of the NSDF project. In this session two subject matter experts presented on the protection of the Chimney Swifts, a species at risk at NPD, and attendees had the opportunity to seek clarification and raise any concerns they had with the NPD Closure Project team.

Stakeholder(s): Alumni, Interested members of the public.

Workshop on the Proposed NPD Draft Effluent Monitoring Plan – July 2019

A workshop to focus on sharing more details with interested members of the public on aspects of the Draft Follow-up Effluent Monitoring Plan was held in 2019 July. Five individuals attended the event, which included a site tour, discussion and opportunity to provide feedback on the proposed draft plan.

Stakeholder(s): General public, alumni.

Canadian Ecology Centre Site Visit – July and August 2019

Around 20 students from the Canadian Ecology Centre, which is a non-profit outdoor and environmental education facility, near Mattawa, Ontario, visited the NPD site on two separate occasions to learn about the project and CNL as a part of a summer course for high school credit. Subject matter experts gave an overview of NPD and provided the opportunity for students and faculty to ask questions and share concerns.

Stakeholder(s): General public, students.

NPD Public Open house – August 2019

The NPD Closure Project hosted two open houses in the summer of 2019. Approximately 40 individuals attended. The events included a presentation on in-situ disposal and proposed monitoring. Associated activities included an Indigenous Cultural Ceremony and a viewing of the Chimney Swifts.

Stakeholder(s): General Public.

Nuclear Waste Management Decommissioning Environmental Restoration Conference – September 2019

The annual Nuclear Waste Management Decommissioning Environmental Restoration Conference in September included an opportunity to tour the NPD site on September 12. 50 individuals from the conference attended the tour. Various papers on the NPD Closure Project were also presented at the conference.

Stakeholder(s): Industry.

Breakfast Briefing – September 2019

After a summer hiatus, the regular bi-monthly breakfast briefings in Deep River resumed. At September's Breakfast Briefing NPD's engineering design challenges, one of the main were discussed. Afterwards, a question and answer session and an opportunity to voice concerns and share feedback directly with the project team.

Stakeholder(s): Alumni, Interested members of the public.

Take Our Kids to Work Day – November 2019

CNL participates annually in Take Our Kids to Work Day (TOKWD) for students in grade nine to introduce them to different careers and areas of work. The 2019 TOKWD included an overview of the NPD Closure Project with the NPD model and Virtual Reality glasses to show the students inside the reactor.

Stakeholder(s): Employees, general public (students).

Breakfast Briefing – December 2019

At the December Breakfast Briefing, subject matter experts from the NPD Closure Project shared a presentation on the characterization and waste inventory at the NPDWF. Afterwards, a question and answer session and an opportunity to voice concerns and share feedback directly with the project team.

Stakeholder(s): Alumni, Interested members of the public.

Elected Officials Day – January 2020

On January 10, CNL hosted 15 elected officials from Renfrew County and the MRC Pontiac for a series of presentations to update and discuss CNL's activities and operations, including a presentation on the NPD Closure Project.

Stakeholder(s): Local elected officials.

Breakfast Briefings – February 2020

In February, CNL hosted two Breakfast Briefings, one on February 25th in Pembroke and the other on February 26th in Deep River. The two Breakfast Briefings were held to broaden the opportunities for members of the local community to have in-depth discussions and technical information on the NPD Closure Project and the NSDF Project. 34 attended the Briefing in Deep River, including a mixture of former staff and other members of the local community. 20 individuals attended the Briefing in Pembroke, including local elected officials, industry and members of the local community. A technical consultant for the project gave the presentation and the focus was the long-term safety of the NPD facility.

Stakeholder(s): Alumni, Interested members of the public.

NAYGN Presentation – April 2020

NPD Closure Project overview presentation (in situ decommissioning, project timelines, protecting people and the environment).

Stakeholder(s): Industry

Meeting with Stakeholder – June 2020

In May 2020 CNL sent letters to all stakeholders who had submitted comments on the 2017 draft EIS for the NPD Closure Project, enclosing a revised draft EIS and offering a meeting to discuss CNL's disposition of these comments. One intervenor responded with interest and a virtual meeting was held on June 15th, 2020 between the Manger of Regulatory Affairs and the stakeholder to discuss the disposition of the comments.

Stakeholder(s): Members of the public.

Meeting with David Thompson – June 2020

CNL hosted a meeting to discuss and respond to comments on the draft EIS for the NPD Closure Project with the former Deep River Mayor.

Stakeholder(s): Intervenor

Environmental Stewardship Council - June 2020

Update on the EA process and Stakeholder and Indigenous engagement

In 2020 June, CNL briefed the Environmental Stewardship Council (ESC) the EA process and stakeholder and Indigenous engagement as part of a project update. ESC members had the opportunity to seek clarification from project experts and raise any concerns they had about the NPD Closure Project.

Stakeholder(s): Local elected officials, local environmental organizations, and local Non-Governmental Organizations (NGOs).

Association of Municipalities of Ontario (AMO) Conference – August 2020

In August CNL had a virtual booth at the virtual AMO conference. Materials on the NPD Closure Project were available for download at the virtual booth.

Stakeholder(s): Elected officials.

Environmental Stewardship Council - October 2020

Current status, next steps, Stakeholder and Indigenous engagement, environmental protection – baseline monitoring.

In 2020 October, CNL briefed the Environmental Stewardship Council (ESC) on Environmental Protection and baseline monitoring as part of a project update. ESC members had the opportunity to seek clarification from project experts and raise any concerns they had about the NPD Closure Project.

Stakeholder(s): Local elected officials, local environmental organizations, and local Non-Governmental Organizations (NGOs).

Environmental Stewardship Council Meeting – March 2021

On March 25, 2021, the ESC was briefed on updates to the NPD Closure Project. Following these updates, members had the opportunity to seek clarification and raise any concerns they had with the project.

Stakeholder(s): Local elected officials, local environmental organizations and NGOs.

City of Ottawa Standing Committee on Environmental Protection, Water and Waste Management Meeting – March 2021

CNL participated in the virtual committee meeting addressing the City of Ottawa's concerns related to the prosed Near Surface Disposal Facility, and NPD Closure Project. CNL and AECL shared presentations to the Standing Committee on Environmental Protection, Water and Waste Management regarding the motion on the Chalk River Nuclear Facility.

Stakeholder(s): Local elected officials, local environmental organizations, NGOs and interested members of the public.

Waste Management Symposia – March 2021

CNL participated in the 2021 Waste Management Symposia. A NPD representative gave the presentation A Safety Case for the In-situ Disposal of Two Decommissioned Nuclear Reactors, highlighting the safety cases for the NPD Closure Project and WR-1 Project.

Stakeholder(s): Local elected officials, local environmental organizations, local Non-Governmental Organizations (NGOs), a–d interested members of the public.

Environmental Stewardship Council - March 2021

In 2021 March, CNL shared the NSDF and NPD Fact or Fiction presentation and briefed the Environmental Stewardship Council (ESC) on any Environmental Assessment updates and timelines as part of a project update. ESC members had the opportunity to seek clarification from project experts and raise any concerns they had about the NPD Closure Project.

Stakeholder(s): Local elected officials, local environmental organizations, and local Non-Governmental Organizations (NGOs).

Decommissioning and Nuclear Waste Conference – April 2021

CNL participated in the Decommissioning and Nuclear Waste Conference virtually. A CNL representative gave a presentation In-Situ Decommissioning for Legacy Reactors, highlighting the NPD and WR-1 reactors.

Stakeholder(s): Industry

City of Ottawa- Standing Committee on Environmental Protection, Water and Waste Management – March 2021

As a result of a motion related to the NSDF and NPD projects brought to the City of Ottawa Council in 2021 February and referred to the City of Ottawa Standing Committee on Environmental Protection, Water and Waste Management, CNL attended the committee's public meeting on March 30. CNL SMEs clarified the facts and explained the environmental benefits of both the projects to the committee and members of the public in attendance. Citizens also presented their views on the projects. Following the meeting, the city

amended the original motion to request that CNL and the CNSC take action on the City of Ottawa's requests to:

- stop transportation of waste from other provinces to CRL;
- increase safeguards to protect the Ottawa River;
- prevent precipitation from entering the NSDF;
- provide access to environmental data to the city;
- commit to timely notification of spills/releases.

More information on the committee's motion can be found on the City of Ottawa webpage: https://ottawa.ca/en/city-hall/council-committees-and-boards/committees-andboards/environmental-protection-water-and-waste-management

Environmental Stewardship Council Meeting- June 2021

In 2021 June, CNL briefed the Environmental Stewardship Council (ESC) on species at risk at the site and recent and upcoming engagements as part of a project update. ESC members had the opportunity to seek clarification from project experts and raise any concerns they had about the NPD Closure Project.

Stakeholder(s): Local elected officials, local environmental organizations, and local Non-Governmental Organizations (NGOs).

Community Advisory Panel (#1) – September 2021

In 2021 September, the NPD Closure Project was introduced to the CNL Community Advisory Panel (CAP) as part of a corporate overview presentation that summarized key environmental projects. Following the presentation, CAP members had the opportunity to seek clarification and raise any concerns they had about the project.

Stakeholder(s): Community advisory members.

Environmental Stewardship Council - October 2021

In 2021 October, CNL briefed the Environmental Stewardship Council (ESC) on the NPD Closure project submission of the revised update EIS as part of a project update. ESC members had the opportunity to seek clarification from project experts and raise any concerns they had about the NPD Closure Project.

Stakeholder(s): Local elected officials, local environmental organizations, and local Non-Governmental Organizations (NGOs).

City of Ottawa Visit to NPD – December 2021

CNL's NPD Closure Project team welcomed four City of Ottawa staff to tour the site and share information on the NPD Closure Project's efforts to protect the Ottawa River and the safety of the communities that surround it. The visit included a brief history of the NPD site and CNL's plans for grouting the reactor, as

well as a facility tour, and a technical presentation and discussion, including the safety case and follow-up monitoring plans.

Stakeholder(s): Local elected officials.

Regulatory Oversight Report Virtual Meeting – November 2021

A team of CNL employees participated in a virtual public meeting with the Canadian Nuclear Safety Commission (CNSC) to review the CNL Regulatory Oversight Report (ROR) for 2020. The agenda included an overview of CNSC's regulatory oversight related to CNL's licensed sites that include Chalk River Laboratories, Whiteshell Laboratories, Douglas Point Waste Facility, Gentilly-1 Waste Facility, NPD Waste Facility, and the Port Hope Area Initiative (PHAI).

Stakeholder(s): Regulator, local environmental organizations, and local NGOs.

Environmental Stewardship Council Meeting - March 2022

In 2022 March, CNL briefed the Environmental Stewardship Council (ESC) on the NPD Closure project Environmental Assessment and licensing timelines as part of a project update. ESC members had the opportunity to seek clarification from project experts and raise any concerns they had about the NPD Closure Project.

Stakeholder(s): Local elected officials, local environmental organizations, and local Non-Governmental Organizations (NGOs).

Environmental Stewardship Council Meeting - March 2022

In 2022 March, CNL briefed the ESC on the NPD Closure project Environmental Assessment and licensing timelines as part of a project update. ESC members had the opportunity to seek clarification from project experts and raise any concerns they had about the NPD Closure Project.

Stakeholder(s): Local elected officials, local environmental organizations, and local Non-Governmental Organizations (NGOs).

Draft Environmental Assessment Follow-up Monitoring Program Technical Sessions (Virtual) - April 2022

The NPD Closure Project hosted two technical sessions to provide interested members of the public with the opportunity to learn more and provide feedback on the Draft Environmental Assessment Follow-up Monitoring Program (EAFMP). The topics for the two sessions were the Draft Follow-up Environmental Monitoring Plan, Effluent Monitoring Plan and Groundwater Monitoring Plan. The sessions were recorded and available on CNL's YouTube channel.

Stakeholder(s): Local environmental organizations, and local Non-Governmental Organizations (NGOs).

Canadian Nuclear Association Conference – April 2022

CNL has a presence at the Canadian Nuclear Association conference and at the 2022 conference had information on CNL as well as both the proposed NSDF and the NPD Closure Project, as well as informational handouts at the booth.

Stakeholder(s): Industry

60th Anniversary Open House- June 2022

June 2022 marked six decades since the NPD reactor came online. CNL welcomed over 200 stakeholders, interested members of the public and Indigenous Nations, communities and organizations to the NPD site for an open house. CNL hosted tours of the facility, had booths, displays and presentations to share information.

Stakeholder(s): General public

Environmental Stewardship Council Meeting – July 2022

The ESC was provided with an updated on the NPD EIS and Indigenous and Stakeholder engagement. Following these updates, members had the opportunity to seek clarification and raise any concerns they had with the NPD Closure Project.

Stakeholder(s): Local elected officials, local environmental organizations and local NGOs.

CNL Public Open House – August 2022

CNL and AECL hosted an Open House at Chalk River Laboratories to celebrate the continued revitalization of the campus, AECL's 70th anniversary, and all the great accomplishments being made by AECL and CNL's respective teams. NPD had a booth in the ERM tent with staff on hand to interact with visitors.

Stakeholder(s): General public

Environmental Stewardship Council Meeting – October 2022

Stakeholder(s): Local elected officials, local environmental organizations and local NGOs.

The ESC was provided an update on the NPD Environmental Assessment and that has an outcome from the concerns heard through interventions at the hearing for CNL's Near Surface Disposal Facility (NSDF) project, and the subsequent Procedural Direction issued by the CNSC, CNL decided to postpone the submission of the EIS. The ESC was also given a 'tour' of the Virtual Visitors Centre. Following these updates, members had the opportunity to seek clarification and raise any concerns they had with the NPD Closure Project.

Stakeholder(s): Local elected officials, local environmental organizations and local NGOs.

Regulatory Oversight Report Virtual Meeting - November 2022

A team of CNL employees participated in a virtual public meeting with the CNSC to review the CNL ROR for 2021. This annual meeting serves as an opportunity for CNL representatives to discuss our performance for the preceding (2021) calendar year and to provide a detailed update on radiation protection, environmental protection, and conventional health and safety.

Stakeholder(s): General public

Community Advisory Panel 2-2 – December 2022

This CAP meeting was in-person for those who could attend and the others were accommodated virtually. CAP members were given a presentation on the Nuclear Power Demonstration Closure Project. The Actinium-225 Project was introduced, CAP member completed a workshop to assist CNL is developing an engagement plan. This was followed by a session on the ODCP Principles and Goals, to further refine was CNL drafted.

Stakeholders: General public

Waste Management Symposia‑ February - March 2023

CNL participated in the 2023 Waste Management Symposia.

Stakeholder(s): Local elected officials, local environmental organizations, local Non-Governmental Organizations (NGOs), and interested members of the public.

Stakeholder(s): Industry

Environmental Stewardship Council Meeting ‑ March 2023

The ESC was provided an update on the NPD Environmental Assessment and that has an outcome from the concerns heard through interventions at the hearing for CNL's Near Surface Disposal Facility (NSDF) project, and the subsequent Procedural Direction issued by the CNSC, CNL decided to postpone the submission of the EIS. A summary of the February webinar was provided. Following these updates, members had the opportunity to seek clarification and raise any concerns they had with the NPD Closure Project.

Stakeholder(s): Local elected officials, local environmental organizations and local NGOs.

Nuclear Waste Management Organization Tour ‑ April 2023

Staff from the Nuclear Waste Management Organization (NWMO) visited the NPD Facility. The NWMO were provided a presentation on the project, had a discussion on biodiversity aspects, a facility tour and shared information with CNL staff on public and Indigenous engagement. Following the activities, the NWMO had the opportunity to seek clarification and raise any concerns they had with the NPD Closure Project.

Stakeholder(s): Industry

7.2.2 Public Information Sessions

Public information sessions have been conducted to help CNL inform, educate, and obtain feedback from members of the public and host communities surrounding the NPD Closure Project site. These are distinct from presentations, meetings, and site visits and facility tours, information sessions are formal CNL-hosted meetings that focus on high-level technical updates of the federal review of the NPD Closure Project. Public information sessions are commonly hosted in local communities which may have a strong interest in the project.

CNL staff member answering questions at a public information session

In total, 33 public information sessions have been conducted to engage with the local communities on the NPD Closure Project. 14 public information sessions were conducted in June/July 2016 and October 2016 to help CNL inform, educate and solicit feedback from members of the local and host communities surrounding the NPD site. 11 public information sessions were conducted in 2017 and 2018. Eight public information sessions were conducted in November 2022.

The topics presented at the June/July 2016 Public information sessions included a description of the project and facility (including an area map), the proposed project timeline, VCs (soliciting feedback from visitors on which VCs are important to them) and an overview of the *CEAA* process and regulatory approvals required. In addition to the poster boards presented for the June/July 2016 sessions, poster boards were displayed at the October 2016 public information sessions reflecting the additional project information that was available. For example, topics such as the PostSA, spatial and temporal boundaries, alternative means, and chimney swifts and the decision to keep the existing ventilation stack were presented.

Topics presented in the 2017 public information session, included information on the waste inventory at NPD, characterization work, safety features of the facility, proposed mitigation and monitoring, and the next steps in the EA. These topics were presented in addition to general information on the proposed technique of in-situ disposal.

Subject matter experts were available for answering questions and engaging in one-on-one dialogue with event guests. An effort was made to share updated information that responded to specific areas of interest and to provide a broader context of how the project fits into CNL's overarching goals. For all public information sessions, the locations for the public information sessions were chosen based on proximity to the proposed project site and population size. Two exceptions were information sessions in Arnprior in 2017 May and Chapeau (L'Isle-aux-Allumettes) in 2017 August which were added upon request from their respective local municipalities.

The public information sessions held during the public comment period for the draft EIS (in December 2017 and January 2018) focused on providing information related to the draft EIS, as well as information that had been identified as of interest to stakeholders. For instance, informational posters contained information on the isolation and containment provided by the in-situ disposal technique, how the disposal facility would perform in the event of a natural disaster or environmental process (like climate change), the updated list of VCs, natural analogues, and the conclusion of the draft EIS.

The public information sessions in 2022 focused on providing EA updates to members of the surround communities. NPD subject matter experts were present to continue to provide transparent information about the project. The material used during the sessions had been identified as an interest to stakeholders, new posters were used to provide information on the NPD AMA, how CNL is protecting the Ottawa River, and the Long-Term Safety.

Dates and locations are summarized in Table 7.2-1, which shows attendance and how much feedback was received for all information sessions. While advertising was expanded for the public information sessions starting in 2017, the number of individuals who chose to attend a CNL-hosted public information session in 2017-2019 was lower than the number of individuals who attended a CNL-hosted information session in 2016. This may reflect the fact that in 2017 CNL started hosting and/or attending a number of other events, such as Open Houses.

Stakeholder(s): Local and host communities, local elected officials.

Table 7.2-1 Public Information Session Dates and Locations

Date	Location	Attendance	Formal Feedback
2016 Public Information Sessions			
2016 June 20	Rapides-des-Joachims	7	6
2016 June 21	Deep River	17	2
2016 June 22	Stonecliffe	2	0
2016 June 29	Sheenboro	29	10
2016 July 06	Pembroke	13	10
2016 July 12	Chalk River	11	10
2016 July 07	Petawawa	17	7
2016 October 17	Rapides-des-Joachims	10	6
2016 October 18	Deep River	22	6
2016 October 19	Stonecliffe	5	0
2016 October 20	Sheenboro	12	2
2016 October 24	Pembroke	20	8
2016 October 26	Chalk River	18	4
2016 October 27	Petawawa	9	2
	Total	**193**	**73**
2017-2018 Public Information Sessions			
2017 April 20	Deep River	36	4
2017 April 24	Stonecliffe	5	0
2017 April 25	Chalk River	9	3
2017 April 26	Rapides-des-Joachims	2	0
2017 May 01	Petawawa	12	2
2017 May 02	Sheenboro	33	4
2017 May 03	Pembroke	16	3
2017 May 09	Arnprior	7	0
2017 August 03	L'Isle-aux-Allumettes (Chapeau)	15	0
2017 December 07	Chalk River	6	1
2018 January 17	Rapides-des-Joachims	1	0
	Total	**142**	**17**
2022 Public Information Sessions			
2022 November 08	Rapides-des-Joachims	0	0
2022 November 09	Sheenboro	1	0
2022 November 10	L'Isle-aux-Allumettes (Chapeau)	5	0
2022 November 15	Renfrew	11	0
2022 November 17	Pembroke	6	0
2022 November 22	Chalk River	3	0
2022 November 23	Deep River	11	0
2022 November 24	Petawawa	5	0
	Total	**42**	**0**

No in-person sessions were held from March 2020 to September 2021. Webinars were accessible to anyone with an internet connection.

7.2.3 Poster Boards

2016/17 Q1 Poster Boards (June/July 2016 Public Information Sessions)

The poster boards listed below according to subject were developed with the intent to educate and prompt discussion about the project. The poster boards were used to support tactics such as presentations, public information sessions, employee information sessions, site visits and public events. All of the posters used at these sessions were also posted to the CNL website in both official languages. The posters available on the CNL website have since been updated: cnl.ca/wp-content/uploads/2020/12/NPD_Poster 20Pkg.pdf.

- What is an Environmental Assessment? (Overview of the *CEAA,* 2012 Environmental Assessment process);
- Valued Components – NPD Closure Project (VCs identified for so far, and seeking feedback on VCs);
- Preferred Technique (an overview of the alternative means for decommissioning and the benefits of in-situ disposal);
- Project Description (the key steps involved in in-situ disposal);
- Project Timeline (an overview of the history of the facility and the schedule of the NPD Closure Project);
- NPD Area Map (map of the NPD property).

2016/17 Q2 (July-September) and Q3 (October-December) Poster Boards (2016 October Public Information Sessions)

CNL created several new informational poster boards with updated information to share with the local communities at the second round of public information sessions in October. The posters were arranged to describe the narrative of why CNL is planning the project and how CNL is proposing to perform the project. The poster boards were a versatile tactic used in conjunction with other tactics such as presentations, employee information sessions, site visits and community events, such as the Petawawa Showcase. All of the posters used at these sessions were also posted to the CNL website in both official languages. The posters available on the CNL website have since been updated: cnl.ca/wp-content/uploads/2020/12/NPD_Poster Pkg.pdf.

- Legacy Liability (history of NPD and its transfer to AECL and how CNL has the responsibility to decommission the reactor);
- Decommissioning Solution (information on in-situ disposal);
- Alternative Means (for the NPD Closure Project);
- Safe by Design (information on the postclosure safety assessment – how the project is planning for disruptive scenarios as well as normal evolution of the site);
- Chimney Swifts (updated information on habitat retention decision);

- What Do You Think? (information on the VCs and spatial/temporal boundaries and how to share feedback with CNL);
- Protecting the Environment (information on how CNL's Environmental Protection branch operates, and on how an environmental monitoring program is designed); and,
- Regulatory Oversight (information on the CNSC and the requirements of the licensing and the EA processes).

2017/18 Q1 Poster Boards (April, May, June and August Sessions)

CNL created three new poster boards (listed below) with the intent to educate and prompt discussion about the project. The poster boards were used to support tactics such as presentations, public open houses, employee information sessions, site visits and public events. Older poster boards that were first shared with the public in 2016 were also used to create a narrative of the project. All of the posters used at these sessions were also posted to the CNL website in both official languages. The posters available on the CNL website have since been updated: https://www.cnl.ca/wp-content/uploads/2020/12/NPD_Poster_Pkg.pdf. Poster board topics included:

- "A Safe Technique": information on the waste inventory, characterization work and safety features of the facility;
- "Minimizing Environmental Impact": proposed mitigation and monitoring; and,
- "What You Told Us": the next steps in the Environmental Assessment.

2017/18 Q3 and Q4 Poster Boards (December and January Sessions)

CNL created poster boards with information specifically related to the content of the draft EIS to share with the local communities during the public comment period on the draft EIS. The poster boards were a versatile tactic used in conjunction with other tactics such as presentations, employee information sessions, site visits and Open Houses at the NPDWF. Older poster boards, such as "Alternative Means", which were first shared with the public in 2016 and earlier in 2017 were also used to create a narrative of the project. All of the posters used at these sessions were also posted to the CNL website in both official languages. The posters available on the CNL website have since been updated: https://www.cnl.ca/wp-content/uploads/2020/12/NPD_Poster_Pkg.pdf. Poster board topics included:

- "NPD Closure Project" infographic: a poster version of the infographic;
- "Protection of People and the Environment": information on how in-situ disposal provides isolation and containment of contaminants;
- "Waste Inventory": an overview of the waste that would be disposed of with the proposed decommissioning;
- "Effects of the Environment": information on how the disposal facility would perform in the case of different natural disasters (i.e. flooding) and environmental processes, like climate change;
- "What do you think?": new information on the selected VCs, specifically an updated list of VCs, as well as information on spatial and temporal boundaries and how to get in touch with CNL;

- "Mitigation Measures & Monitoring": updated and more detailed information on what mitigation measures will be put in place and how a monitoring program will be developed;
- "Environmental Impact Statement Conclusion": an overview of the key findings of the EIS;
- "Building Confidence": high-level information on how the project establishes confidence in corrosion modelling and the durability of the materials used in decommissioning by looking at natural analogues and information on existing facilities that were decommissioned using the proposed technique.

2018/19 Q2 Poster Board (August Open House)

CNL created a new timeline poster to update the public on where the NPD Closure Project was at in terms of the EA Process. The poster was first created for the August Open House.

2020 Q3 Poster Board (Virtual Open House)

CNL updated the NPD Closure Project posters for the 2020 Virtual Open House. The posters are available online at https://www.cnl.ca/wp-content/uploads/2020/12/NPD_Poster_Pkg.pdf/. Poster board topics included:

- "NPD Closure Project" infographic: a poster version of the infographic, which gives an overview of the project.
- "What We've Heard-1" and "What We've Heard-2" posters: a summary of the feedback received at meetings, information session, events, email and other methods. The information was summarized into the eight themes heard.
- "Long-term Safety" poster: information on the numerous safeguards to protect the environment and human health.
- "Closing the NPD Facility- Grout": infographic: a poster vision of the infographic, which giver the facts on grout.
- "Protecting the Ottawa River" poster: high-level information on how CNL is caring for the river and ensuring it remains healthy, safe place.

2021 Q1 Poster Board (Virtual Open House)

CNL updated the NPD Closure Project posters for the 2021 Virtual Open House. The posters were available online at http://www.engagewithcnl.ca/npd and are currently available on the project website at https://www.cnl.ca/wp-content/uploads/2020/12/NPD_Poster_Pkg.pdf/.

2022 Q3 Poster Board (Virtual Visitors Centre)

CNL updated the existing NPD Closure Project posters from the 2021 Virtual Open House for the 2022 Virtual Visitors Centre. The posters were available online at http://www.engagewithcnl.ca/npd and are currently available on the project website at https://www.cnl.ca/wp-content/uploads/2020/12/NPD_Poster_Pkg.pdf/. The new poster board topic was:

- "Alternative Means" infographic: visual summary of the alternative options and the important considerations.

7.2.4 Communications Materials at Information Sessions

Communications materials at the Public information sessions were provided in several formats:

- Informational poster boards;
- Project factsheets (See Appendix Q1 of the Stakeholder Engagement TSD);
- Project description (http://www.CNL.ca/site/media/Parent/64-509200-ENA-003.pdf); and,
- Feedback form.

7.2.5 Webinars

The NPD Closure Project team hosted their first public webinar in February 2018, during the public comment period on the draft EIS, as an interactive overview of the draft EIS. Webinars were conducted from the CRL site, however, were accessible to anyone with internet access. This communications tool was introduced to meet feedback that accessibility of public information sessions could be improved.

The webinars are designed to provide an overview of the proposed NSDF and the NPD Closure Project on a quarterly basis. Webinars also provided updated information and addressed questions from the public, based on the themes from public comment period of the draft EIS. Webinar sessions also provided opportunity for members of the public to ask their questions directly to the staff members taking part in the webinar through a virtual forum. Webinars were conducted in both official languages and all videos were uploaded to CNL YouTube channel after broadcast. Table 7.2-2 summarizes the NPD webinars until January 2024.

Stakeholder(s): General public.

Table 7.2-2 NPD Webinars

Date	NSDF/NPD	Topic	Peak Concurrent Viewers	Total Number of Views (to 2024 January)
2018 February 06	NPD only	• Overview of the draft EIS	26	442
2018 October 17	NSDF/NPD	• Themes of draft EIS comments • Protection of the Ottawa River • Alternative means assessment • Design and engineering details • Details of proposed EA Follow-up Program	42	837
2019 March 20	NSDF/NPD	• Local geology • Geoscience characterization program • Impact from earthquakes • Availability of reference documents	37	360
2019 June 17	NSDF/NPD	• Project application of IAEA standards	20	619
2019 September 30	NSDF/NPD	• Overcoming engineering challenges of in-situ disposal	14	201
2019 December 10	NSDF/NPD	• Waste characterization and waste inventory at NPD	37	323
2020 June 25	NSDF/NPD	• Alternative options	78	230
2020 September 16	NPD	• In-situ Disposal Safety Barriers	51	113
2020 December 08	NPD	• Revised Draft EIS	24	203
2021 February 16	NPD	• Follow-up Monitoring Plan	29	76
2021 March 17	NSDF/NPD	• “Fact or Fiction”	134	133
2021 May 11	NSDF/NPD	• Town Hall	77	65
2021 June 22	NSDF/NPD	• Species at Risk at NPD	96	100
2021 November 16	NPD	• Developing the Safety Case for the NPD Closure Project	66	71
2022 January 18	NPD/WR-1	• Regulatory Process for the NPD and WR-1 In-situ Disposal Projects	78	63
2022 March 22	NPD/WR-1	• Reactor Design and in-situ disposal	62	107
2022 May 10	NPD/WR-1	• Overview of the EIS	41	65
2022 September 28	NPD/WR-1	• Who Supports and Environmental Assessment	43	40
2023 February 21	NPD	• Changes to the EIS Resulting from feedback	57	33

Recorded webinars can be viewed via this link: https://www.youtube.com/channel/UC2GCEfZQgsURh4t_QZ-JwCw

7.2.6 Virtual Open Houses

One way CNL adapted its engagement activities in light of the physical distancing restrictions imposed by the global pandemic was to replace in-person open houses and site visits and facility tours with virtual opportunities, beginning in April 2020.

In order to continue dialogue with local communities on the NPD Closure Project, CNL hosted three virtual open houses (VOH) in December 2020, May 2021 and October/November 2022. CNL used the URL engagewithcnl.ca to host the open houses.

The VOH is a public website-based online platform which showcased updated NPD Closure Project information (EIS, posters, infographics, slideshows, and videos). In order to maintain an open house-style of engagement, subject matter experts were online to answer live questions in both official languages from any site visitor through a live chat function on the webpage.

Virtual Open House – 2020 December 06-20

In December of 2020, CNL held an NPD Closure Project-specific VOH to provide information to and receive feedback from the community on the project. Interested members of the public were able to access integral information about the project, including videos, maps, infographics, and technical supporting documents. To help answer questions, CNL hosted three live chat sessions where VOH visitors could chat with key representatives of the project team. The English VOH site had 1050 visitors, and the French site had 32. Visitor traffic was driven to the VOH primarily through the engagewithcnl.ca/npd and CNL Facebook websites. The top pages visited on CNL.ca were the homepage and Download Materials page. See Appendix F of the Stakeholder Engagement TSD for the NPD VOH web pages.

Virtual Open House – 2021 May 31- June 13

In May and June of 2021, CNL held an NPD Closure Project-specific VOH to provide information to and receive feedback from the community on the project. Interested members of the public were able to access integral information about the project, including videos, maps, infographics, and technical supporting documents. To help answer questions, CNL hosted six live chat sessions where VOH visitors could chat with key representatives of the project team. The English VOH site had 137 visitors, and the French site had 16. Visitor traffic was driven to the VOH primarily through the engagewithcnl.ca and CNL Facebook websites. The top pages visited on CNL.ca were the homepage and Download Materials page. See Appendix F Stakeholder Engagement TSD for the NPD VOH web pages.

Virtual Visitors Centre (VVC) – 2022 October 06 -November 30

Through October to December 2022, CNL held an NPD Closure Project-specific VOH to provide information to and receive feedback from the community on the project. Interested members of the public were able to access integral information about the project, including videos, maps, infographics, and technical supporting documents. To help answer questions, CNL included a meeting booking tool where visitors could chat with key representatives of the project team. The site had 154 visitors. Visitor traffic was driven to the VVC primarily through CNL's social media sites. See Appendix F Stakeholder Engagement TSD for the NPD VOH web pages.

7.2.7 Chimney Swift Count Nights

Beginning in 2017, the NPD Closure Project began to host stakeholders at the NPD site for Chimney Swift Count Nights. These community-focused events offered interest groups and the general public an opportunity to meet with experts, visit the site and see the roost during migration season. A series of Count Nights were offered again in 2018 and 2019 and were open to the general public. The 2021 count night was hosted virtually due to COVID 19 restrictions. The count night retuned again in 2023 with an option for participants to join in-person or online. The Count Nights were advertised via social media, in the local newspaper, and through an email sent to the stakeholder email distribution list.

There has been a lot of interest from interest groups and the public in the Chimney Swift population that uses the ventilation stack. These events were a way to respond to this interest with a unique opportunity for stakeholders. Table 7.2-3 below shows the details of these events, including dates and attendance.

Table 7.2-3 Chimney Swift Count Nights: Dates, Groups and Attendance

Date	Group
2017 May 18	Kids' Night
2017 May 24	Chimney Swift Working Group
2017 May 28	CNL employees
2017 June 01	Local interest groups (ESC, Swisha Outdoor Committee, Ontario Nature, Pembroke Field Naturalists, Four Seasons Conservancy)
2017 June 05	Local interest groups (ESC, Swisha Outdoor Committee, Ontario Nature, Pembroke Field Naturalists, Four Seasons Conservancy)
2018 May 17	General public
2018 May 23	General public
2018 May 27	General public
2018 May 31	General public
2018 June 04	General public
2019 May 22	General public
2019 May 26	General public
2019 May 30	General public
2019 June 03	General public
2020 June 01	General public (Virtual Chimney Swift Count Night)
2021 June 01	General public (Virtual Chimney Swift Count Night)
2023 May 24	General public and virtual
2023 May 31	General public and virtual

7.2.8 Employee Events

To reach internal stakeholders, employee information sessions were held for the project. These internal events were similar to the public information sessions with the same communications products used and a similar level of access with subject matter experts for the project.

Starting in 2017, additional methods were employed to reach internal stakeholders (employees) including MyCNL TV broadcasts (which are live broadcasts similar to the webinars sent out via CNL's intranet), "lunch

and learns" and content distributed via internal newsletters and intranet content. In the summer of 2021 CNL implemented "Take 10", a new series of short and engaging presentations from CNL staff from across the missions. Each session will run about 10 - 15 minutes with time for Q&A afterwards. Table 7.2-4 below summarizes these employee-focused events.

All new employees take part in New Employee Orientation during which they are introduced to the proposed NPD Closure Project and have the opportunity to ask questions and learn about the project.

Stakeholder(s): Employees

See Appendix D of the Stakeholder Engagement TSD for an example of employee-focused events.

Table 7.2-4 Employee Focused Events

Event	Date
Deep River Campus Internal Information Session	2017 May 10
Chalk River Campus Internal Information Session	2017 May 10
Deep River Campus Lunch and Learn	2017 October 25
Employee Information Session	2018 December 06
MyCNL TV – NPD Webinar	2018 February 19
MyCNL TV	2018 May 18
MyCNL TV – NPD Virtual Tour	2018 May 28
MyCNL TV – NPD Closure Project Webinar	2020 June 18
MyCNL TV – NPD Chimney Swift Count Night	2020 June 24
MyCNL TV – NSDF & NPD Webinar	2020 July 20
MyCNL TV – NPD Webinar	2020 December 7
MyCNL TV- NPD Webinar (Follow-up Monitoring)	2021 February 18
Fact or Fiction NPD/NSDF Webinar	2021 March 17
MyCNL TV: All Staff Update	2021 March 23
Stewardship Renewal Group Virtual Conference- NPD Booth	2021 April 23
Take 10 – NPD EA Process	2021 August 23
MyCNL Article: Environmental Assessment Update for the NPD Closure Project	2022 January 20
MyCNL Article: Decommissioning's Technical Team from CRL collaborates with the NPD Team	2022 February 03
MyCNL TV: The design of the WR-1 and NPD reactors and In-Situ Disposal Webinar	2022 March 22
MyCNL TV: NPD/WR-1: Overview of the EISs Webinar	2022 May 10
60th Anniversary Open House	2022 June 25
MyCNL Article: CNL host Open House at NPD to celebrate 60th Anniversary	2022 June 28
MyCNL TV: NPD Closure Project: Changes to the EIS resulting from Feedback Webinar	2023 February 21
New Employee Orientation	Ongoing – every two weeks
ERM/SRG Trade Show	2023 May 24 & 25

7.2.9 Community Events and Updates

CNL took the opportunity to attend local community events and industry conferences in order to initiate dialogue between CNL representatives and SMEs regarding the NPD Closure Project. These community events and updates are expanding to reach stakeholders beyond the local community. Attendance at each event is described in the following sections. In previous years, these community events were hosted live in-person at localities such as the Deep River Public Library. However, since 2020 March, all live in-person community events and conferences have been postponed and/or replaced by virtual alternatives such as the NPD VOH or public webinars. In this way, CNL remains committed to ensure engagement activities are ongoing and in alignment with current pandemic restrictions.

Stakeholder(s): Local and host communities.

See Appendix E of the Stakeholder Engagement TSD for an example of community events.

School House Museum – Strawberry Social – June 2016

The School House Museum is located in Laurentian Hills, Ontario, in close proximity to the site and includes a historical display of the NPD reactor. It is open to the public and owned by a local historical society – the Rolph, Buchanan, Wylie and McKay Historical Society. The museum also hosts an exhibit on NPD.

CNL representatives, including subject matter experts, attended the annual Strawberry Social at the School House Museum on June 26, 2016. Poster boards and factsheets regarding the project were made available for event attendees. CNL's attendance was well-received; the historical society invited CNL to attend a later event, the annual Fun Day in August.

Rotary Club of North Renfrew – Annual Dinner – July 2016

CNL was invited to present at the Rotary Club of North Renfrew's Annual Dinner. The President and CEO presented on CNL's Vision 2026 with a focus on the project on July 20, 2016.

There were no questions and comments related to the project.

School House Museum – Fun Day – July 2016

The School House Museum's Annual Fun Day is a community event open to members of the public. CNL was invited to send representatives to discuss the project. CNL's subject matter experts were present to discuss the project on July 26, 2016. Poster boards and factsheets were available to the public.

Petawawa Showcase – September 2016

CNL attended Petawawa Showcase September 23 through September 25. It is the Ottawa Valley's largest spring and fall home, consumer and leisure show in September. The event drew approximately 10,000 visitors from across the Ottawa Valley and western Quebec. To ensure visibility, CNL secured a 20x20 foot exhibitor space. Informational posters on the project were displayed and subject matter experts described project activities, facilitated discussion about the project and responded to public inquiries.

Letter to NPD Neighbours – October 2016

The NPD Closure Project sent a letter to households within the vicinity of the NPD site in order to inform the projects' closest "neighbours" of the ongoing work at the site and to invite community members to the October information sessions.

Schoolhouse Museum Strawberry Social – June 2017

CNL representatives attended the annual Strawberry Social at the School House Museum on June 25, 2017. Poster boards, feedback forms and factsheets available for event attendees.

School House Museum Fun Day – July 2017

The NPD Closure Project attended the School House Museum's Annual Fun Day in 2016 and again in 2017. A CNL representative was present to discuss the project with poster boards, video, feedback forms and factsheets available to the public.

Renfrew County Plowing Match – September 2017

CNL participated in the Renfrew County Plowing Match in 2017 to update the community on CNL's activities. CNL representatives had specific information about the NPD Closure Project on hand, and event attendees were able to ask questions about the project.

Petawawa Showcase – April 2018

CNL attended the Spring Petawawa Showcase April 27-29. CNL representatives staffed the CNL booth to share information and facilitate discussion on CNL's activities including the NPD Closure Project.

Downtown Connect: Pembroke Community Expo – May 2018

Downtown Connect: Pembroke Community Expo is put on by the Pembroke Business Improvement Area annually each spring. Admission is free and it features businesses and organizations from around the area, allowing members of the public to meet local organizations and have one-on-one conversations with their representatives. CNL representatives staffed the CNL booth to share information and facilitate discussion on CNL's activities including the NPD Closure Project.

School House Museum Strawberry Social – June 2018

CNL representatives attended the annual Strawberry Social at the School House Museum in 2018. Poster boards, feedback forms and factsheets were available, and the public could ask questions and share feedback with CNL staff.

Community Day at the Reilly Bird Nature Reserve – July 2018

CNL co-hosted a community day at the Reilly Bird Nature Reserve in Laurentian Hills, the host community for the NPD Closure Project. Members of the NPD Closure Project team attended the day and had information on hand to answer questions and discuss the project with event attendees.

Petawawa Showcase – April 2019

CNL attended the Spring Petawawa Showcase April 26-28. CNL representatives staffed the CNL booth to share information and facilitate discussion on CNL's activities including the NPD Closure Project. In particular, CNL had to scale models of the proposed cap for the proposed NPD disposal facility, a video and other communications materials.

Downtown Connect: Pembroke Community Expo – May 2019

CNL had a booth at the annual Pembroke Community Expo where community members could learn more about the NPD Closure Project through the NPD model, video and through discussing the project with CNL representatives.

School House Museum Strawberry Social – June 2019

CNL representatives attended the annual Strawberry Social at the School House Museum in 2019. Poster boards, feedback forms and factsheets were available and event attendees could ask questions and share feedback with CNL staff.

Letter to Stakeholders – May 2020

In May of 2020 CNL sent a letter to the email distribution list, which includes interested stakeholders who have elected to receive information from CNL on the NPD Closure Project, elected officials, CNL and AECL alumni and Indigenous Nations, communities and organizations, to share that a revised draft EIS had been submitted to the CNSC. CNL also sent an email in May to those who had sent comments to the CNSC on the 2017 draft EIS to offer a meeting to discuss CNL's dispositions to their comments and incorporation of these comments into the revised draft.

Petawawa Showcase – April 2023

CNL attended the Spring Petawawa Showcase April 28-30. It is the Ottawa Valley's largest spring and fall home, consumer and leisure show. The event draws approximately 10,000 visitors from across the Ottawa Valley and western Quebec. CNL representatives staffed the CNL booth to share information and facilitate discussion on CNL's activities including the NPD Closure Project.

7.2.10 Webpage Content

Project-specific webpage

CNL has established a project-specific webpage: www.CNL.ca/NPD. In addition, quick links have been added to the landing page, raising project visibility and easing access to the appropriate pages. Since August 2016, updated information has been added to the project webpage, and webpage activity continues to be tracked and analyzed using Google Analytics.

The webpage has been updated with new content as it becomes available. A description of the project, frequently asked questions, project infographics, informational videos, a description, the draft EIS, poster boards, quick facts, the project timeline, meet the team and public comments on the draft EIS broken down into themes have all been added to the NPD Closure Project webpage.

In an effort to improve EIS supporting document access and transparency, CNL continues to share key EIS technical support documents upon request.

In addition, starting 2019 March CNL began to post the titles of key EIS technical support documents and any revisions and updates to these documents. These documents are available upon request.

On the project webpage, there are mechanisms for the visitor to share feedback on the project through an online submission form and a “mailto” hyperlink.

CNL updated the external website March 2021; this included updating the NPD Closure Project pages. The update included NPD Closure Project updates and more technical documents.

See Section 3.8 of the Stakeholder Engagement TSD for NPD webpage analytics.

See Appendix G of the Stakeholder Engagement TSD for the NPD webpage landing page.

Stakeholder(s): All stakeholders.

Infographics/Fact Sheets

Six infographics are available online (and hard copies are used at VOHs, information sessions, and community events) to better convey information in a succinct digestible format for members of the public. A fact sheet was also made available earlier in the project, however the factsheet was replaced with the more updated content in the infographic as the project progressed.

The first infographic is a general overview of the project. It contains links on where to find more detailed information and how to get in touch with CNL. The second infographic responded to growing public interest in the design of the in-situ disposal and the makeup of the grout in particular. The third infographic captures what CNL has heard from the public and Indigenous Nations, communities and organizations over the last few years. The fourth infographic includes information on CNL’s key focus of protecting the Ottawa River, includes updating on the PostSA TSD and the draft follow-up monitoring plans. Finally, the fifth infographic explains the long-term safety of the NPD Closure Project site.

The infographics are published on the web page and used at Public Information Sessions, Open Houses, and many other community events. The infographics have proven to be an effective method for relaying some technical aspects of the project in a simplistic format that the general public can understand.

Stakeholder(s): All stakeholders.

See Appendix H of the Stakeholder Engagement TSD for the NPD infographics.

Project Webpage Feedback Mechanisms

On the project web page, there are mechanisms for the user to share feedback on the project through an online submission form. There is also a “mailto” hyperlink on every project page that sends an email into the CNL Corporate Communications general mailbox.

7.2.11 Newsletter

CNL's CONTACT newsletter is published and mailed to approximately 55,000 residences in the Renfrew and Pontiac Counties and is available on www.CNL.ca. This publication informs the reader on activities undertaken at CNL's various sites and profiles CNL's community activities. In 2019, CNL introduced a children's version of this newsletter called Kids CONTACT that has activities and facts on science related to CNL's work.

There are currently seven issues of CONTACT or Kids CONTACT that have discussed aspects of the NPD Closure Project. The first was the 2016 Summer issue of CONTACT, which focused on CNL's major projects (including the NPD Closure Project), and related EA activities.

The following issues had an update or feature on the NPD Closure Project included within it during the time frame of this report.

- 2020 Fall – Kids CONTACT;
- 2020 Spring – Kids CONTACT;
- 2018 Summer;
- 2018 Winter;
- 2017 Spring;
- 2017 Winter;
- 2016 Summer.

Stakeholder(s): Local and host communities.

See Appendix I of the Stakeholder Engagement TSD for an example of a CONTACT newsletter.

7.2.12 Email

Emails have been used to connect with internal and external stakeholders, as well as with NGOs. In particular, emails were sent out to promote different events, to advise of the public comment period on the draft EIS and to provide responses to questions submitted electronically. Stakeholders are encouraged to be added to an email distribution list to receive notices of upcoming events related to the project (webinars, breakfast briefings, etc.).

Stakeholder(s): Local community, interest groups, NGOs alumni.

See Appendix J of the Stakeholder Engagement TSD for an example of a stakeholder email.

7.2.13 Advertising

CNL has used many different means of advertising including advertisements in local newspapers, radio advertisements, flyer inserts in local distributions and social media posts to publicize public information sessions and project information.

Advertising Methods

Advertisements posted on CNL.ca landing page and the project-specific webpage: www.cnl.ca/npd

Advertisements have been included in online version of CNL's CONTACT newsletter when applicable.

Newspaper advertisements (See Table 7.2-5 for circulation numbers of main newspapers utilized).

Radio advertisements – CNL has dedicated public service announcement spots on Star 96.7, when applicable it was used to advertise specific project events.

Paid Facebook advertising via "Boosted Posts".

Table 7.2-5 Newspaper Circulation Numbers

Newspaper	Circulation
North Renfrew Times	4,000
Pontiac Journal (bi-weekly)	9,400
Shawville Equity	4,046
The Valley Gazette	2,300
Eganville Leader	6,200
Renfrew Mercury	8,105
Arnprior Chronicle	6,217
Petawawa Post	7,800
The News	29,000
Daily Observer	3,000
Flyer Insert	30,000

Stakeholder(s): All stakeholders.

See Appendix K of the Stakeholder Engagement TSD for a sample advertisement.

Public Service Announcements

CNL has had dedicated spots on the local radio station Star 96.7, based in Pembroke, ON, for over 10 years. CNL utilizes these to promote local events and not-for profit organizations, however, when there are events such as public information sessions Public Service Announcements are used for advertising. The Public Service Announcement run on the radio station four times a day and have an average reach of 35,000 listeners.

Stakeholder(s): All stakeholders.

See Appendix L of the Stakeholder Engagement TSD for a sample script of a PSA.

7.2.14 Intranet – myCNL

The internal website has been used to communicate with internal stakeholders with updates on the project and publicizing events related to the project. Posts on the NPD Closure Project were shared on myCNL to educate, inform and provide updates on the project to employees.

In 2020, weekly updates related to ERM were posted throughout April and May during which a large proportion of CNL site staff transitioned to working remotely (i.e., working from home) as a result of the COVID-19 pandemic. Brief descriptions of the NPD Closure Project's status were included in some of these weekly updates.

Stakeholder(s): CNL Employees

See Appendix M of the Stakeholder Engagement TSD for an example of a myCNL post.

7.2.15 Internal Newsletters

CNL's internal newsletter, Voyageur, is published each month to update current and former CNL employees (former employees can sign up as "CNL Alumni" to receive updates and the Voyageur newsletter from CNL, there are around 600 individuals on this distribution list). Between April 2017 and September 2021, the following 14 articles on the NPD Closure Project were published in the newsletter:

1. 2021 September – Protecting Species at Risk at the NPD site
2. 2021 March – CNL projects visit Ottawa Council
3. 2020 December – Key Milestone for NPD Closure Project
4. 2020 September – Where do things stand with NSDF & NPD?
5. 2020 May – NPD Closure Project submits revised EIS
6. 2020 April – Using virtual reality to enhance safety
7. 2019 February – CNL welcomes public officials to CRL
8. 2018 December – CNL celebrates a successful 2018
9. 2018 July – Reilly Bird Nature Reserve
10. 2018 February – NPD Closure: what's next?
11. 2017 November – NPD Closure Project underway
12. 2017 September – NPD tour at #CNLOpenHouse
13. 2017 May – The year ahead: Decommissioning & Waste Management (DWM)
14. 2017 April – Swipe right

Stakeholder(s): CNL employees, industry

See Appendix N of the Stakeholder Engagement TSD for an example of a Voyageur article.

7.2.16 CNL Social Media

Social media is used to inform, educate, and promote awareness for all of CNL's activities including NPD Closure Project events and to receive feedback on the project. CNL has used web-based analytics to determine how virtual users utilize different CNL company social media platforms. This enables CNL to assess which platforms are more effective in engaging the largest audience (followers) and the widest geographic reach (location) while also evaluating the overall usefulness of social media as a medium of public dialogue.

Facebook is CNL's largest platform where the strongest engagement through "comments, shares and likes" of posts. When CNL wished to raise the profile of project events or information, "boosted" posts were used to target by location and demographics. "Boosted" posts are paid posts through Facebook. Twitter has not been used as broadly, as Tweets have been found to receive very little traction, and comparatively CNL has a much larger Facebook following. While numbers are significantly larger on LinkedIn, the demographics are far more industry-based, rather than general public. Therefore, CNL utilizes LinkedIn, but in a much lower capacity than Facebook, to ensure engagement is a balanced approach with general public in comparison to those actively part of the nuclear industry. YouTube has also been used successfully to engage with stakeholders. All webinars have been posted and specific information on the Chimney Swifts and a virtual tour of the reactor and facility have also been shared. Following webinars, CNL has committed to posting the recordings on YouTube so that those who could not participate or watch can do so. The videos have been added in an effort to make technical information more accessible. "

The CNL social media accounts continue to gain followers and build communication through multiple social media accounts, including adding an Instagram account (see Table 7.2-6 below). The metrics on Instagram are not provided below as there have only been two posts related to NPD Closure Project. Both of these posts were advertising events (a breakfast briefing and a webinar) and gained a combined total of 25 likes.

Engagement analytics from 2016 to January 2024 for the NPD Closure Project can be found in the Stakeholder Engagement Reports.

See Appendix O of the Stakeholder Engagement TSD for an example of a Facebook post.

See Appendix P of the Stakeholder Engagement TSD for an example of a Tweet.

See Appendix Q of the Stakeholder Engagement TSD for an example of a LinkedIn post.

Stakeholder(s): All stakeholders.

Table 7.2-6 CNL Social Media Accounts

Social	Link	Followers*
Facebook	www.facebook.com/CanadianNuclearLaboratories	5,230
Twitter	www.twitter.com/CNL_LNC	1,952
YouTube	www.youtube.com/channel/UC2GCEfZQgsURh4t_QZ-JwCw	949
Instagram	www.instagram.com/canadiannuclearlaboratories/	1,087
LinkedIn	www.linkedin.com/company/canadian-nuclear-laboratories/	24,933

* As of January 2024

7.2.17 Media

The NPD Closure Project was in the media 109 times between 2017 April and 2024 January.

Media coverage was at its highest during the third and fourth quarter of the 2017-18 fiscal year. These two quarters correspond with the draft EIS public comment period between 2017 November 15 and 2018 February 13. This suggests that CNL's efforts at notifying the public to support participation in the EA process were successful.

An additional reason for the spike in media coverage related to the project in Q4 of 2017-18 was a report that there were uncontrolled releases from the site. This report came out of information shared by the project and was misconstrued as harmful releases in the media. CNL responded to this media coverage with letters to the editor correcting the misinformation. These "detect and correct" letters were published online by CNL and in the Aylmer Bulletin in late March and early April of 2018 respectively.

Media attention regarding the NPD Closure Project increased in March 2021 due to the meeting of the City of Ottawa Standing Committee on Environmental Protection, Water and Waste Management (see Section 3.1.57). CNL sought and welcomed opportunities to share information about the NSDF and NPD projects and respond to comments from members of the public.

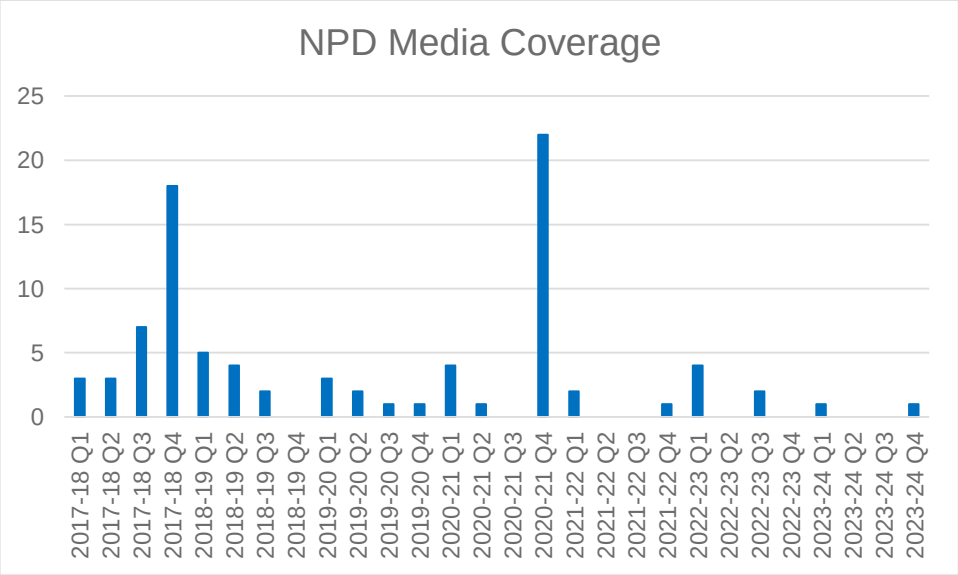
Another period of high media coverage resulted from the March 2021 City of Ottawa Standing Committee on Environmental Protection, Waste and Waste Management meeting, where the NPD Closure Project and NSDF Project were discussed. During the meeting CNL actively corrected misinformation on social media.

CNL has responded to and sought media coverage much more actively during the COVID-19 Pandemic. CNL will continue to do so as the NPD Closure Project progresses through the EA process, providing accurate information about the project to a wide audience.

To promote virtual activities, CNL has placed advertisements in local papers.

See Figure 7.2-1 below for the varying amount of media coverage by quarter.

Figure 7.2-1 Media Coverage



Details on media coverage prior to April 2017 can be found in Appendix B.21 of the Stakeholder Engagement Report –Revision 0 (Thompson 2017).

See Appendix R of the Stakeholder Engagement TSD for an example of a media coverage.

See Appendix S of the Stakeholder Engagement TSD for an example of a detect and correct response.

7.2.18 Document Repository – 2017 November

Canadian Nuclear Laboratories made four hard copies of the draft EIS publicly available, functionally creating a document repository for the draft EIS volumes. One hard copy of the draft EIS was available at the Deep River Public Library, two copies were made available through two separate branches of the Laurentian Hills Public Library and a French version of the draft EIS was made available through the Rapides-des-Joachim municipal offices.

7.2.19 Release of Documents – 2017 November – 2018 March

To support their review of the draft EIS, five individuals, four NGOs and two Indigenous Nations, communities and organizations requested and were provided with documents related to the NPD Closure Project. As noted before, an email was sent to more than 200 individual and group stakeholders offering information on the NPD Closure Project upon request.

To ease accessibility and transparency of the NPD Closure Project, the draft EIS and other key documents are posted to the NPD pages of www.cnl.ca. Technical supporting documents are made available upon request.

Stakeholder(s): Member of the public, host communities.

NPD Technical documents and Reports: https://www.cnl.ca/environmental-stewardship/nuclear-power-demonstration-closure-project/npd-technical-documents-reports/

7.2.20 Participant Funding

The Canadian Nuclear Safety Commission (CNSC) offered participant funding through its Participant Funding Program (PFP) to assist members of the public, Indigenous Nations, communities and organizations and other stakeholders in participating in the EA, licence application review and Commission hearing processes for CNL's NPD Closure Project. Recipients provide value-added and relevant information that contributes to a better understanding of the anticipated effects of a project. Recipients also participate in the CNSC's proceedings for this project. The CNSC's decision on who has received funding on to participate is available in the CNSC Participant Funding Program Decision: Canadian Nuclear Laboratories' Nuclear Power Demonstration closure project.

Please find information on participant funding for the NPD Closure Project at this link: https://www.cnsc-ccsn.gc.ca/eng/the-commission/participant-funding-program/opportunities/pfp-funding-for-nuclear-power-demonstration-closure-project/

CNL considers those that have applied and received funding from the PFP as stakeholders that have self-identified as especially interested in the project. As such, CNL has made particular efforts to reach out to recipients of participant funding with offers to provide information and meet with these individuals and/or organizations.

7.3 Feedback

Public feedback from all NPD Closure Project engagement activities discussed in this section provide CNL with an opportunity for dialogue with public on their concerns with respect to the NPD Closure Project. This feedback helps CNL gauge public views and points out areas where CNL can improve elements of the project or EIS on current project information, alternative means, VCs, spatial and temporal boundaries and the EA Follow-up Program. This section summarizes the key themes that have been raised during outreach activities, including web inquiries, emails and formal feedback on the draft EIS. It also demonstrates how CNL has responded and, when possible, incorporated this feedback into the development and design of the NPD Closure Project as well as the final EIS. For example, between 2018 and 2019, CNL conducted further hydrogeological studies in response to feedback on the 2017 draft EIS.

Additionally, the project has posted these key themes and how they have been incorporated into the final EIS on the NPD Closure Project webpage: https://www.cnl.ca/en/home/environmental-stewardship/npd-closure-project/january-2019-npd-closure-project-updates/default.aspx.

Table 7.3-1 presents a comparison of the themes identified through public engagement (engagement feedback) and those identified through formal public comments during review of the draft EIS. The themes from public engagement (first column) are expanded upon in Table 7.3-2. The themes from the formal public comment period (second column) are expanded upon in Table 7.3-3.

Table 7.3-1 Key Themes

Themes from Public Engagement	Themes from Formal Public Comment Period on Draft EIS
Inventory	Radiological Inventory
Monitoring	-
International guidance	IAEA Guidance for In-situ Decommissioning
Earthquakes	Impacts from Earthquakes
Grout	Grout and Concrete Degradation
Design	Design and Engineering Details
Species at risk	-
Next land use	-
Cost/funding	-
History	-
-	Alternative Means and Approaches
Ottawa River	Proximity to the Ottawa River

7.3.1 Public Engagement Feedback

This section summarizes the instances of informal feedback received from NPD Closure Project's public engagement outreach activities. Feedback was gathered through e-mails, direct communications with project staff, e-mails sent via the website inquiries page or after live virtual events such as webinars. Feedback was also received from public information sessions and site tour feedback forms.

Table 7.3-2 provides a summary how this feedback was incorporated into the EIS.

Table 7.3-2 Summary of Interest Expressed During Public Engagement Activities and Resulting Changes to the EIS

Interest Expressed During Public Engagement	Incorporation of Public Engagement Key Issues into the Final EIS
Inventory	CNL received several requests for information on the exact radiological content of the NPD facility that will be on-site for disposal. Neutron flux modelling using modern 3-dimensional codes and libraries, combined with physical sampling were undertaken to ensure that the inventory of the reactor has been appropriately accounted for. CNL has also completed a full building characterization (described in the NPD Facility Characterization PostSA Supplementary Documentation), including all nuclear systems to verify the total radiological inventory. Since the reactor contains most of the remaining radiological inventory (the fuel was removed in 1988), the completion of this additional analysis allowed CNL to compare field sampling measurements to models to provide confidence in the radiological inventory. Section 4.4.1.1 of the EIS summarizes the radiological inventory of the facility.
Monitoring	Proposed follow-up monitoring activities for the Decommissioning Execution and Institutional Controls phases are described in Sections 9 and 12 of the EIS. Note that the EIS presents a proposed description of the follow-up monitoring activities. The final EA Follow-up Program will be developed incorporating federal reviewer and stakeholder feedback from the draft EIS review. The proposed follow-up monitoring during demolition and grouting activities will include emission and effluent monitoring as well as regular Chimney Swift counts during their seasonal presence at NPD. The proposed follow-up monitoring during the Institutional Control period will include visual inspections and monitoring the groundwater for parameters that would trigger the need for additional investigation and potential mitigating actions.

Interest Expressed During Public Engagement	Incorporation of Public Engagement Key Issues into the Final EIS
International guidance	CNL received questions about the International Atomic Energy Agency's (IAEA) safety standard for decommissioning which states that in-situ disposal is not a suitable option for all nuclear facilities and should be considered only under certain conditions. CNL agrees that not ALL nuclear facilities are suited for in-situ disposal and considers that NPD has features which make it suitable for long-term disposal such as its location 80 feet below grade into bedrock and the thick concrete basement structure. As noted in CNSC (2021c) REGDOC 2.11.2: "*In situ decommissioning for legacy sites is only considered viable where the use of in situ will be protective of workers, the public and the environment; decommissioning was not planned as part of the design; the fuel has been removed; and the site will remain under institutional control for the period defined in the safety case. In a case where the end state for in situ decommissioning results in a waste disposal facility, location or site, the licensee shall satisfy all regulatory requirements for a radioactive waste disposal facility, location or site and demonstrate safety in a safety case and safety assessment of the disposal facility, location or site.*" CNL is following IAEA safety standards for the decommissioning of the facility and more importantly is also following the IAEA safety standards for waste disposal, since the facility – in its end state – would be classified as a disposal site. It is important to note that CNL is also following Canadian standards and regulatory guidance for decommissioning the NPD facility and Canadian regulations for the creation of a disposal facility.
Earthquakes	CNL has conducted additional detailed quantitative analysis to assess how a catastrophic earthquake – one that might occur once every ten thousand years – would affect the facility. Results show that cracks would develop mainly in the areas of the NPD facility which are above the bedrock level. The grouted reactor vault would not be affected as it is well below this depth, with the grout providing increased protection against the stresses of the earthquake. Modelling updates show that any impacts to the public or environment from such an earthquake would be well below the regulatory limits. CNL has also conducted additional geological site characterization work to strengthen the understanding of the geology around the NPD site. This additional analysis and modelling is reflected in Section 9.14.7 of the EIS and the Geosynthesis TSD.

Interest Expressed During Public Engagement	Incorporation of Public Engagement Key Issues into the Final EIS
Grout	The NPD reactor structure will be filled with custom grout formulations to help contain and isolate contaminants, ensure stability, and to reduce corrosion of the reactor components. CNL has developed specially-formulated grout based on the unique requirements of the NPD facility, and conducted extensive research on the use of grout in similar circumstances. It has also conducted a test program using locally-sourced materials to verify that the grout formulae requirements can be met. The test included fresh and cured properties, such as the ability of the grout to flow around piping and tanks, as required. Combined with the existing robust structure of the underground facility, the proposed grouting process will enhance protection of people and the environment. EIS Section 4.3 provides the necessary details on grout and grout formulations.
Design	At the time of the submission of the draft EIS, CNL had completed a preliminary design of the disposal facility. CNL now has a more detailed design of the NPD disposal facility, including the engineered barrier and the grout. Information on project components and design is summarized in Section 4.3 of the EIS, and greater detail is laid out in the Detailed Decommissioning Plan TSD.
Species at risk	The original decommissioning design included building an alternative habitat and demolition of the existing ventilation stack. In order to minimize the risk to the chimney swifts, CNL decided to retain the existing ventilation stack, instead of demolishing it and replacing it with an alternative habitat. This decision was made with input from a panel of experts composed of academia, government agencies and Non-Governmental Organizations (NGOs). Section 9.6 of the EIS includes an assessment of the potential impact on the chimney swifts as a result of the project activities (e.g., noise, dust, vibration and light) which is a summary of the Chimney Swift TSD. Since their current roost will be retained, the project predicts the effects will be minimal given project activities will occur during daylight hours when the chimney swifts are out foraging. A subject matter expert on chimney swifts provided advice to CNL on how to protect the chimney swifts during project activities using best practices, mitigation measures and how to monitor the impacts to the birds. Chapters 9,10 and 12 of the EIS discuss the mitigation measures and follow-up actions related to the chimney swift.
History	CNL has received feedback from former employees interested in the history of the facility. To meet this interest the NPD Closure Project has held a number of Open Houses showcasing the facility (See Section 3.1 of the Stakeholder Engagement TSD for details). CNL has also been in dialogue with a local organization, the Society for the Preservation of Nuclear Heritage, to discuss how to enable historical conservation with respect to the project.

Interest Expressed During Public Engagement	Incorporation of Public Engagement Key Issues into the Final EIS
Next land use	As clarified in previous open houses and within the EIS, AECL is the Crown Corporation that owns the site and CNL is the operator of the NPD site contracted by AECL to perform the closure of the NPD site. The final decision on dispositioning of non-impacted land on the NPD site rests with AECL.
Cost/funding	The AMA TSD presents a high-level cost analysis of the in-situ disposal option compared to other alternatives considered. Funding for the project is provided by Natural Resources Canada and managed by AECL. In response to earlier public feedback, at the October Public Information Sessions, CNL included information on the approximate costs of alternative methods.
Ottawa River	Ensuring the continued protection of the Ottawa River is a key focus CNL's work. CNL has undertaken additional detailed modelling of potential releases from the facility to assess how they could affect the river. This new analysis, included in EIS Section 9.3, supports the conclusion of the EIS that the Ottawa River will continue to be protected. CNL will also issue an updated PostSA TSD, which evaluates the potential long-term effects of the project on the public and environment. This update will include the final grout design, results from the geological site characterization and the new, more detailed earthquake assessment. Finally, the project team has developed draft follow-up monitoring plans, which are available for review by interested parties.

See Appendix T of the Stakeholder Engagement TSD for the complete table of informal feedback and issued responses.

7.3.2 Formal Public Comment Period Feedback

In addition to the informal feedback that the public engagement outreach activities offer, the EA process provides an opportunity for formal feedback from the public. This process began with the formal public and Indigenous comment period on the Project Description in May 2016. Followed by a formal public and Indigenous comment period on the draft EIS for the proposed NPD Closure Project from May 2017 until August 2017. Comments from members of the public, Indigenous Peoples and NGOs on the draft EIS were consolidated by the CNSC (as the responsible authority) and received by CNL. CNL prepared responses to the formal comments which will be submitted to the CNSC and posted on the *CEAA* Registry under project #80121. Through analysis of all formal public comments, key themes were identified. Table 7.3-3 includes a summary of the key themes and how they were incorporated into the final EIS.

Table 7.3-3 Incorporation of Public Key Issues into the Draft EIS

Themes from Formal Public Comment Period on Draft EIS	Incorporation of Public Key Issues into the Final EIS
Alternative Means & Approaches	In selecting disposal for the NPD reactor, CNL has considered several alternatives, including continued storage with surveillance, partial dismantling and removal, and full dismantling and removal of the reactor and components (See the AMA TSD). Through its various engagements, CNL was asked to provide more detail in the EIS on how it chose the in-situ disposal method for the NPD Closure Project. EIS Section 4.2 describes the quantitative assessments of the options considered and also includes an assumption that a new disposal facility becomes available during the institutional control period. Overall, the in-situ disposal method is still considered the safest and preferred option.
Grout and Concrete Degradation	The NPD reactor structure will be filled with custom grout formulations to help contain and isolate contaminants, ensure stability, and to reduce corrosion of the reactor components. CNL has developed specially-formulated grout based on the unique requirements of the NPD facility, and conducted extensive research on the use of grout in similar circumstances. It has also conducted a test program using locally-sourced materials to verify that the grout formulae requirements can be met. The test included fresh and cured properties, such as the ability of the grout to flow around piping and tanks, as required. Combined with the existing robust structure of the underground facility, the proposed grouting process will enhance protection of people and the environment. EIS Section 4.3 provides the necessary details on grout and grout formulations.
Impacts from Earthquakes	CNL has conducted additional detailed quantitative analysis to assess how a catastrophic earthquake – one that might occur once every ten thousand years – would affect the facility. Results show that cracks would develop mainly in the areas of the NPD facility which are above the bedrock level. The grouted reactor vault would not be affected as it is well below this depth, with the grout providing increased protection against the stresses of the earthquake. Modelling updates show that any impacts to the public or environment from such an earthquake would be well below the regulatory limits. CNL has also conducted additional geological site characterization work to strengthen our understanding of the geology around the NPD site. This additional analysis and modelling is reflected in Section 9.14.7 of the EIS.

Themes from Formal Public Comment Period on Draft EIS	Incorporation of Public Key Issues into the Final EIS
Proximity to the Ottawa River	Ensuring the continued protection of the Ottawa River is a key focus CNL's work. CNL has undertaken additional detailed modelling of potential releases from the facility to assess how they could affect the river. This new analysis, summarized in EIS Section 9.3, supports the conclusion of the EIS that the Ottawa River will continue to be protected. CNL will also issue an updated PostSA TSD, which evaluates the potential long-term effects of the project on the public and environment. This update will include the final grout design, results from the geological site characterization and the new, more detailed earthquake assessment. Finally, the project team has developed draft follow-up monitoring plans, which are available for review by interested parties.
IAEA Guidance for In-situ Decommissioning	CNL received questions about the International Atomic Energy Agency's (IAEA) safety standard for decommissioning which states that in-situ decommissioning is not a suitable option for all nuclear facilities and should be considered only under certain conditions. CNL agrees that not ALL nuclear facilities are suitable for in-situ disposal and considers that NPD has features which make it suitable for long-term disposal such as its location 80 feet below grade into bedrock and the thick concrete basement structure. As noted in CNSC (2021c) REGDOC 2.11.2: "*In situ decommissioning for legacy sites is only considered viable where the use of in situ will be protective of workers, the public and the environment; decommissioning was not planned as part of the design; the fuel has been removed; and the site will remain under institutional control for the period defined in the safety case. In a case where the end state for in situ decommissioning results in a waste disposal facility, location or site, the licensee shall satisfy all regulatory requirements for a radioactive waste disposal facility, location or site and demonstrate safety in a safety case and safety assessment of the disposal facility, location or site.*" CNL is following IAEA safety standards for the decommissioning of the facility and more importantly is also following the IAEA safety standards for waste disposal, since the facility – in its end state – would be classified as a disposal site. It is important to note that CNL is also following Canadian standards and regulatory guidance for decommissioning the NPD facility and Canadian regulations for the creation of a disposal facility.

Themes from Formal Public Comment Period on Draft EIS	Incorporation of Public Key Issues into the Final EIS
Radiological Inventory	CNL received several requests for information on the exact radiological content of the NPD facility that will be on-site for disposal. Neutron flux modeling using modern 3-dimensional codes and libraries combined with physical sampling were undertaken to ensure that the inventory of the reactor has been appropriately accounted for. CNL has also completed a full building characterization (described in the NPD Facility Characterization TSD), including all nuclear systems to verify the total radiological inventory. Since the reactor contains most of the remaining radiological inventory (the fuel was removed in 1988), the completion of this additional analysis allowed CNL to compare field sampling measurements to models to provide confidence in the radiological inventory. Section 4.4.1.1 of the EIS summarizes the radiological inventory of the facility.
Design and Engineering Details	At the time of the submission of the draft EIS, CNL had completed a preliminary design of the disposal facility. CNL now has a more detailed design of the disposal facility, including the engineered barrier and the grout. This additional information is found in Section 4.3 of the EIS, and greater detail is laid out in the Detailed Decommissioning Plan.

Through the wide range of communications strategies undertaken, the NPD Closure Project has continued to collect valuable input from stakeholders on current project information, alternative means, VCs, spatial and temporal boundaries, EA Follow-up Program and has incorporated informal and formal feedback into the EIS. The project is continually developing and strives to maintain transparency and open communication with the general public as the project moves forwards. Feedback will continue to be tracked, collected and incorporated (when possible) as a part of the engagement activities into the future.

7.3.3 Feedback on VCs

Section 5.2.4.1 of this EIS outlines the process that was followed to develop the list of VCs. The list of VCs (Section 5.2.4) was presented on informational poster boards during the June/July 2016 and October 2016 public information sessions. The informational poster boards also included CNL contact information for feedback on VCs. In the October 2016 public information sessions, a questionnaire for visitors to identify the VCs of interest to them was offered, but no visitors chose to complete the questionnaire.

In general, organically generated feedback from public information sessions indicated that there are certain areas of interest from the public that correspond to what the project has determined to be VCs so far. Specifically, there have been comments and questions, which unambiguously express value in the Ottawa River (water quality) and Land Use and Planning (indicated by concern for future land use at the NPD site) as VCs. Comments and concerns also indicate general public interest and concern about protection of the chimney swift.

The Ottawa River is represented in the EIS through representative VCs, including aquatic biota, fishing and residents use and enjoyment of land. Land use and planning and chimney swifts are both included as VCs

in the EIS. These topics are also captured in the EIS as Key Issues raised during public engagement activities. See Table 7.3-2 and Table 7.3-3 above for how feedback on these VCs was incorporated into the project.

7.4 Planned Future Engagements

The summary presented in this EIS and the Stakeholder Engagement Report TSD is based on engagement activities up to Q4 of 2023/2024.

CNL has planned engagements for 2024/2025, described by quarter, and looking ahead into the decommissioning execution phase.

CNL's priority in all engagement activities is the safety of the public and its employees. Thus, CNL will continue to ensure all stakeholder engagement activities are in alignment with applicable public health guidance and corporate policies.

This section details how CNL will continue to engage the public, including local elected officials, industry and NGOs, through a variety of mechanisms – demonstrating transparency and access to information. CNL will continue to promote all milestones and significant events through public information sessions, site visits and facility tours, meetings of the ESC and engagement with Indigenous Nations. CNL will continue to use social media to engage the public featuring key milestones and project information.

A new engagement mechanism to note, is that in 2021, CNL established the Chalk River Laboratories Community Advisory Panel (CAP). The CAP will have a direct role in affecting how CNL engages with our communities and will provide CNL and stakeholders key knowledge on how a diverse cross-section of the public feels about CNL's activities and projects. The CAP is not directly related to the NPD Closure Project but topics the CAP will be engaged in will be related to and connected to NPD. The CAP has a focus on exchanging information and ideas related to CNL's activities with the wider community and bringing new, diverse and representative voices into the dialogue between CNL and the local public.

Note that throughout this section dates and other details are provided where possible. For engagements planned for the near-term, details and dates are present, but subject to change. For engagements planned to occur farther into the future, specific dates and details of the activity are generally unavailable, to allow for flexibility in accommodation of the EA process.

Activities in future quarters will support work with Indigenous Nations, communities and organizations and public stakeholders to ensure interests and concerns are reflected in the revised EIS and addressed by the project.

CNL expects continued interest in the revised EIS from those who made comments and / or have been following the progress of the EA for the project. CNL will continue to meet with stakeholders and Indigenous Nations, communities and organizations. The focus will be on discussing how feedback has been incorporated into the EIS and how comments have been dispositioned. CNL will maintain regular communications through correspondence (including email blasts), meetings, information sessions,

webpage content, newsletters and webinars to ensure stakeholders and Indigenous Nations, communities and organizations are kept apprised of the EA progress.

Fiscal Year 2023/24 – Fourth Quarter (Q4)

Regular engagement activities such as public webinars and ad-hoc site visits will continue.

Key information updates will be shared with stakeholders through web content updates, social media and emails to stakeholders. CNL will also continue to share information in more interactive ways, such as video and infographics.

Engagements in Q4 include:

1. ESC Meeting: the NPD Closure Project will provide an update;
2. Public webinars;
3. Community Advisory Panel 3-4 update;
4. Newsletter updates (Contact and Voyageur).

Fiscal Year 2024/25 – First Quarter (Q1)

1. ESC Meeting: the NPD Closure Project will provide an update;
2. Community Advisory Panel 4-1 update;
3. Newsletter update (Contact and Voyageur);
4. Community and Municipality updates;
5. Public webinars;
6. Petawawa Showcase;
7. Chimney Swift Count Night;
8. Intervenors Meetings.

Fiscal Year 2024/25 – Second Quarter (Q2)

1. Community Advisory Panel 4-2 update;
2. Public webinars.

Fiscal Year 2024/25 – Third Quarter (Q3)

1. ESC Meeting: the NPD Closure Project will provide an update;
2. Community Advisory Panel 4-3 update;
3. Public webinars;
4. Newsletter update (Contact and Voyageur).

Hearing Preparation

In preparation of the two-part CNSC Commission Hearing that is anticipated to take place sometime in 2025, CNL will continue to engage the public through a variety of mechanisms demonstrating transparency in the process and access to information. CNL will continue to be proactive with the media and engaged stakeholders to communicate the benefits of the project and to correct errors. CNL will engage with stakeholders through public information sessions, site visits and facility tours, advertising meetings of the Environmental Stewardship Council and engagement with Indigenous Nations. CNL will continue to use social media to promote key project milestones and project information. Information shared leading up to the two-part Hearing will focus on how individuals and groups can participate and how they can learn more about the project.

Engagement activities leading up to the hearing will highlight particular aspects of importance and include:

1. ESC Meetings. At these meetings the NPD Closure Project will provide an update.
2. Breakfast briefings in Deep River for interested members of the public.
3. Community Information Sessions in Ontario and Québec.
4. Open Houses.
5. Facility Tours.
6. Public Webinars.
7. Renfrew County Municipal Council meetings – project updates.
8. MRC Pontiac Municipal Councils – project updates.
9. Stakeholder updates via email, newsletters and advertising.
10. Updated online content.

Decommissioning Execution Phase

Pending regulatory approval, the NPD Closure Project's decommissioning execution phase could be underway in 2026/27. During this period, CNL and the project will continue to update stakeholders and encourage continued feedback, for instance on noise or other nuisance impacts that may occur, so as to enable mitigation while the project progresses. CNL and the project will also continue to involve stakeholders in monitoring plans and regularly update the community on project developments.

The regular engagements that support the stakeholder relationships that CNL has worked to build with respect to the NPD Closure Project will continue. For instance, updates to the ESC, meetings with interest groups and local elected officials, as well as stakeholder emails and communicating on social media will be a key aspect to ongoing engagement.

7.5 Conclusions

Methods employed to date have helped to inform and educate stakeholders and have enabled the public to provide valuable feedback into the project. CNL will continue stakeholder engagement efforts to increase awareness and understanding of the project.

CNL makes it a priority to build public awareness, understanding and a supportive appreciation of the laboratories value and relevance to Canadians. CNL works to ensure that the general public, Indigenous Nations, communities and organizations, news media, and other stakeholders are informed about the ongoing activities at all CNL sites. While there is nuclear-related stigma/fear present in the general public, CNL continues to develop relationships and programs, as a part of the Public Information Program, to educate different demographics of the population about the perceived risk vs the actual risk of nuclear.

CNL has proactively addressed the key issues raised by stakeholders, in many cases resolving those concerns. Follow-up monitoring will be used to verify predictions made in the final EIS, which will be communicated through CNL's Public Information Program. CNL will continue with these efforts to inform the public on the NPD Closure Project.

Continuing to provide information as it becomes available will encourage transparency, and further feedback, which can assist CNL in understanding and incorporating stakeholder perspectives into project planning, future communications and the EA process.

8 DESCRIPTION OF THE EXISTING ENVIRONMENT

8.1 Baseline Characterization Approach

The description of the existing environment focuses on those aspects of the environment that may potentially change as a result of the works and activities of the project. This description of the environmental baseline characterizes the existing environment and processes, and trends within the study areas (defined in Section 5.2.1, and below). It serves as the basis for determining incremental changes and potential environmental effects associated with the project. Information presented in this section comes from a number of sources including, but not limited to, the following documents:

- Nuclear Power Demonstration Site: A Description of the Environmental Baseline for Decommissioning (Wills 2013);
- NPD Biodiversity Report (Morin and Carr 2015);
- Groundwater Quality (Killey 2014); and
- Effluent Streams Sampling Results (Audet 2016).

Since the submission of the original draft for this EIS, CNL completed further characterization of the NPD site, as well as continuation of their routine monitoring programs. This data has all been incorporated, as applicable, into this description of the existing environment. This updated data comes from a number of sources, including, but not limited to, the following documents:

- Balance of Site Characterization (McVeigh 2018b);
- Phase 2 Environmental Site Assessment (Golder 2017b);
- Baseline Conditions for Ottawa River Sediment, Benthic Community, and Fish Habitat (Bond and Carr 2021).

The seven reports listed above have been compiled in a Supplementary Documentation TSD that accompanies this EIS report.

CNL currently conducts routine environmental performance monitoring activities at the NPD site, including compliance surveys and effluent monitoring. The following are aspects of the environmental performance monitoring that are currently reported on an annual basis (i.e., ACRs) and have been used as a source of data for the local study area baseline characterization:

- effluent monitoring program consisting of annual checks against the National Pollutant Release Inventory (NPRI) and GHG reporting requirements, airborne release monitoring through tritium and gross beta analysis of the ventilation stack airborne emissions, and waterborne release monitoring of tritium and gross beta from groundwater diversion systems; and
- environmental monitoring consisting of tritium, gross beta, gross alpha and Cs-137 analysis of surface water from the Ottawa River, as well as tritium analysis of water from surface soil and vegetation.

Although NPD as a stand-alone site does not require an environmental monitoring program, Chalk River's environmental program regionally overlaps with the NPD site, so information from CRL off-site environmental monitoring can be used for the NPD site.

The description of the existing environment is presented below for each environmental compartment. Baseline data are presented, where available, for the Site, Local and Regional Study Areas defined specifically for that compartment. In general, as described in Section 5.2.1 above, the Local and Regional study areas are outside of the project footprint, and are likely to capture a larger area than where effects are expected.

For many of the environmental components, data from the Regional Study Area can be assumed to be relevant for the baseline characterization of the Site and Local Study Areas. In many instances, due to proximity, relevance and availability, data collected from monitoring near the CRL site can be used to characterize the Regional Study Area for the NPD Closure Project. As part of the CRL environmental monitoring program, CNL collects and analyzes samples in various media, within and outside of the CRL property. CRL's offsite monitoring includes measurements of external gamma, as well as radioactivity in air, surface water, sand, plants and animals. In addition, the CNSC's IEMP for the CRL site includes offsite locations, as presented in CNSC (2018b). Information from the Environmental Risk Assessment at CRL (CNL 2019b) is also used.

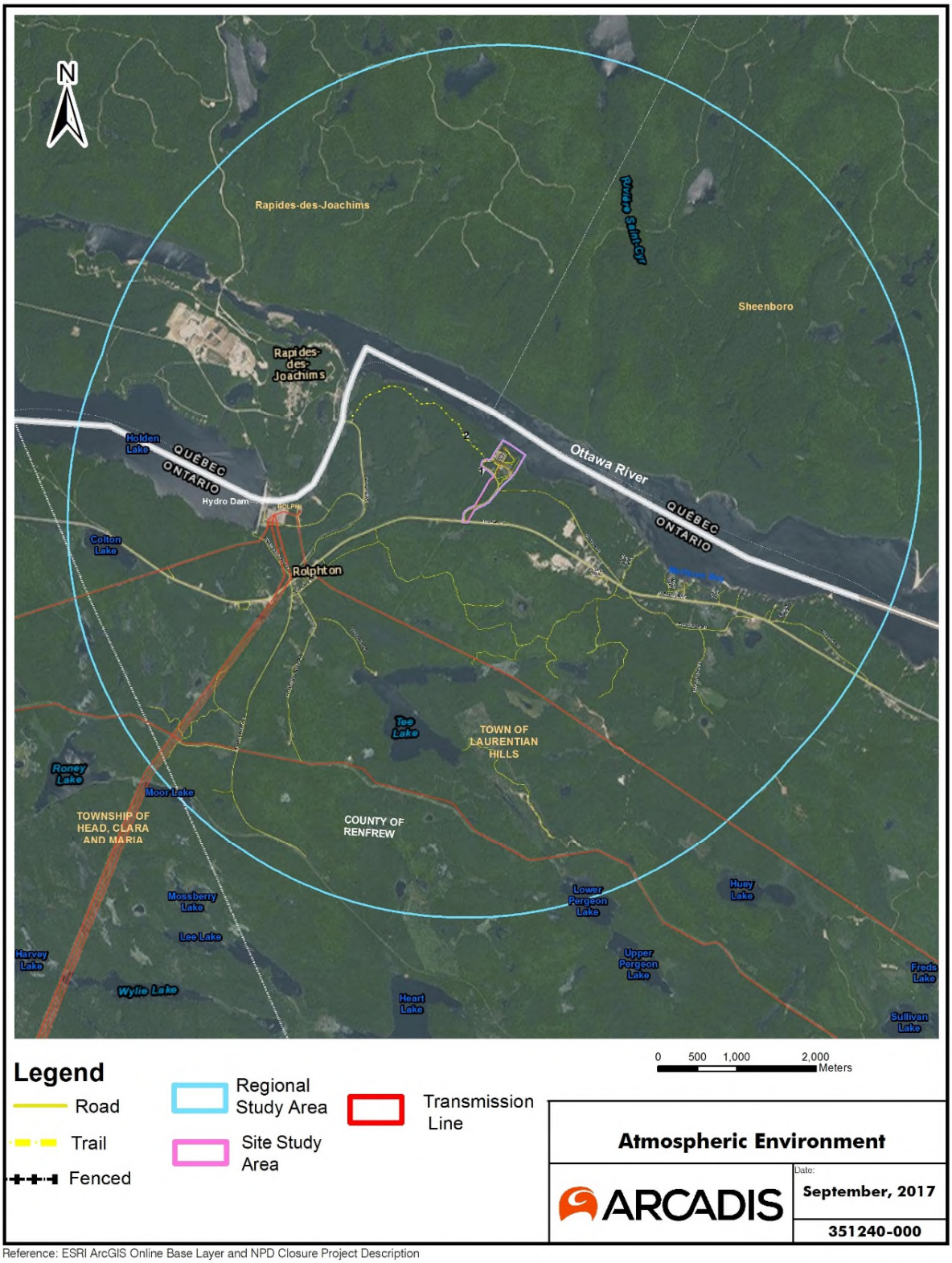
8.2 Atmospheric Environment

8.2.1 Spatial Boundaries

The Site and Local Study Areas for the Atmospheric Environment consist of the atmosphere delineated in the general Site and Local Study areas, shown in Figure 5.2-1 and Figure 5.2-2 respectively.

Although the atmospheric effects of the project are not expected to extend beyond the Local Study Area, a Regional Study Area that extends 5 km beyond the Site Study Area has been defined, and is shown in Figure 8.2-1 below. There is limited air quality data available for the Regional Study Area surrounding the NPD site. Where data was not available for the Regional Study Area, data were supplemented from locations outside of the Regional Study Area. For example, some data are available for the CRL facility and areas between the CRL and NPD sites, as well as North Bay and Ottawa.

Figure 8.2-1 Atmospheric Environment Regional Study Area



Reference: ESRI ArcGIS Online Base Layer and NPD Closure Project Description

8.2.2 Climatic Data

Climate and meteorological conditions are the main forces of contaminant dispersion, transformation and eventual removal from the atmosphere. The near-surface temperature controls the reaction rates of contaminants. Precipitation plays a role in emissions of contaminants from the ground and their removal from the air. Contaminant concentrations decrease with increasing wind speed as a result of dilution. When wind speeds are near zero, local circulations can lead to higher pollutant concentrations near the ground.

Climate is typically defined as the weather patterns over many years. Typically, this is defined by the climate "normal" for the area. Climate normal (or climate averages) are arithmetic calculations based on observed climate values for a given location over a specific time period (typically 30 years), to describe the climatic characteristics of that locations. These 30-year data sets are compiled every 10 years, therefore the 1981-2010 data sets cited here are the most recent sets available.

The meteorological conditions define the wind, temperature and precipitation patterns that can be used to represent the conditions at the site. These are the atmospheric parameters considered most relevant to the NPD Closure Project (i.e., with respect to contaminant reaction and dispersion) and are therefore presented in detail below. Due to the subterranean nature of the project, parameters such as atmospheric pressure, solar radiation, and fog are not considered relevant. However, climate normal for atmospheric pressure and solar radiation are available and are therefore summarized briefly below. Humidity and fog concerns related to the project are expected to be limited to worker health and safety (e.g., from heat stress caused by humidity), which is discussed in Section 9.8, Human Health Effects. Lightning is discussed in Section 8.12 (Natural Disasters Baseline), along with tornadoes and floods. Topography is important in the NPD area, as the terrain is not flat. In order to take this into account, site elevation data are included in the input data to the air dispersion modelling (presented in the Appendix F of the DecomSA TSD).

The meteorological climate stations used in this assessment are located at various locations on the CRL Site. These stations are considered to be the most representative of conditions at NPD, due to proximity and similarity in geographic siting.

In the absence of site-specific information, meteorological data from the CRL climate station are considered appropriate to describe the climate conditions at the NPD site. The CRL station, located approximately 25 km south-east from the NPD site, in similar geographic settings, is the closest station to the NPD site with climate and meteorological data available. Overall, the CRL climate data are considered to be an adequate representation of the climate in the Site, Local and Regional Study Areas for the following reasons: these sites are rural, close to the Ottawa River, share a similar topography and are at a similar latitude. Also, the use of climate data from the CRL station enables several decades' worth of climate data to be used for air modelling. Although there is some uncertainty involved with using this data, the uncertainty is deemed to be very minor.

Meteorological data collected at CRL over the 5-year period from 2011 to 2015, were used to describe the existing meteorological conditions in the Site, Local and Regional Study Areas. In addition, the 2011 to 2015 data were compared to the 1981 to 2010 climate data from the same station, further supporting the validity of the data used.

The climate in the region is classified as humid continental, with warm summers, cold winters, and no distinct dry season (CNL 2019b). Wills (2013) describes the NPD site as having a 'warm microclimate'. The meteorology and climate in the Site, Local and Regional Study Areas are considered to be similar to the conditions prevailing at CRL (Wills 2013).

8.2.2.1 Temperature and Temperature Inversions

The temperature at the Site, Local and Regional Study Areas is considered to be similar to the conditions prevailing at CRL (Wills 2013). Temperature data from the CRL site have been summarized for the 2011 to 2015 period and is presented in Table 8.2-1. The daily temperature ranges from a high of 20.2°C in July to a low of -12.0°C in January, with the average annual temperature of 5.6°C. The daily maximum temperature ranges from a high of 27.2°C in July to -6.3°C in January, with extreme maximum temperature of 36.0°C in July. The daily minimum temperature is lowest in January (-19.0°C) and highest in July, 13.4°C, with extremes of -36.3°C in January.

The long-term temperature data (i.e., climate normals) at CRL, provided by ECCC for the period 1981 to 2010, are summarized in Table 8.2-2. The mean annual temperatures (i.e. mean, mean maximum and mean minimum temperature) from the most recent 5-year period shown in Table 8.2-1 are very similar to the temperature climate normals presented in Table 8.2-2. The mean daily temperatures are below 0°C from December through March. The coldest month is January, with mean daily temperature in the vicinity of -12.0°C. The warmest month is July, with mean daily temperature of 20.3°C. The long-term monthly temperature trends from the climate normal data are closely tracked by monthly temperature trends for the period 2011 to 2015, as shown on Figure 8.2-2. As seen in Figure 8.2-2, the similarity in seasonal temperature patterns indicates that the most recent 5-year temperature data is representative of the long-term climatic temperatures in the region.

Table 8.2-1 Temperature Normals, Station 'Chalk River AECL', Ontario, 2011 to 2015 (Source: Leeson 2016)

Temperature	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Mean Temperature (°C)	-12.0	-10.3	-3.1	4.5	13.9	17.5	20.0	18.5	14.5	8.0	0.7	-5.5	5.6
Mean Daily Maximum Temperature (°C)	-6.3	-4.6	2.7	10.5	20.8	24.0	27.2	25.1	20.8	13.0	5.2	-1.9	11.5
Mean Daily Minimum Temperature (°C)	-19.0	-17.2	-9.9	-1.4	6.9	11.2	13.4	12.8	9.1	3.3	-3.9	-9.7	-0.3
Extreme Maximum Temperature (°C)	6.9	11.4	26.3	25.3	34.0	35.5	**36.0**	33.9	30.9	29.3	18.3	14.7	36.0
Extreme Minimum Temperature (°C)	**-36.3**	-33.9	-31.7	-13.4	-4.6	2.7	6.0	6.2	-2.2	-7.2	-18.3	-31.9	-36.3

Note:

Bolded, grey background values represent the extreme temperature conditions.

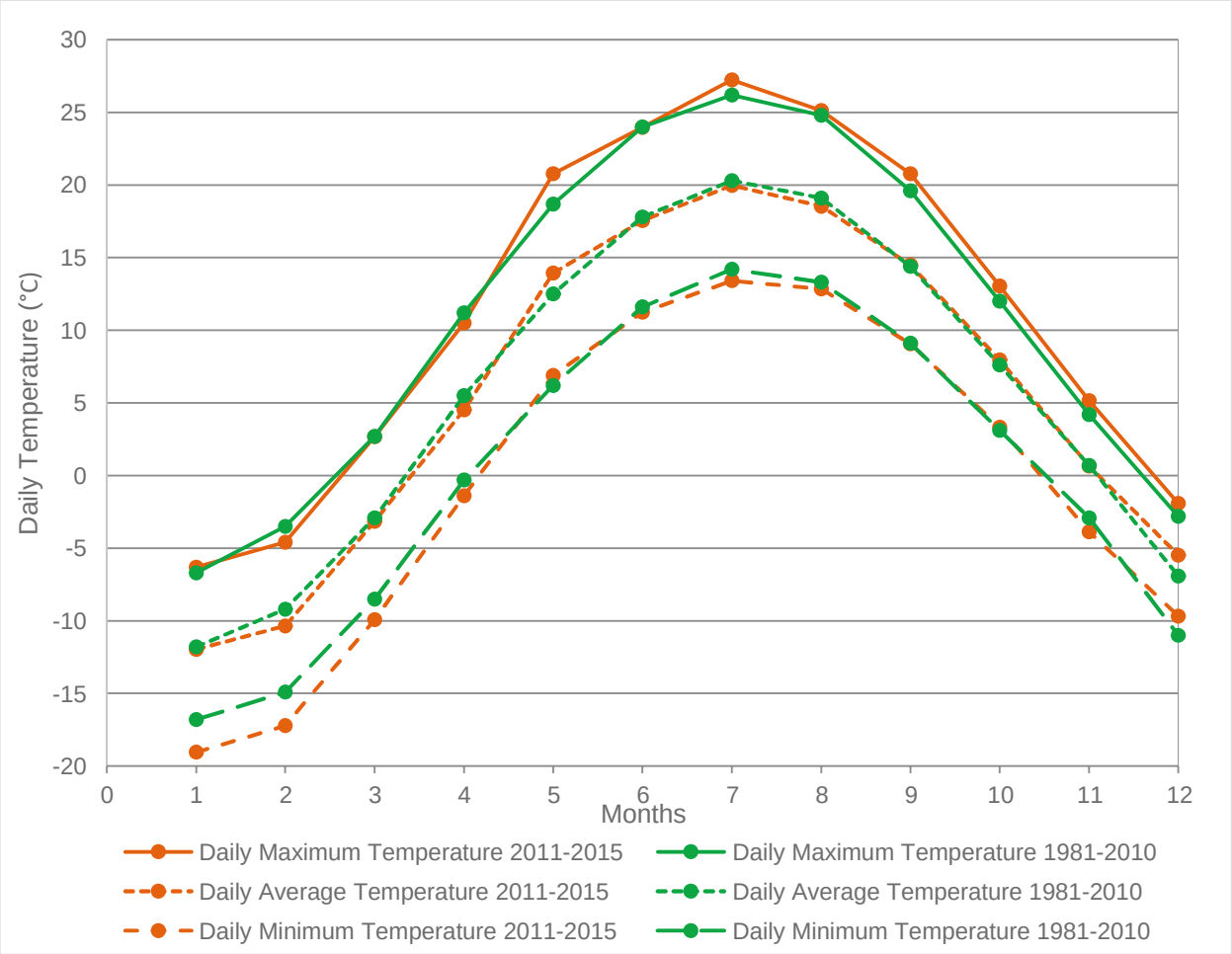
Table 8.2-2 Temperature Climate Normals, Station 'Chalk River AECL', Ontario, 1981 to 2010 (Source: Government of Canada 2016a)

Temperature	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Mean Temperature (°C)	-11.8	-9.2	-2.9	5.5	12.5	17.8	20.3	19.1	14.4	7.6	0.7	-6.9	5.6
Mean Daily Maximum Temperature (°C)	-6.7	-3.5	2.7	11.2	18.7	24.0	26.2	24.8	19.6	12.0	4.2	-2.8	10.9
Mean Daily Minimum Temperature (°C)	-16.8	-14.9	-8.5	-0.3	6.2	11.6	14.2	13.3	9.1	3.1	-2.9	-11.0	0.3
Extreme Maximum Temperature (°C)	11.1	15.0	23.9	31.7	34.0	36.0	**39.4**	37.2	34.5	29.5	22.2	14.5	39.4
Extreme Minimum Temperature (°C)	**-39.0**	-35.6	-32.0	-19.4	-8.9	-1.7	3.3	-3.0	-2.0	-9.0	-21.0	-38.0	-39.0

Note:

Bolded values represent the extreme temperature conditions.

Figure 8.2-2 Daily Mean, Daily Maximum and Daily Minimum Temperature, Station 'Chalk River AECL', 2011 to 2015 and 1981-2010



Temperature inversions are explained and discussed in the following paragraphs. The air dispersion modelling carried out for this project uses the above atmospheric temperature data as inputs; therefore, temperature inversions, if they have occurred, have been captured in the temperature data set. Details of the air dispersion modelling work are presented in the Appendix C of the DecomSA TSD.

Under normal conditions, the temperature of the air in the atmosphere decreases with height. This is because most of the sun's energy is converted to sensible heat at the ground, which in turn warms the air at the surface. The warm air rises in the atmosphere, where it expands and cools. Sometimes, however, the temperature of air actually increases with height in a layer of the atmosphere; this is temperature inversion. The most common manner in which surface inversions form is through the cooling of the air near the ground at night. In this situation, the ground becomes cooled quickly while the air above it retains the heat the ground was holding during the day. Conditions that favor the development of a strong surface inversion are calm winds, clear skies, and long nights. During daylight hours, surface inversions normally

weaken and disappear as the sun warms the earth's surface. However, under certain meteorological conditions, such as high pressure over the area, these inversions can persist as long as several days. Topography can also play a role in creating a temperature inversion, since it can sometimes cause cold air to flow from mountain peaks down into valleys. This cold air then pushes under the warmer air rising from the valley, creating the inversion. In addition, inversions can also form in areas with significant snow cover, because the snow at ground level is cold and its white color reflects almost all heat coming in. Thus, the air above the snow is often warmer because it holds the reflected energy.

Surface temperature inversions play a major role in air quality, especially during the winter when these inversions are the strongest. The warm air above cooler air acts like a lid, suppressing vertical mixing and trapping the cooler air at the surface. When there is a negative lapse rate (i.e., temperature increasing with height), the atmosphere is strongly statically stable, and so vertical dispersion of pollution is inhibited. Consequently, inversions are usually considered to represent adverse meteorological conditions for pollution dispersion.

The air dispersion modeling in this assessment, presented in an Appendix C of the DecomSA TSD, was carried out using the AERMOD model. AERMET is a meteorological data preprocessor and creates two files: a surface data file and a profile data as input to AERMOD. AERMET requires wind, temperature, cloud cover, an early morning upper air sounding and information on surface roughness, albedo, and Bowen ratio. These data are used in a surface energy balance to estimate the sensible heat flux. The surface shear stress exerted by the wind speed is estimated based on the sensible heat flux. The sensible heat flux as a function of time is then used to compute the mixed layer height during the course of the day. The upper level temperature sounding provides the temperature gradient above the mixed layer, which controls the rate of growth of the mixed layer. The nighttime boundary layer is governed by the computed surface shear stress. The surface parameters, sensible heat flux and surface shear stress, and the boundary layer height are used in boundary layer models to construct the profiles of wind, temperature, and turbulent velocities required by AERMOD.

The meteorological data used for the air dispersion modelling was the AERMOD regional data for Ottawa (applicable for the Eastern region), prepared by MOECC, with forest type of land use, for the 5-year period from 1996 to 2000. Surface data (wind speed and direction, air temperature, ceiling, total opacity and total cloud amount) was taken from the Ottawa airport (approximately 180 km SE from the NPD site). Upper air data was taken from the Maniwaki upper air station (approximately 134 km E from the NPD site). For each hour, the model computes the state of the atmosphere, partly based on the heat flux calculated at the surface. This defines the stability of the boundary layer and the occasions of temperature inversion. Therefore, the effect of temperature inversions is fully incorporated in the dispersion modeling used for the assessment.

8.2.2.2 Precipitation

Precipitation at the Site, Local and Regional Study Areas is considered to be similar to the conditions prevailing at CRL (Wills 2013). Precipitation data at CRL for the period 2011 to 2015 were available as total precipitation (i.e. including both rain and snowfall). Table 8.2-3 presents a summary of precipitation data from the Chalk River AECL station for the 2011 to 2015 period. Precipitation is fairly consistent

throughout the year with slightly more precipitation in the second half of the year. The average annual precipitation measured in this 5-year period was 779 mm. The highest mean monthly precipitation was in October (96.9 mm) and the driest month was February (24.7 mm). Figure 8.2-3 shows the annual total precipitation distribution at CNL in the period 2011 to 2015.

Table 8.2-4 summarizes the 30-year precipitation normals for 1981 to 2010 from the same station provided by ECCC. The monthly average is the average amount of precipitation in the identified month over the course of the entire 30-year period. The daily maximum is the single day within the entire period of record for the given month in which the maximum amount of precipitation was measured. The average annual precipitation measured within the 30-year period was 859 mm, with approximately 79% of the total annual precipitation falling as rain. The highest mean monthly rainfall was in September (89.4 mm), while the greatest rainfall in a 24-hour period occurred on August 2, 1965 (71.1 mm). The greatest snowfall in a 24-hour period occurred on March 17, 1973 (40.1 cm). Snowfall has occurred in every month except from June to August. The total number of days with measurable precipitation was 165.

The comparison of the 5-year total precipitation data shown in Table 8.2-3 with the climate normal of total precipitation for 1981 to 2010 (Table 8.2-4) shows somewhat lesser precipitation through the recent years except in April, June, August, and October. This variability between the two precipitation data sets is expected given that the climate normals are based on a 30-year period, while the most recent data set covers only five years that are not included in the existing climate normals.

Table 8.2-3 Precipitation Normals, Station 'Chalk River AECL', Ontario, 2011 to 2015 (Source: Leeson (2016))

Precipitation	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Average Monthly Precipitation (mm)	45.1	24.7	40.2	69.2	68.9	91.7	67.2	95.3	75.1	96.9	49.0	56.3	779.4

Table 8.2-4 Precipitation Normals, Station 'Chalk River AECL', Ontario, 1981 to 2010 (Source: Government of Canada 2016a)

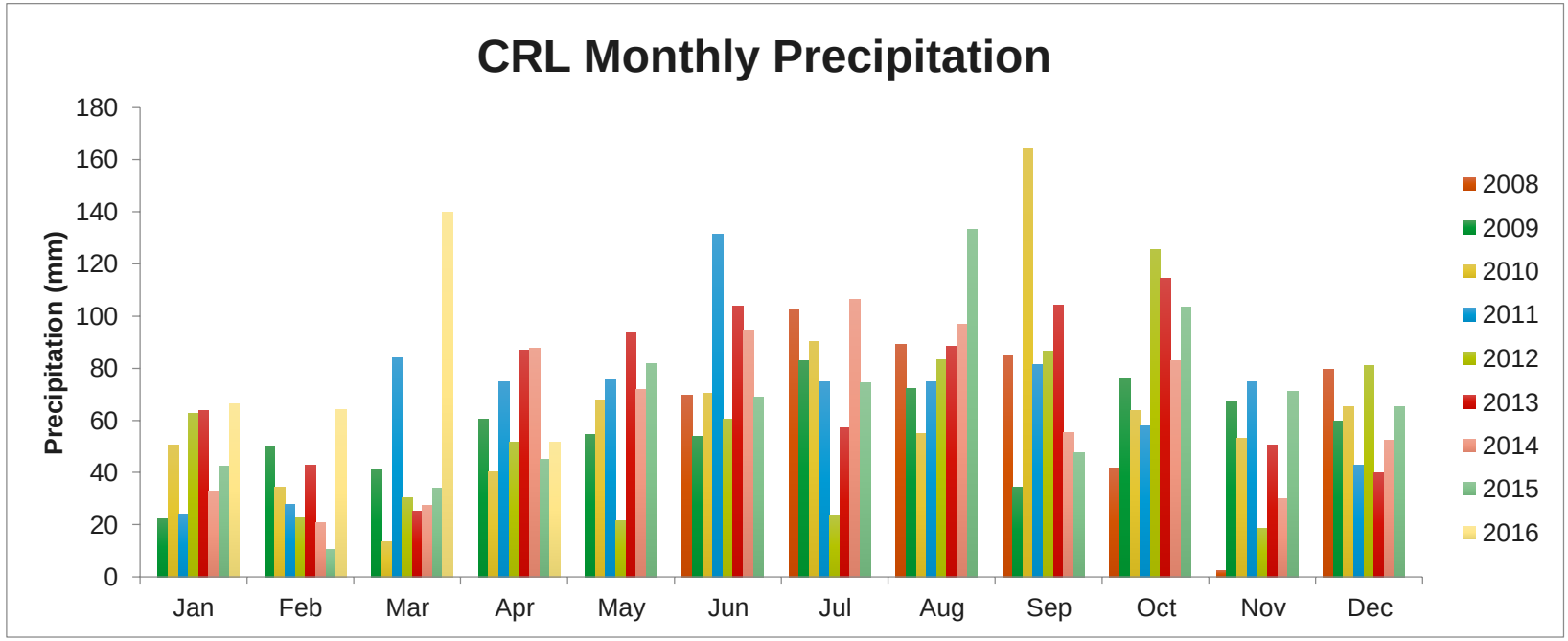
Precipitation	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Average Monthly Rainfall (mm)	14.9	9.8	29.1	50.1	85.0	86.8	84.8	80.7	89.4	79.8	53.0	18.9	682.2
Average Monthly Snowfall (cm)	42.3	34.2	28.1	9.4	1.7	0.0	0.0	0.0	0.0	3.6	22.7	40.1	182.0
Average Monthly Precipitation (mm)	55.2	43.7	56.8	59.3	86.7	86.8	84.8	80.7	89.4	83.4	75.3	57.3	859.3
Extreme Daily Rainfall (mm)	27.8	25.8	36.1	36.5	58.7	70.2	68.6	**71.1**	65.2	43.8	38.6	22.6	71.1
Extreme Daily Snowfall (cm)	28.5	35.9	**40.1**	26.0	13.0	0.0	0.0	0.0	0.3	16.0	31.4	28.0	40.1
Extreme Daily Precipitation (mm)	28.5	35.9	49.0	36.5	58.7	70.2	68.6	**71.1**	65.2	43.8	41.1	29.0	71.1
Extreme Snow Depth (cm)	55.0	64.0	**68.0**	30.0	1.0	0.0	0.0	0.0	0.0	0.0	18.0	43.0	68.0
Number of days with measurable precipitation*	15.5	11.8	11.3	11.7	13.6	13.7	13.9	12.9	14.4	15.0	15.8	15.8	165.3

Note:

Bolded, grey background values represent the extreme precipitation conditions.

Source: Climatic data files from Environment and Climate Change Canada (http://climate.weatheroffice.ec.gc.ca/climate_normals/).

Figure 8.2-3 Monthly Precipitation for 2008 to 2016 at CRL (Source: Leeson 2016)

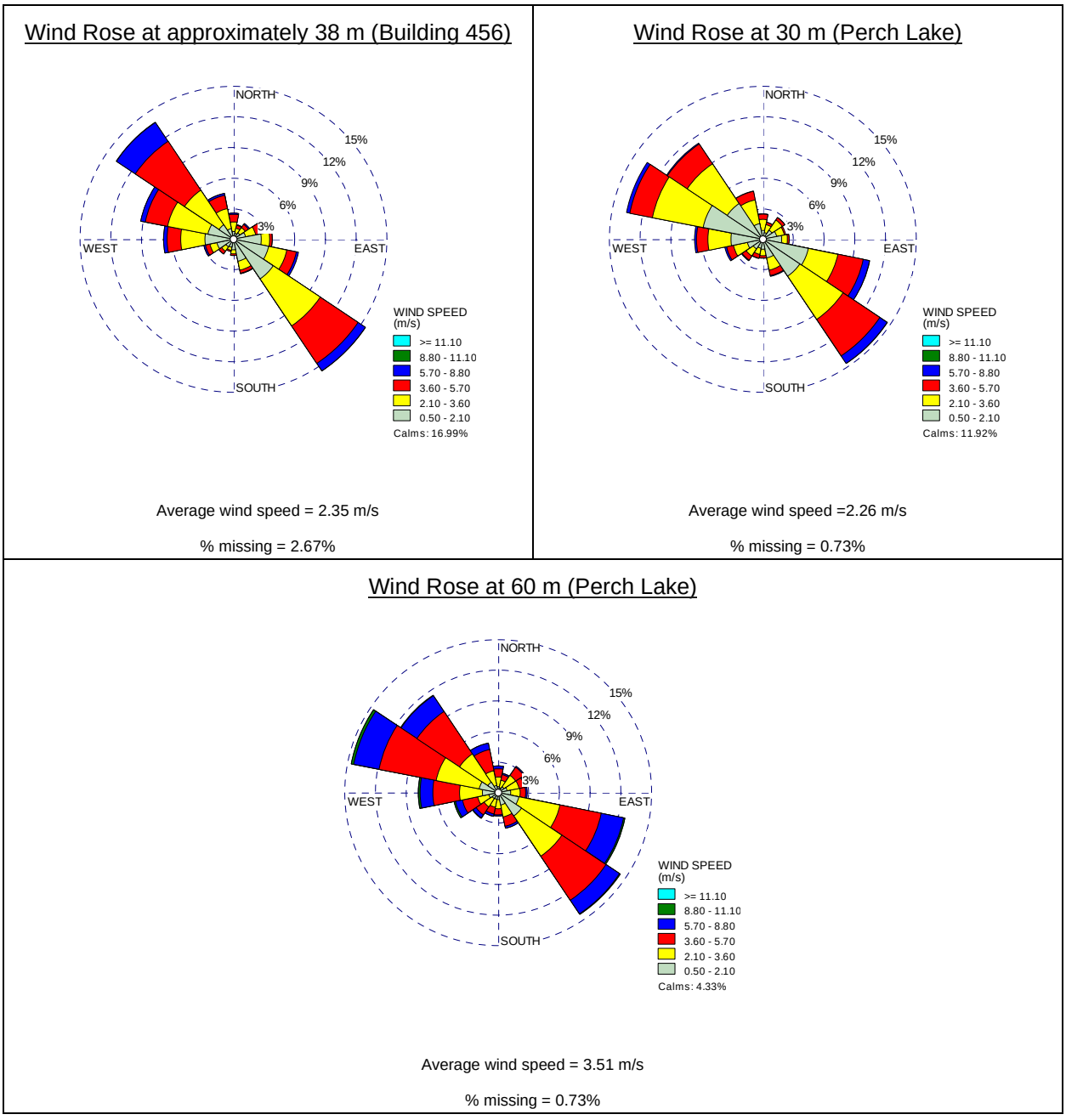


8.2.2.3 Wind

Wind direction is reported as the direction from which the wind blows. The direction and speed of the wind will dictate the direction and distance from the source that a pollutant may travel to. The wind conditions at NPD are considered to be similar to those prevailing at CRL, i.e., moving predominantly along the river valley.

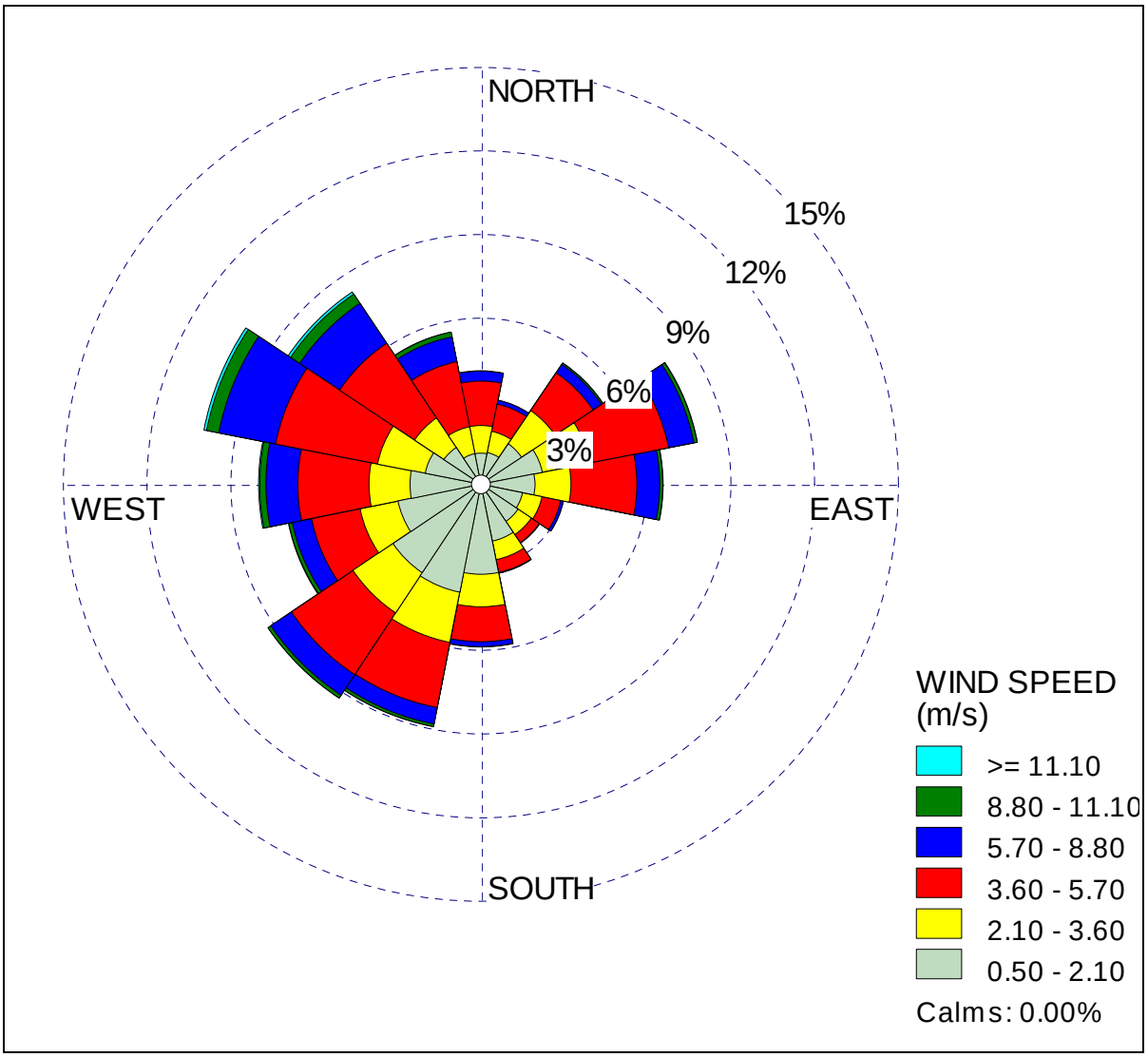
At CRL, wind speed and wind direction are measured at the top of an office building in the CRL main campus (approximately 40 m height), and at 30 m and 60 m height at Perch Lake. Figure 8.2-4 presents the frequency distribution of hourly surface wind speed and direction at three different heights in the period from 2011 to 2015, in the form of a wind rose (a graphical representation of the frequency of winds from each direction). The average wind speed measured at Building 456 was 2.35 m/s, and calms were reported approximately 17% of the time. The prevailing winds were southeasterly (15.5% of the time) and northwesterly (13.8% of the time), parallel to the Ottawa River Valley. The average measured wind speed at the 30 m height was approximately 2.26 m/s, while calms were reported 11% of the time, and the wind direction was primarily from the southeast and the west-northwest, at 14.6% and 13.5% of the time, respectively. The prevailing wind directions at the 60 m level were from the west-northwest and southeast, occurring 15.4% and 14.3% of the time, respectively. The average wind speed was 3.5 m/s. Calm wind conditions were observed to occur 4% of the time.

Figure 8.2-4 Wind Rose Plots, Station 'Chalk River AECL', 2011 to 2015 (Source: Based on data from Leeson 2016)



The meteorological data set in the DecomSA TSD Atmospheric Dispersion Modelling used regional meteorological data for Ottawa (applicable for the Eastern region), prepared by the MOECC, for forested land use, for the year 2000. Surface data (wind speed and direction, air temperature, ceiling, total opacity and total cloud amount) for the Ottawa airport were used. Upper air data from the Maniwaki upper air station was used. Figure 8.2-5 shows wind rose plot of the Ottawa airport surface data for the period 1996 to 2000. The dominant wind direction is west-northwest (WNW) followed by southwest (SW). The average wind speed is 3.23 m/s.

Figure 8.2-5 Wind Rose Plot – Ottawa Airport (1996-2000)



In addition, select meteorological data were provided by CNL from the CRL site for the period 2009 to 2015. These data consist of wind speed and wind direction measured at the top of the B456 tower; wind speed and direction and temperature at 30 m and 60 m height at the Perch Lake tower; and ground temperature at Perch Lake (i.e., 50 m away from the Perch Lake tower). Since AERMOD requires surface measurements of ceiling and cloud cover in addition to wind speed and direction and ambient temperature, the CNL data set was combined with the Ottawa meteorological data to be used in air dispersion modelling. Wind and temperature data from Ottawa was replaced with CNL wind and temperature and used in AERMOD and CALPUFF to model the air dispersion of air effluent released from the NPDWF during normal operations.

Modelling was undertaken in the Universal Transverse Mercator (UTM) coordinate system. The coordinate system used for mapping was World Geodetic System (WGS84), Zone 18. A tiered grid was used for receptor placement, which ranged from 20 m to 500 m (based on recommendations provided by MOECC). In addition to the MOECC grid, discrete sensitive receptors – including residential and recreational locations in vicinity of the NPDWF, as well as the airborne human receptors from the NPD DRL Report (Chouhan & Scheier 2011) – were also included.

8.2.2.4 Solar Radiation, Bright Sunshine and Cloud Cover

Solar radiation is the measurement of radiant energy from the sun, on a horizontal surface. Bright sunshine is presented by number of tenths of hours of sunshine that are counted using the Campbell-Stokes sunshine recorder. It should be noted that the amount of “bright sunshine” is less than the amount of “visible sunshine” because the sun’s rays are not intense enough to record, especially just after sunrise and towards sunset (Government of Canada 2016b).

Climate normal on bright sunshine and cloud cover are not available at or near the CRL or NPD sites. Table 8.2-5 and Table 8.2-6 indicate the average monthly sunshine and cloud cover normal for Ottawa, respectively. Climate normal on bright sunshine at Petawawa are not available. Table 8.2-7 presents the average monthly cloud amount (hours with) climate normal for Petawawa. The hours of bright sunshine increase in July at Ottawa to a maximum of 279 hours due to the increased daylight hours. December has the least amount of bright sunshine because of the increased amount of cloud cover and fewer daylight hours. The average number of total hours with cloud cover (8 to 10 tenths) was 4708 in Ottawa for the period 1981 to 2010, and similarly, 4767 hours in Petawawa in the period 1971 to 2000.

Table 8.2-5 Ottawa Climate Normals 1981 to 2010 – Bright Sunshine (Source: Government of Canada 2016a)

Bright Sunshine	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Total Hours	99.3	131.3	167.1	189.8	229.8	254.2	279.0	249.3	177.6	139.4	84.3	82.6	2083.7
Days with measurable	21.3	22.2	25.1	25.6	27.8	28.3	30.1	29.9	26.8	25.9	20.7	19.8	303.6
% of possible daylight hours	35.0	44.9	45.3	46.9	49.9	54.3	58.9	57.1	47.1	41.0	29.4	30.3	45.0
Extreme Daily	9.1	10.4	11.6	13.5	14.9	15.2	15.1	14.3	12.7	10.6	9.6	8.3	
Date (yyyy/dd)	1959/ 31	1968/ 26	1987/ 24	1952/ 30	1997/ 27	1979/ 25	1999/ 12	2000/ 04	1963/ 04	1976/ 01	1985/ 01	1952/ 18	

Table 8.2-6 Ottawa Climate Normals 1981 to 2010 – Cloud Amount (Source: Government of Canada 2016a)

Cloud Amount (hours with)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
0 to 2 tenths	189.0	199.2	235.4	179.7	185.0	178.1	201.5	211.6	223.4	193.9	138.3	156.9	2291.9
3 to 7 tenths	96.8	102.7	119.0	128.0	167.0	195.1	228.1	214.1	168.2	139.1	108.2	99.2	1765.6
8 to 10 tenths	458.3	375.7	389.6	412.3	392.0	346.8	314.5	318.3	328.4	411.0	473.5	488.0	4708.1

Table 8.2-7 Petawawa Climate Normals 1971 to 2000 – Cloud Amount (Source: Government of Canada 2016a)

Cloud Amount (hours with)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
0 to 2 tenths	182.7	192.3	214	193.1	185.9	167.8	194.7	198.9	170	161.7	113.6	153.7	2128.3
3 to 7 tenths	115.6	118.8	121.6	140.7	176.9	204.3	240.2	209.3	178	148.4	110.9	105.6	1870.2
8 to 10 tenths	445.8	366.6	408.5	386.3	381.2	347.9	309.1	335.8	372	433.9	495.6	484.8	4767.3

8.2.2.5 Atmospheric Pressure

Atmospheric pressure is the force per unit area exerted by the atmosphere as a consequence of the mass of air in a vertical column from the elevation of the observing station to the top of the atmosphere. Station pressure is the atmospheric pressure in kilopascals (kPa) at the station elevation (Government of Canada 2016b).

Climate normal on atmospheric pressure data are not available at or near the CRL or NPD sites. The monthly pressure normal for Ottawa and Petawawa are presented in the following tables. The data presented in Table 8.2-8 and Table 8.2-9 are considered to be representative of the existing environment on the NPD site and show a very small variation in monthly averages of both station pressure and sea level pressure.

Table 8.2-8 Ottawa Climate Normals 1981 to 2010 – Atmospheric Pressure (Source: Government of Canada 2016a)

Atmospheric Pressure	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average Station Pressure (kPa)	100.2	100.3	100.2	100.0	100.1	99.9	100.0	100.2	100.3	100.3	100.3	100.3	100.2
Average Sea Level Pressure (kPa)	101.7	101.7	101.7	101.4	101.4	101.3	101.4	101.6	101.7	101.7	101.7	101.7	101.6

Table 8.2-9 Petawawa Climate Normals 1971 to 2000 – Atmospheric Pressure (Source: Government of Canada 2016a)

Atmospheric Pressure	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average Station Pressure (kPa)	100.0	100.1	100.0	99.8	99.8	99.7	99.8	100.0	100.0	100.1	100.0	100.1	99.9
Average Sea Level Pressure (kPa)	101.7	101.8	101.6	101.5	101.4	101.3	101.4	101.6	101.7	101.8	101.6	101.7	101.6

8.2.3 Air Releases

After more than 30 years of decay, the main contaminant source term for the air effluent released from the ventilation stack is airborne re-suspension of residual radioactive contamination on facility systems (e.g. heat transport and moderator, both of which are drained): Co-60, Fe-55, C-14, Ni-63, Cs-137, and tritium.

Tritium is the predominant contaminant present in the source term, representing >97% of total radioactive airborne emissions with a dose rate impact to the public of ~1E-05 mSv/a, which is well below the public dose limit of 1 mSv/y.

In 2016, the NPD Effluent Verification Monitoring Program was updated to comply with CSA Standard N288.5, Effluent Monitoring Programs at Nuclear Facilities. The air emissions from the ventilation stack were evaluated as part of the development of the updated monitoring plan (De Waele, 2016). The most recent update to the plan occurred in 2022 (CNL 2022b).

This document determined that the parameters that required monitoring for the ventilation stack are fan run time, tritium, as well as Gross Beta particulates (which would monitor the beta emitters Co-60, Fe-55, Ni-63 and Cs-137), with samples collected on a continuous basis when the exhaust fan is operating, and all parameters analyzed on a monthly basis. Carbon-14 was monitored until 2015, after which it was determined that C-14 did not require monitoring because it is not a significant source term; it is also a very localized source term and an insignificant contributor to dose under normal conditions.

Radiological

Airborne radioactive releases have been monitored by CNL (formerly AECL) since taking ownership of the NPD site. According to the NPD Baseline Report (Wills 2013), the radioactive airborne releases from the NPDWF have been monitored by measuring gross beta, C-14 and tritium at the source. Since 2016, radioactive airborne releases have been monitored by measuring gross beta and tritium radioactivity. The data associated with the monitoring of the ventilation stack radioactive releases from 1997 to 2021 are reported in Table 8.2-10.

Table 8.2-10 Specific Values of Total Airborne Releases from the Ventilation Stack

Year	C-14(Bq)	Gross Beta (Bq)	Tritium (Bq)	Total Hours of Ventilation (hours)	Reference
1997	NA	1.2×10^{4}	7.2×10^{10}	NA	(Wills 2013)
1998	NA	4.7×10^{3}	1.30×10^{11}	NA	(Wills 2013)
1999	NA	5.8×10^{3}	1.30×10^{11}	NA	(Wills 2013)
2000	NA	4.4×10^{3}	3×10^{9}	NA	(Wills 2013)
2001	NA	$<2.60 \times 10^{4}$	7.6×10^{10}	NA	(Wills 2013)
2002	NA	$<1.40 \times 10^{4}$	4.8×10^{10}	NA	(Wills 2013)
2003	NA	$<3.00 \times 10^{4}$	1.00×10^{11}	NA	(Wills 2013)
2004	7.3×10^{7}	$<1.49 \times 10^{4}$* / 2.25×10^{5}**	4.1×10^{10}	27.3	(Wills 2013)
2005	1.9×10^{8}	2.40×10^{5}	3.2×10^{10}	44.4	(Wills 2013)
2006	1.32×10^{8}	3.00×10^{5}	3.5×10^{10}	26.1	(Wills 2013)
2007	1.63×10^{7}	2.6×10^{4}	6.9×10^{10}	45	(Wills 2013)
2008	5.00×10^{7}	2.83×10^{4}	1.21×10^{11}	99.5	(Verney 2009)
2009	2.78×10^{7}	4.22×10^{4}	1.70×10^{11}	70.4	(Primeau 2016)
2010	1.56×10^{7}	1.89×10^{5}	1.00×10^{11}	36	(Primeau 2016)
2011	1.10×10^{7}	2.19×10^{4}	6.36×10^{10}	92.5	(Primeau 2016)
2012	1.82×10^{6}	1.56×10^{4}	5.07×10^{10}	95.6	(Primeau 2016)
2013	8.69×10^{7}	6.63×10^{4}	6.68×10^{10}	117	(Primeau 2016)
2014	5.29×10^{8}	5.27×10^{4}	2.63×10^{11}	994	(Primeau 2016)
2015	6.79×10^{8}	4.81×10^{4}	2.15×10^{11}	1,191	(Primeau 2016)
2016	Not measured	$<4.30 \times 10^{34}$	2.53×10^{11} [1]	742.9	(Primeau 2017)
2017	Not measured	1.84×10^{5} [1] [3]	1.84×10^{12} [2]	319.3	(Athauda-Arachchige 2018)
2018	Not measured	4.23×10^{4}	3.08×10^{11}	270.7	(Luiz 2019)
2019	Not measured	4.21×10^{4}	1.59×10^{11}	Not Reported	(Johnson 2022b)
2020	Not measured	4.43×10^{4}	3.65×10^{11}	Not Reported	(Johnson 2022b)
2021	Not measured	3.85×10^{4}	1.50×10^{11}	338.7	(Johnson 2022b)

Notes:

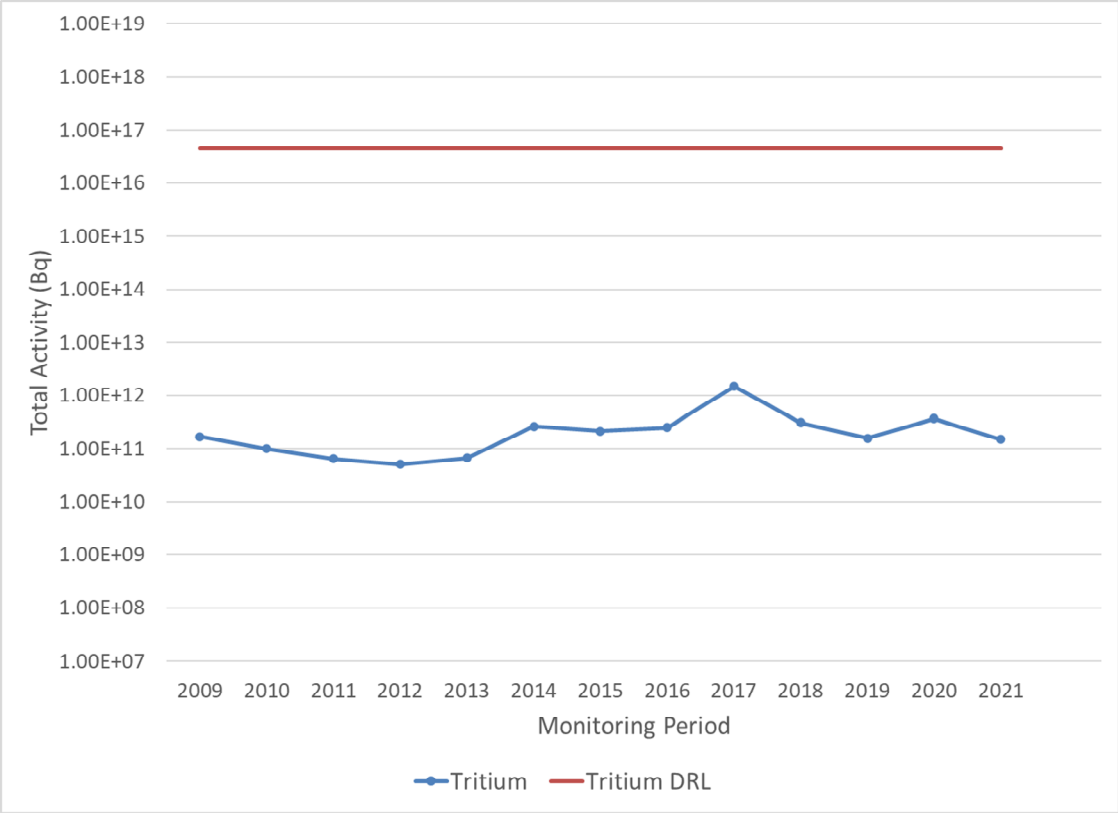
[1] Samples from the January sub-period were compromised due to operator error and an average of all other monthly analysis results was used for the January data point.
[2] Includes releases estimated from boiler room asbestos abatement as well as the ventilation stack.
[3] Based on two months data, for all other months tritium was not detectable.
* Gross beta determined using Microspec–1 using Sr-90/Y-90 as a standard (November 2003 – June 2004).
** Gross beta determined using Canberra Packard Gross Alpha/Beta counter with Co-60 as a standard (June 2004 - November 2004).
NA Not available (i.e., not monitored)

According to the 2015 ACR for the NPD (Primeau 2016), the HEPA-filtered ventilation system was operated for a total of 1,191 hours in 2015, which is higher than in previous years. The extended run times for the ventilation system in 2015 were due to the increase of work within the Nuclear Area of NPDWF in 2015 (e.g., activities to support asbestos abatement). As discussed in Johnson (2022b), the minor increase in tritium and gross beta releases in 2017 are due to a six-month long asbestos removal activity in the NPD facility. The ventilation stack was shut off for this activity and air was filtered through temporary HEPA filters. Tritium releases were conservatively estimated and gross beta releases were based on measurements

obtained directly on the HEPA filters, without crediting the HEPA filter efficiency of 99.97% removal of particulate, resulting in the apparent increase in tritium and gross beta releases.

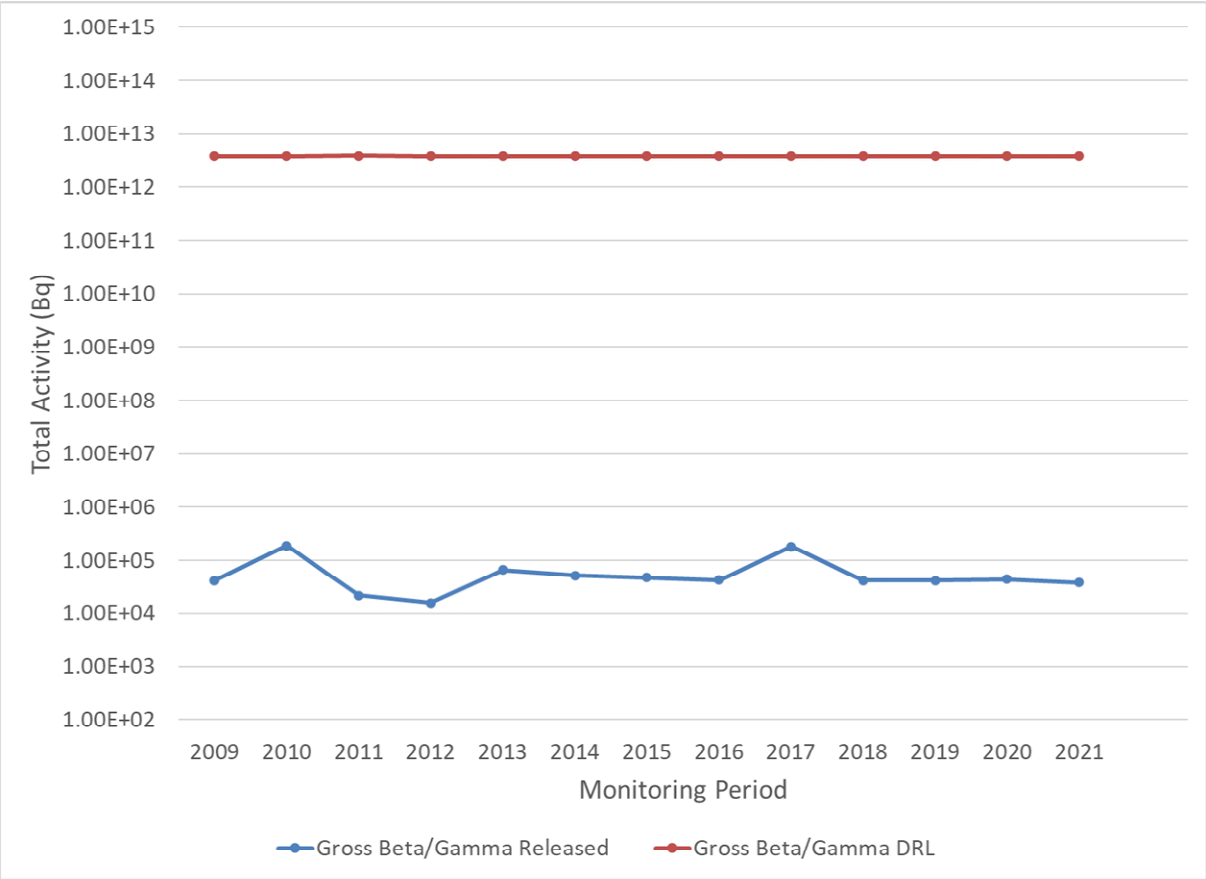
There is no evident trend in the airborne tritium releases, as shown in Figure 8.2-6. As mentioned earlier, Johnson (2022b) determined that the minor increase in airborne releases in 2017 was due to an asbestos removal activity.

Figure 8.2-6 NPDWF Airborne Release Trend: Tritium



There is no evident trend in the airborne gross beta/gamma releases, as shown in Figure 8.2-7. As mentioned earlier, Johnson (2022b) determined that the minor increase in gross beta releases in 2017 was due to an asbestos removal activity.

Figure 8.2-7 NPDWF Airborne Release Trend: Gross Beta/Gamma



Note:

2012 and 2015 results were based on values that were at the MDA.

The total airborne C-14 release in 2015 was less than 0.01% of the DRL (Primeau 2016). The 2015 C-14 release was higher than the average airborne releases from 2010 to 2014, likely due to longer run time of the ventilation system, as discussed above. This is consistent with the airborne C-14 releases shown in Figure 8.2-8.

Figure 8.2-8 NPDWF Airborne Release Trend: C-14 (Source: Primeau 2016)

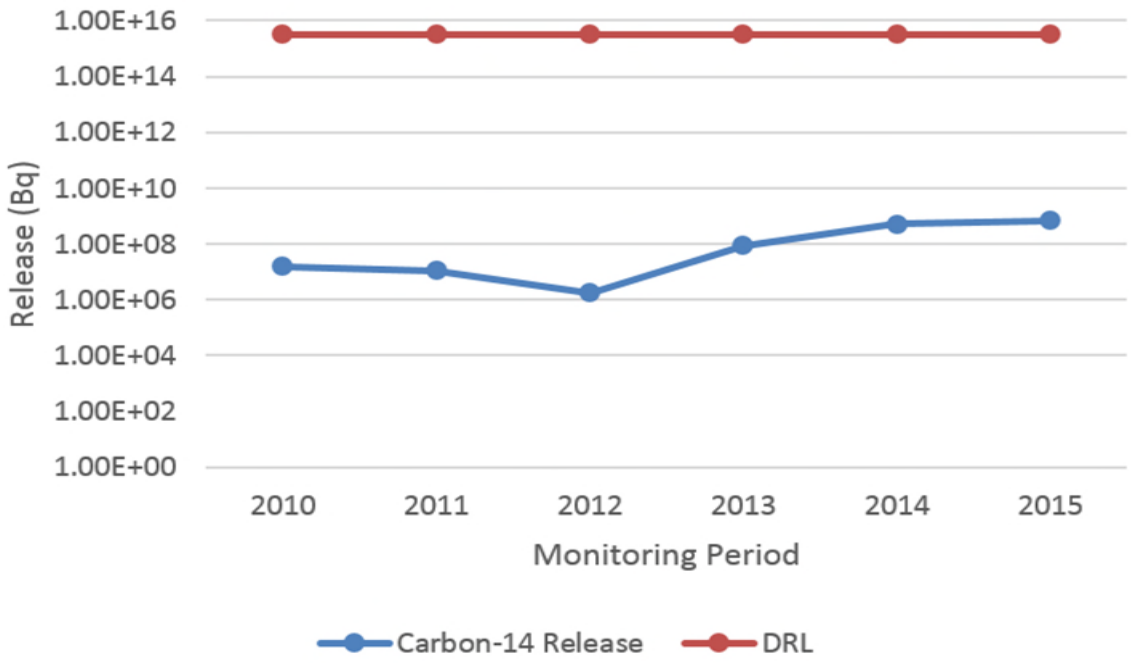
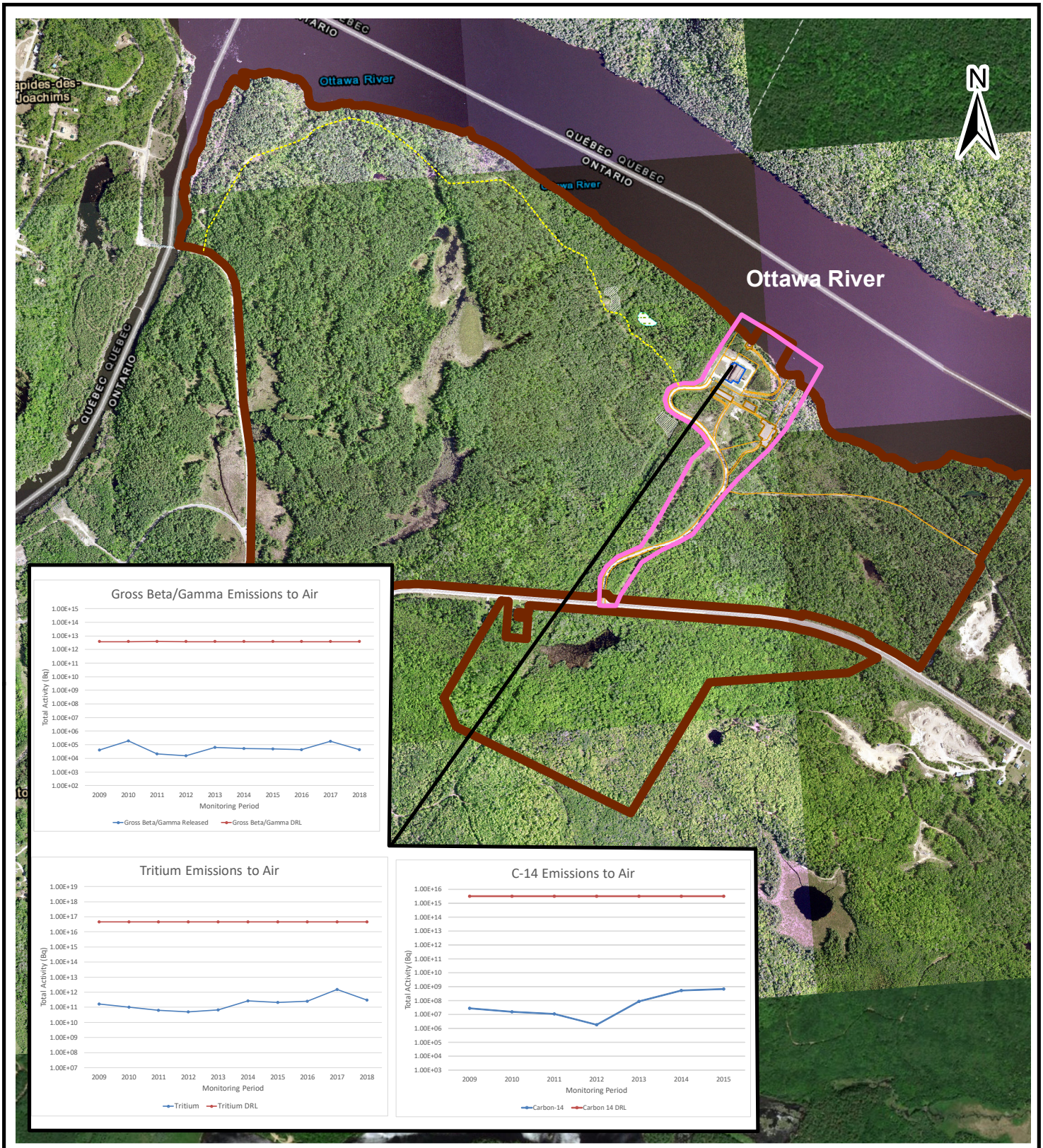


Figure 8.2-9 shows historical trends, from 2009 to 2021, and the location on the site where they emanate from.



Legend

- Guardhouse
- Pumphouse
- Parking
- Wetland
- Road
- Trail
- Landfill
- Local Study Area
- Site Study Area
- NPDWF

0 150 300 600 Meters

Baseline Emissions to Air from NPDWF

ARCADIS

Date: **February, 2020**

351240-000

Reference: ESRI ArcGIS Online Base Layer and NPD Closure Project Description

Non-Radiological

As discussed above, the releases to air from the NPDWF are released via a HEPA-filtered ventilation system. Non-radiological releases to air are not monitored and reported, as there are no substantial non-radiological air release sources in the facility (Primeau 2016).

8.2.4 Air Quality

In this section, available information on the air quality at the Site, Local and Regional Study Areas is presented.

The activities that will be undertaken as part of the NPD Closure Project are of a construction/demolition nature, thus the relevant contaminants include: nitrogen oxides (NO_x – total of nitrogen dioxide, NO_2, and nitrogen oxide, NO), volatile organic compounds (VOCs), sulphur dioxide (SO_2) and particulate matter ($PM_{2.5}$, PM_{10} and TSP), as well as greenhouse gases such as methane (CH_4), carbon dioxide (CO_2), nitrous oxide (N_2O) and carbon monoxide. In addition, grouting and demolition activities have the potential to release other contaminants from the facility, such as select radionuclides and hazardous construction materials (lead and asbestos). Therefore, baseline air quality has been estimated for these constituents that are likely to be relevant to the project.

As discussed in Section 5.2.3, only radiological contaminants, asbestos, lead, mercury and PCBs were identified as COPCs. PAHs were screened out based on remediation of previously contaminated areas, as well as current measurements at the site. Due to the nature and waste form of PCBs, as well as anticipated project activities, releases to air are not expected. Similarly, due to the waste form of mercury (residual contamination), releases to air are not expected. Therefore, mercury and PCBs are not considered COPCs for the atmospheric environment.

8.2.4.1 Site/Local Study Area

Although CNL is not required to monitor air quality at the NPD site (discussed below), it does conduct an annual evaluation of releases to air, in order to assess whether any regulatory air quality reporting is required.

Radiological air quality monitoring results for the Site and Local Study Areas are discussed in Section 8.7.2.

With respect to the federal Greenhouse Gas Emissions Reporting Program (under the *Canadian Environmental Protection Act*), sources of greenhouse gas emissions include Landfill #1, the emergency diesel generators (which are routinely tested and used during site power outages) and on-site transportation (based on Lambert (2016a)). Based on the above sources, greenhouse gas emissions from the NPD site were estimated to be 143 tonnes CO_2 equivalent in 2015 (Lambert, 2016a). This is below Canada's greenhouse gas reporting threshold, and therefore was not reportable for 2015. Emissions to air during the facility's safe shutdown phase have been consistently low and stable. There have been no significant changes in greenhouse gas source activities on the NPD site in recent years.

With respect to the National Pollutant Release Inventory (NPRI), Lambert (2016b) summarizes the assessment that was carried out to determine that NPD is not required to report to NPRI for the year 2015. Sources of emissions included the burning of diesel fuel in emergency generators (minimal amount), unpaved road dust (below the reporting limit, as the main road is paved) and solvent use (not routinely being used). These sources were considered to be so minimal that formal calculations were not warranted for the NPD site (Lambert 2016b). There have been no significant changes in NPRI source activities in recent years.

It is noted that the assessment above, from De Waele (2016), was made only for baseline conditions. For this reason, air quality in the Site and Local Study areas is assumed to be similar to that in the Regional Study Area, as described below.

In March 2018, CNL conducted an industrial hygiene survey which included the characterization of metals (e.g., lead, mercury) and asbestos concentrations in air in different parts of the NPDWF. The results of this survey are presented in Table 8.2-11 .

Table 8.2-11 Asbestos and Metals in Air at the NPD Site (Vickerd and Phillips 2018)

Parameters	Unit	Average	Max	Min
Asbestos	fibers/cc	0.004	0.005	0.002
Mercury (Hg)*	µg/m^3	<0.001	<0.001	<0.001
Lead (Pb)	µg/m^3	0.064	0.132	0.032
Beryllium (Be)	µg/m^3	0.0011	0.002	<0.001
Boron (B)	µg/m^3	1.63	3.01	0.453
Sodium (Na)	µg/m^3	13.2	17.1	10.2
Magnesium (Mg)	µg/m^3	0.799	1.26	0.578
Aluminum (Al)	µg/m^3	1.19	1.94	0.669
Silicon (Si)	µg/m^3	7.01	9.41	3.54
Phosphorus (P)	µg/m^3	1.40	2.01	1.15
Potassium (K)	µg/m^3	3.33	5.93	2.06
Calcium (Ca)	µg/m^3	4.67	5.69	3.2
Titanium (Ti)	µg/m^3	0.077	0.138	0.052
Vanadium (V)	µg/m^3	<0.002	<0.002	<0.002
Chromium (Cr)	µg/m^3	0.226	0.252	0.208
Manganese (Mn)	µg/m^3	0.019	0.035	0.011
Iron (Fe)	µg/m^3	1.34	4.05	0.479
Cobalt (Co)	µg/m^3	0.002	0.003	0.001
Nickel (Ni)	µg/m^3	0.023	0.048	0.017
Copper (Cu)	µg/m^3	0.121	0.279	0.041
Zinc (Zn)	µg/m^3	0.295	0.504	0.12
Gallium (Ga)	µg/m^3	<0.004	<0.004	<0.003
Germanium (Ge)	µg/m^3	<0.005	<0.005	<0.004

Parameters	Unit	Average	Max	Min
Arsenic (As)	µg/m^3	<0.002	<0.002	<0.002
Selenium (Se)	µg/m^3	<0.001	<0.001	<0.001
Rubidium (Rb)	µg/m^3	0.004	0.008	0.002
Strontium (Sr)	µg/m^3	0.019	0.022	0.017
Zirconium (Zr)	µg/m^3	0.010	0.014	0.007
Niobium (Nb)	µg/m^3	<0.002	<0.002	<0.002
Molybdenum (Mo)	µg/m^3	<0.002	<0.002	<0.002
Ruthernium (Ru)	µg/m^3	<0.0002	<0.0002	<0.0002
Rhodium (Rh)	µg/m^3	<0.00003	<0.00003	<0.00003
Palladium (Pd)	µg/m^3	<0.002	<0.002	<0.002
Silver (Ag)	µg/m^3	<0.023	<0.025	<0.021
Cadmium (Cd)	µg/m^3	0.007	0.052	0.001
Tin (Sn)	µg/m^3	0.028	0.107	0.003
Antimony (Sb)	µg/m^3	<0.004	<0.005	<0.003
Cesium (Cs)	µg/m^3	<0.001	<0.001	<0.001
Barium (Ba)	µg/m^3	0.023	0.036	0.015
Lanthanum (La)	µg/m^3	0.001	0.001	0.001
Cerium (Ce)	µg/m^3	0.005	0.012	0.002
Praseodymium (Pr)	µg/m^3	<0.0003	<0.0004	<0.0003
Neodymium (Nd)	µg/m^3	0.001	0.001	0.001
Samarium (Sm)	µg/m^3	<0.0003	<0.0004	<0.0003
Europium (Eu)	µg/m^3	<0.0003	<0.0004	<0.0003
Gadolinium (Gd)	µg/m^3	<0.0003	<0.0004	<0.0003
Dysprosium (Dy)	µg/m^3	<0.0003	<0.0004	<0.0003
Erbium (Er)	µg/m^3	<0.0003	<0.0004	<0.0003
Thulium I	µg/m^3	<0.0003	<0.0004	<0.0003
Ytterbium (Yb)	µg/m^3	<0.0003	<0.0004	<0.0003
Lutetium (Lu)	µg/m^3	<0.002	<0.002	<0.002
Tantalum (Ta)	µg/m^3	<0.001	<0.001	<0.001
Tungsten (W)	µg/m^3	0.002	0.003	<0.001
Rhenium (Re)	µg/m^3	<0.00002	<0.00002	<0.00002
Iridium (Ir)	µg/m^3	0.017	0.069	0.002
Thallium (Tl)	µg/m^3	<0.007	<0.007	<0.006
Thorium (Th)	µg/m^3	<0.001	<0.001	<0.001
Uranium (U)	µg/m^3	<0.001	<0.001	<0.001

Note:

Where concentrations were non-detect, the detection limit was used to calculate average.

8.2.4.2 Regional Study Area

There is limited air quality data available for the Regional Study Area surrounding the NPD site. Some data are available for the CRL facility and areas between the CRL and NPD sites. Even though CRL is beyond the Regional Study Area, these data are used to represent the Regional Study Area in the characterization of baseline atmospheric environment.

Radiological

As part of CRL's environmental monitoring program, ambient tritium levels in air are measured and reported at and around the CRL facility, including locations along the Ottawa River between the CRL and NPD sites (Boileau and Rahman 2016).

From the period of 2010-2015, the 5-year average tritium concentration measured at a number of locations at the CRL site was 8.6 Bq/m^3. For the same time period, the average tritium concentration measured at the CRL site boundary was 0.8 Bq/m^3. At nearby off-site sampling locations, the average 5-year tritium concentration was <0.16 Bq/m^3. Background tritium levels in Ontario and Quebec range from 0.09 to 0.26 Bq/m^3 (Boileau and Rahman 2016).

Ambient gamma levels in the Regional Study Area are discussed in Section 8.7.3.

Non-Radiological

There is limited air quality data available in the vicinity of the NPD site. However, most constituents which define the air quality in the vicinity of the NPD site will not differ substantially from the general air quality in central and eastern Ontario. The substances that combine to produce smog or acid rain, dominate baseline air quality. These include carbon monoxide (CO), nitrogen oxides (NO_x – total of nitrogen dioxide, NO_2, and nitrogen oxide, NO), volatile organic compounds (VOCs), sulphur dioxide (SO_2), and total suspended particulate matter (TSP).

To determine the background contributions of NO_x, particulate, and SO_2, measured air concentrations from the closest ambient air quality monitoring locations at Petawawa, Ottawa, and North Bay were considered. Values for these constituents are reported by ECCC (2016b). Note that not all of these stations measure all constituents. The ambient air monitoring stations used as sources of background air quality in the EIS are summarized in Table 8.2-12 below, for each of the COPCs (i.e. NO_2, SO_2, and $PM_{2.5}$). The distance between the NPD site and each station, along with the years when the data were collected, are also shown.

Table 8.2-12 National Air Pollution Surveillance Monitoring Stations used for Background Air Quality

Station ID	Station Location	Contaminant			Distance from NPD (km)	Year
		NO_2	SO_2	$PM_{2.5}$		
60104	Ottawa-Rideau And Wurtenberg	✓	✓	✓	200	2013, 2014
60106	Ottawa-960 Carling Ave	✓	ND	✓	195	2013, 2014
62001	North Bay-Chippewa St.	✓	ND	✓	138	2013, 2014
66201	Petawawa Research Forest Facility, Clouthier Rd.	ND	ND	✓	42	2013, 2014

Notes:

✓- monitoring data available
Data from the shaded cell are used in this EIS to represent background air quality.
ND – no data

The SO_2 background air quality data used in the EIS were measured at the Ottawa-Rideau And Wurtenberg National Air Pollution Surveillance (NAPS) air quality monitoring station (ID 060104). There is some uncertainty associated with utilizing data from this station, since it is 200 km away, and in an urban setting. This air quality monitoring station is the closest station to the NPD site that monitors SO_2 concentrations. As this station is located in an urban environment, it is likely to overestimate SO_2 concentrations at the NPD site. As such, use of data for background air quality from this station is likely conservative.

Table 8.2-13 summarizes the SO_2 background air quality data measured at this station. In general, the measured SO_2 concentrations are very low, and well below the applicable MOE 1-hour, 24-hour and annual average Ambient Air Quality Criteria (AAQC) of 690 µg/m^3, 275 µg/m^3 and 55 µg/m^3 respectively (AAQCs in effect 2012; MOECC 2012). Similarly, the measured values are well below MELCC "initial concentration" atmospheric quality standards of 50 µg/m^3 (24-hour) and 20 µg/m^3 (annual) The measured SO_2 concentrations are also below the CAAQS for SO_2 for 1-hour and annual of 70 ppb (or 193 ug/m^3) and 5 ppb (or 14 ug/m^3), respectively (CAAQS in effect 2020; CCME 2017). The measured values are also well below the 24-hour average NAAQO maximum desirable level of 150 µg/m^3 (EC 2007). As a conservative assumption, the 1-hour SO_2 background level is taken from the maximum, not 90th percentile, averaged over two years. It is noted that the measured SO_2 concentrations are also below the new MOE air standard for SO_2 of 100 ug/m^3 and 10 ug/m^3 for 1-hour and annual averaging period respectively, that will come into effect on July 1, 2023 (MECP 2018).

Table 8.2-13 Summary of Background Air Quality SO_2 Concentrations (µg/m³)

Year	Station Location	SO_2 -1 hour	SO_2 -1 hour	SO_2 -24 hour	SO_2 - Annual
		Max	90th Percentile	90th Percentile	
2013	Ottawa-Rideau And Wurtenberg	17	3	3	0
	Ottawa-960 Carling Ave	ND	ND	ND	ND
	North Bay-Chippewa St.	ND	ND	ND	ND
	Petawawa Research Forest Facility, Clouthier Rd.	ND	ND	ND	ND
2014	Ottawa-Rideau And Wurtenberg	23	3	3	0
	Ottawa-960 Carling Ave	ND	ND	ND	ND
	North Bay-Chippewa St.	ND	ND	ND	ND
	Petawawa Research Forest Facility, Clouthier Rd.	ND	ND	ND	ND
2013-2014 Average	Ottawa-Rideau And Wurtenberg	20	3	3	0
	Ottawa-960 Carling Ave	ND	ND	ND	ND
	North Bay-Chippewa St.	ND	ND	ND	ND
	Petawawa Research Forest Facility, Clouthier Rd.	ND	ND	ND	ND

Notes:

Data from the shaded cell were used for background air quality in the EIS
ND – no data

Ambient air concentrations of NO_2 measured at three air quality monitoring stations closest to the NPD site are summarized in Table 8.2-14 . Of the nitrogen oxide compounds (NO_2 and NO, comprising NO_x), NO_2 is the primary constituent of interest. Therefore, most of the discussion related to NO_x focuses on NO_2. All NO_2 measurements were well below the provincial 1-hour and 24-hour AAQC of 400 µg/m³ and 200 µg/m³, respectively (AAQC in effect as of 2012, MOE 2012). Similarly, the measured values are well below MELCC "initial concentration" atmospheric quality standards of 150 µg/m³ (1-hour), 100 µg/m³ (24-hour) and 30 µg/m³ (annual). The measured NO_2 concentrations are below the CAAQS for NO_2 for 1-hour and annual of 60 ppb (or 119 ug/m³) and 17 ppb (or 34 ug/m³), respectively (CAAQs in effect as of 2020; CCME 2017). No data were available at the Petawawa Research Forest Station. The NO_2 levels measured in North Bay are considered to be more representative of NPD Closure Project background levels, since this station is less populated and industrialized than Ottawa. However, the North Bay Station is located in an urban setting, and is likely to overestimate concentrations at the NPD site. As such, use of data from this station is likely conservative.

Table 8.2-14 Summary of Background Air Quality NO_2 Concentrations (µg/m³)

Year	Station Location	NO_2 -1 hour	NO_2 -24 hour	NO_2 - Annual
		90th percentile	90th percentile	
2013	Ottawa-Rideau And Wurtenberg	37	33	16
	Ottawa-960 Carling Ave	31	27	14
	North Bay-Chippewa St.	27	23	12
	Petawawa Research Forest Facility, Clouthier Rd.	ND	ND	ND
2014	Ottawa-Rideau And Wurtenberg	33	29	14
	Ottawa-960 Carling Ave	27	23	12
	North Bay-Chippewa St.	25	25	12
	Petawawa Research Forest Facility, Clouthier Rd.	ND	ND	ND
2013-2014 Average	Ottawa-Rideau And Wurtenberg	35	31	15
	Ottawa-960 Carling Ave	29	25	13
	North Bay-Chippewa St.	26	24	12
	Petawawa Research Forest Facility, Clouthier Rd.	ND	ND	ND

Notes:

Data from the shaded cell were used for background air quality in the EIS
ND – no data

Ambient air concentrations of $PM_{2.5}$ measured at four air quality monitoring stations closest to the NPD site are summarized in Table 8.2-15. The measured $PM_{2.5}$ concentrations in Petawawa are more representative of the conditions at the NPD site than the other stations, based on proximity to the site, the rural setting of the station, and proximity to Highway 17. In all cases, the background concentrations measured at Petawawa meet the CCME (2017) Canadian Ambient Air Quality Standards (CAAQS in effect as of 2015, 27 µg/m³ – 24-hour average, and 8.8 µg/m³ – annual average). Similarly, the measured values are well below MELCC "initial concentration" atmospheric quality standards of 20 µg/m³ (24-hour). Given the similarity of the data between the Petawawa and North Bay stations (the two closest and less industrialized stations), the uncertainty associated with using data from the Petawawa site as representative of the NPD site is likely to be minor. In Canada, measured $PM_{2.5}$ concentrations are approximately 50% of the measured PM_{10} concentrations and 25% of the measured TSP concentrations (Environment Canada, Health Canada 2000).

Table 8.2-15 Summary of Background Air Quality $PM_{2.5}$ Concentrations (µg/m^3)

Year	Station Location	$PM_{2.5}$ -24 hour 90th percentile	$PM_{2.5}$ -Annual
2013	Ottawa-Rideau And Wurtenberg	12	7
	Ottawa-960 Carling Ave	13	7
	North Bay-Chippewa St.	9	5
	Petawawa Research Forest Facility, Clouthier Rd.	9	5
2014	Ottawa-Rideau And Wurtenberg	12	7
	Ottawa-960 Carling Ave	12	7
	North Bay-Chippewa St.	9	5
	Petawawa Research Forest Facility, Clouthier Rd.	8	5
2013-2014 Average	Ottawa-Rideau And Wurtenberg	12	7
	Ottawa-960 Carling Ave	13	7
	North Bay-Chippewa St.	9	5
	Petawawa Research Forest Facility, Clouthier Rd.	8.5	5

Note:

Data from the shaded cell were used for background air quality in the EIS.

8.2.5 Ambient Noise

CNL's Industrial Hygiene completed an ambient noise survey for NPD (Nuclear Power Demonstration) as a part of Decommissioning Execution phase of the NPD Closure Project in order to understand and document pre-project phase ambient baseline noise levels. Locations within the facility boundaries and nearby residential area were included in this baseline noise study. In order to complete this study, the following documents were used as guidelines for reference material for the selection of the noise monitoring methodology:

- *REGDOC-2.9.1: Environmental Principles, Assessments and Protection Measures*, CNSC (2016);
- *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise, Health Canada* (2011);
- *Description, measurement an assessment of environmental noise – Part 1: Basic quantities and assessment procedure*, International Organization for Standardization (ISO: 2003); and
- *Environment Noise Guideline – Stationary and Transportation Sources* – Approval and Planning, Ministry of the Environment and Climate Change (2013).

Noise is defined as unwanted sound. Sound is defined in terms of two characteristics: intensity (measured in decibels, dB) and frequency (measured in Hertz). "Weighting scales" are used by instruments to measure varying frequencies of sound. "A-weighting " is applied to a sound level meter to measure frequencies perceived by the human ear; the reportable units for this are "dBA".

The baseline noise monitoring uses two descriptors; SPL and L_{dn}. Sound Pressure Level (SPL) is used in this report to describe the L_{eq} calculated by the sound level meter, which is defined as the A-weighted equivalent of a continuous sound measured over a specified period of time. The maximum and minimum

SPL during the 48-hour monitoring period are reported in the tables below. L_{dn} is the average of the equivalent continuous sound level taken over the entire monitoring period, with the daytime (L_d) sound levels taken over a 15-hour period (7am to 10pm) and the nighttime (L_n) sound levels taken over a 9 hour period (10pm to 7am). For the purpose of this report, L_{dn} was calculated for the full 48-hour monitoring period.

The sound level meter selected for this baseline monitoring project was TSI Quest SoundPro DL. This Class/Type 1 meter included 1/1 and 1/3 octave settings. For the purpose of this monitoring, the sound level meter was set to continuous monitor sound levels with "A" weighing scale, on a slow response and 3 dBA exchange rates. The sound level meter was positioned in selected locations by use of utility tripod and protected by a weatherproof enclosure. The microphone was also equipped with an appropriate wind screen for protection against wind and rain. Continuous sound level monitoring was conducted over a 48-hour period at each locations during the months of August 2020 and September 2020. Data collected by the sound level meter was obtained through 3M's computer-based data processing software DMS (Detection Management Software) and analyzed using MS Excel. L_d, L_n and L_{dn} results were calculated using the following formula:

$$L_d \; or \; L_n \; or \; L_{dn} = 10log\left(1/T \sum_{i=1}^{N} (10^{Li/10} t_i)\right)$$

8.2.5.1 Site/Local Study Area

Ambient noise levels were monitored at eleven (11) monitoring locations within the Site and Local Study Areas to provide background noise levels. Monitoring of all locations was completed during the months of August 2020 to September 2020.

Within the Site and Local Study Areas, two (2) locations were selected along Cutler Lane to monitor the current ambient noise level attributed primarily by vehicle traffic. Nine (9) locations were selected throughout the NPD site to monitor the current ambient noise level of the facility surroundings (Figure 8.2-10). The noise survey results in the Site and Local Study Areas are summarized in Table 8.2-16 below.

Figure 8.2-10 Baseline Noise Survey Locations - Site and Local Study Areas

Note: 8 of the 11 monitoring stations within the Site Study Area are depicted in the figure above. The other 3 stations (IDs 1, 3, and 4) are located: at the site entrance gate off of Highway 17; at the eastern site boundary; at the western site boundary, and are shown in Figure 8.2-11 below.

Table 8.2-16 Summary of Baseline Noise Survey in the Site and Local Study Areas

Location ID	X/Y	Lat & Long	Start Time	End Time	Measurement Site Description	SPL* (max)	SPL* (min)	Ld** (dBA)	Ln** (dBA)	Ldn*** (dBA)
1 - Gate/ Highway 17	294347.9E, 5117482.5N	46.179858 -77.664575	20/08/04, 13:45	20/08/06, 13:45	Highway entrance (~20m away), 4ft away from forest, gravel & grass covered ground	98.2	23.3	67.22	59.17	65.53
2 - Road Intersection	294796.8E, 5117817.1N	46.182981, -77.658814	20/08/10, 13:44	20/08/12, 13:44	~10 ft away from the main road, ~4ft from forest, grass & gravel covered ground	80.3	20.4	47.72	37.11	47.10
3 - East Boundary	295715.0E, 5117413.9N	46.179741, -77.6446819	20/09/14, 14:18	20/09/16, 14:18	Ground covered in grass, ~2ft away from forest	79.6	23.3	67.22	59.17	65.53
4 - West Boundary	293629.7E, 5118424N	46.188103, -77.674289	20/08/24, 14:38	20/08/26, 14:38	Ground covered in grass, ~2ft away from forest	63.2	34.3	40.57	41.08	41.30
5 - Ottawa River	294964.9E, 5118305.6N	46.187466, -77.656925	20/08/17, 14:00	20/08/19, 14:00	Ground covered with gravel, ~20 ft away from river, open space, ~30 ft away from forest	86.3	25.6	49.63	40.60	47.29
6 - Guard House	294801E, 5118205N	46.186489, -77.659027	20/08/26, 15:45	20/08/28, 15:45	Ground covered in grass, open area, ~10 ft away from the guardhouse	73.1	34.3	40.23	34.93	39.45
7 - Standby Generator	294902E, 5118169.4N	46.186198, -77.657706	20/09/01, 13:25	20/09/03, 13:25	Ground covered in grass, open area, ~4ft away from generator building	80.1	34.3	48.56	42.99	46.80
8 - Songbird Monitoring #1	295001.5E, 5118078.5N	46.185411, -77.656379	20/09/03, 13:45	20/09/05, 13:45	Ground covered with grass & gravel, ~4ft away from forest	73.9	34.3	50.64	46.94	50.24
9 - Songbird Monitoring #2	294657.2E, 5118230.0 N	46.186675, -77.660876	20/08/13, 9:10	20/08/15, 9:10	Ground covered with grass & gravel, in forested area	68.4	21.2	39.33	42.02	40.64
10 - Songbird Monitoring #3	294848.4E, 5118322 N	46.187554, -77.658466	20/09/17, 8:00	20/09/19, 8:00	Ground covered with grass, ~2ft away from forest, ~10ft away from the fence	64.1	34.3	36.21	34.74	36.16
11 - Batch Plant	294924.2E, 5118092.1N	46.185510, -77.657385	20/09/08, 13:42	20/09/10, 13:42	Ground covered with grass & concrete floor, open space, ~40 ft away from forest	64.4	34.3	37.03	35.78	36.36

* SPL (max) and (min) is the maximum and minimum, in dBA, sound pressure level recorded of the 48 hour monitoring period at 1 minute sampling intervals.

** Ld/Ln calculated by obtaining average of measurements between 07:00-22:00 (Ld - Daytime), and 22:00 to 07:00 (Ln - Nighttime), respectively during 48-hour period.

*** Ldn average of daytime and nighttime measurements calculated for a 48-hour period.

Baseline sound levels varied from 36.10 dBA to 65.53 dBA, with the lowest level observed at Songbird Monitoring Station #3 and the highest at the Highway 17 location. The high sound level reading at the Highway 17 location is attributed to the high volume of traffic which includes heavy trucks. Overall, the baseline sound levels obtained from the locations are similar to or greater than the sound level requirement of Quiet rural area (≤ 45 dBA) as per Health Canada's Guideline (Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise).

8.2.5.2 Regional Study Area

Ambient noise levels were monitored at one monitoring location within the Regional Study Area to provide background noise levels to receptors. Monitoring was completed during the months of August 2020 to September 2020.

Health Canada defines receptors to include residences, daycares, schools, hospitals, places of worship, nursing homes and First Nations and Inuit communities. For this assessment, the nearest receptors would be residences in Swisha and Rolphton area. One (1) receptor point selected to be monitored was a residential area in Swisha, outside of CNL property, with a distance of approximately 1 km northwest of the NPD boundary (Figure 8.2-11). The noise survey results in the Regional Study Area are summarized in Table 8.2-17 below.

Figure 8.2-11 Baseline Noise Survey Locations – Regional Study Area

Table 8.2-17 Summary of Baseline Noise Survey in the Regional Study Area

Location ID	X/Y	Lat & Lon	Start Time	End Time	Measurement Site Description	SPL* (max)	SPL * (min)	Ld** (dBA)	Ln** (dBA)	Ldn*** (dBA)
12 - Swisha	292726.7E, 5119745.3N	46.199709, -77.686552	20/09/21, 13:26	20/09/23, 13:26	Residential, open area, ground covered with gravel/sand/rock, ~8 ft away from forest	86.2	34.3	56.79	36.04	54.13

* SPL (max) and (min) is the maximum and minimum, in dBA, sound pressure level recorded of the 48 hour monitoring period at 1 minute sampling intervals.

** Ld/Ln calculated by obtaining average of measurements between 07:00-22:00 (Ld - Daytime), and 22:00 to 07:00 (Ln - Nighttime), respectively during 48-hour period.

*** Ldn average of daytime and nighttime measurements calculated for a 48-hour period.

The sound level obtained from Swisha (54.13 dBA) was higher in comparison to the levels recorded on NPD. This is expected because the reading was obtained in one of the residential areas in close proximity to the main road through the town. Overall, baseline sound levels are similar to or greater than the sound level requirement of Quiet rural area (≤ 45 dBA) as per Health Canada's Guideline (Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise).

8.3 Surface Water Environment

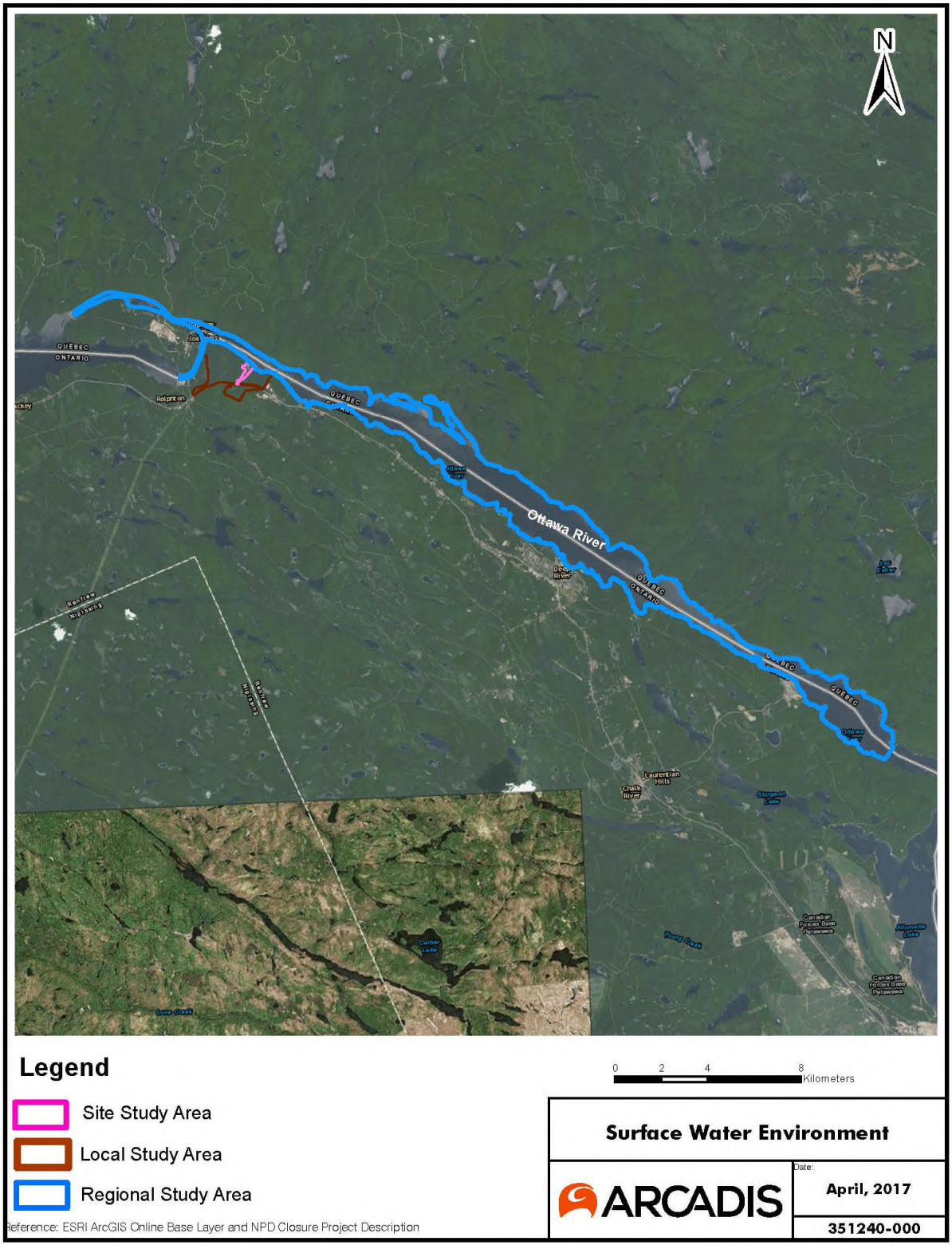
8.3.1 Spatial Boundaries

The Site Study Area for the surface water assessment is the same as the general Site Study Area illustrated in Figure 5.2-1 above. There are no known uses of surface water for drinking water in the Site Study Area.

The Local Study Area for the surface water assessment is the same as the general Local Study Area, illustrated in Figure 5.2-2 above. It contains the shoreline and 50 m into the Ottawa River, as well as the wetlands on the NPD site. On the site, subsurface drains and drainage ditches divert surface water flow away from the facility. There are no known uses of surface water for drinking water in the Local Study Area.

The Regional Study Area for the surface water assessment includes the stretch of the Ottawa River from near the Des Joachims Generating Station, to 30 km downstream of the NPD site (which includes CRL) and extends across the river to include the Quebec shoreline. It is illustrated in Figure 8.3-1 below. In the Regional Study Area, some communities such as Deep River use Ottawa River surface water as intake into the municipal drinking water treatment plant. The Deep River Wastewater Treatment plant also discharges effluent into the Ottawa River. The Chalk River water treatment plant obtains its intake water from Corry Lake, not the Ottawa River.

Figure 8.3-1 Surface Water Environment Regional Study Area



8.3.2 Hydrology

8.3.2.1 Site/Local Study Area

All surface drainage on the NPD site ultimately drains to the Ottawa River. To reduce the risk of water infiltration into the facility, a network of ditches and drains intercepts water flow from adjacent areas and, using gravity, directs it to the Ottawa River (CNL 2022b).

A tile drain system collects and continuously discharges precipitation, snowmelt and shallow groundwater from around the powerhouse structures to reduce infiltration into the facility. Tile Drain 1 discharges to the river at the shoreline about 60 m upstream of the outfall (Wills 2013). Tile Drain 2 discharges to the river at the shoreline, downstream of the outfall.

View of the Ottawa River offshore from the NPD site, looking downstream

Drainage ditches run through the site, collecting precipitation and snow melt and discharging it in the Ottawa River. The drainage ditch system consists of ditches around the building with the land sloping towards the ditches. The access road is also drained by ditches along each side of the road. There are two surface ditch entry points into the Ottawa River: the West Surface Drainage Ditch and the East Surface Drainage Ditch (CNL 2022b). These ditches are discussed further in Section 8.3.4 below.

A series of sumps, which ultimately collect into the Wells Area Sump (WAS, shown in Figure 3.3-1), accumulates liquids collected from within the facility (e.g., from groundwater seepage, condensation and emergency shower use) is discussed in Section 8.3.3 below.

The large wetland complex on the NPD property, located west of the Site Study Area

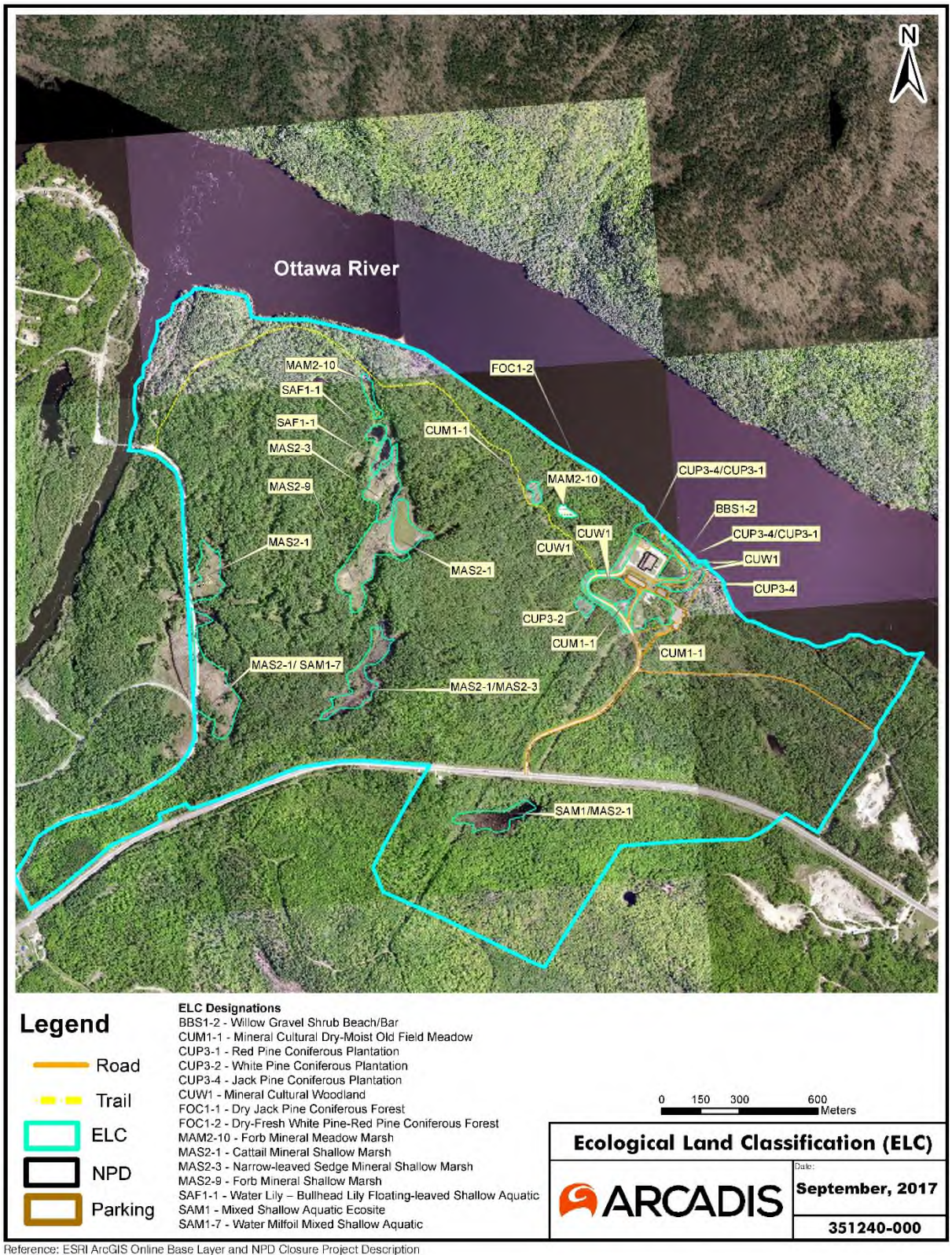
The primary surface water feature in the Site and Local Study Areas is the Ottawa River, which runs northwest to southeast. According to ORAU (2017), approximately 2,800 m of Ottawa River frontage is associated with the NPD site. The nominal water elevation at the NPD site is 111 m.

In addition to the river shoreline, the Local Study Area also contains some wetlands, including a large wetland complex which spans nearly the entire north-south length of the NPD property to the west of the Site Study Area. As described in the ELC TSD, the types of wetlands include shallow marshes (MAS2-1, MAS2-3, MAS2-9), meadow marshes (MAM2-10), and shallow ponds dominated by a variety of emergent, floating and submergent vegetation (SAF1-1, SAM1-7, SAM1) (Figure 8.8-4).

It is noted that the majority of the Local Study Area is comprised of dry-fresh white pine-red pine coniferous forest (FOC1-2).

These wetlands are at a higher elevation than NPDWF, and would not be impacted by surface water flowing from the NPDWF. Groundwater modelling undertaken at the NPD site (Groundwater Modelling TSD) indicates that groundwater flows towards the facility and discharges to the Ottawa River, so the wetlands are not affected by the groundwater in the vicinity of the NPDWF.

Figure 8.3-2 Ecological Land Classification Designations at the NPD Site



Reference: ESRI ArcGIS Online Base Layer and NPD Closure Project Description

8.3.2.2 Regional Study Area

The entire Regional Study Area lies within the Ottawa River drainage basin. There are no major tributaries near the NPD site.

The Ottawa River adjacent to the NPD site is wide and deep. The river is about 0.5 km wide at NPD. The maximum depth of the Ottawa River in the vicinity of the NPDWF site is about 19-20 m in the middle of the river. The base of the river uniformly slopes upward from the middle to the southwest and northeast shores in Ontario and Quebec. At the confluence of the branches of the Ottawa River near Rapides-des-Joachims, the river reaches over 80 m deep.

Daily flow measurements of the Ottawa River taken at the Des Joachims Generating Station (just northwest, i.e., upstream, of the NPD site), obtained from the Ottawa River Regulation Planning Board (ORRPB 2017) for the time period June 1950 – Dec 2016, were utilized for the following statistical assessment. In order to account for seasonal variations, exclude data outliers and ensure an appropriate level of conservatism, the 5th percentile and 95th percentile data values were used for the minimum and maximum values respectively. The resulting flow rates are 336 m^3/s (minimum flow rate), and 1560 m^3/s (maximum flow rate). The mean flow rate was calculated to be 807 m^3/s. The flow past the Des Joachims Dam is regulated according to the demands of the generating station. The coolwater system thermally stratifies in late July through mid-September (Lee 2014), supporting both cool and warm water species (discussed in Section 8.4.3 below).

The banks of the Ottawa River generally have low to moderate slopes, although there are steep granite cliffs in sections of the Québec shoreline. The shorelines are punctuated by points, which create bays. Shoreline substrates include silt, sand, gravel, boulders and occasional rock outcrops (Lee 2014).

It is noted that there are also numerous lakes in the region, ranging in size from small, nameless lakes only 50 – 100 m in diameter, to larger lakes such as Tee Lake and Heart Lake (Figure 8.5-1), as well as many others. These lakes are located both inside and outside of Algonquin Provincial Park. Due to the topography of the region, which will drive water towards the Ottawa River, the Ottawa River is the focus of this assessment.

8.3.3 Surface Water Releases

Releases to surface water from the NPD site are monitored in accordance with the Effluent Monitoring Plan (CNL 2022b), which is aligned with CSA N288.5 (CSA 2022a).

Radiological

Liquid wastes accumulate mainly in the facility WAS. Previously, controlled batch discharges occurred from the WAS to the Ottawa River (via the process drain) when the sump was near full. Prior to discharge, representative liquid effluent samples were collected by facility operating personnel, analyzed, and radioactivity was verified to be below the DRL. Sampling of the WAS is also conducted semi-annually. The available information on baseline releases to the Ottawa River during the SwS phase is summarized below.

In 2018, in response to public and Indigenous feedback, CNL revised the methodology for managing the water collected in the WAS. Instead of discharge to the Ottawa River following a clearance process for non-routine discharges per the site licence, the contents are now sampled, pumped into double-walled containers, and transported to the CRL site for processing, thereby eliminating direct effluent discharge from the NPDWF.

Past practices of water discharges have been safe, and Ottawa River water quality has not been adversely affected. Ongoing water monitoring confirms that the maximum concentrations in the Ottawa River are well within the federal and provincial environment-based guidelines which ensure protection of aquatic life and drinking water (see Section 8.3.4.2 below).

The data associated with the annual monitoring of the WAS radioactive releases between 1997 and 2017 are reported in Table 8.3-1. The information reported in the table includes the number of discharges, the total volume discharged, and the total amount of various contaminants released. The date and the volume of each release are recorded (Wills 2013, Primeau 2016, Athauda-Arachchige 2018).

Table 8.3-1 indicates that from 1997 – 2004 gross beta and gross gamma were not monitored, but I-131, Cs-137, and Co-60 were monitored. Subsequently, from 2004 – 2015 gross beta and gross gamma were monitored but I-131, Cs-137, Ce-144 and Co-60 were not monitored.

The predominant contaminants potentially present in the WAS are not pure gamma emitters, but are rather beta gamma emitters which would be captured in the gross beta activity monitoring. Gross beta monitoring would capture any Cs-137 and Co-60 concentrations.

I-131 and Ce-144 have not been monitored in the WAS for several years since their respective inventories have decayed appreciably over the last 30 years due to their relatively short half-lives.

C-14 is not monitored in the WAS because the source term is very localized (only present in the reactor core in a solid state), is an insignificant contributor to public dose, and there is no likelihood of approaching the C-14 liquid effluent DRL of 3.89E+14 Bq/y (CNL 2022b).

Table 8.3-1 WAS Annual Radioactive Release

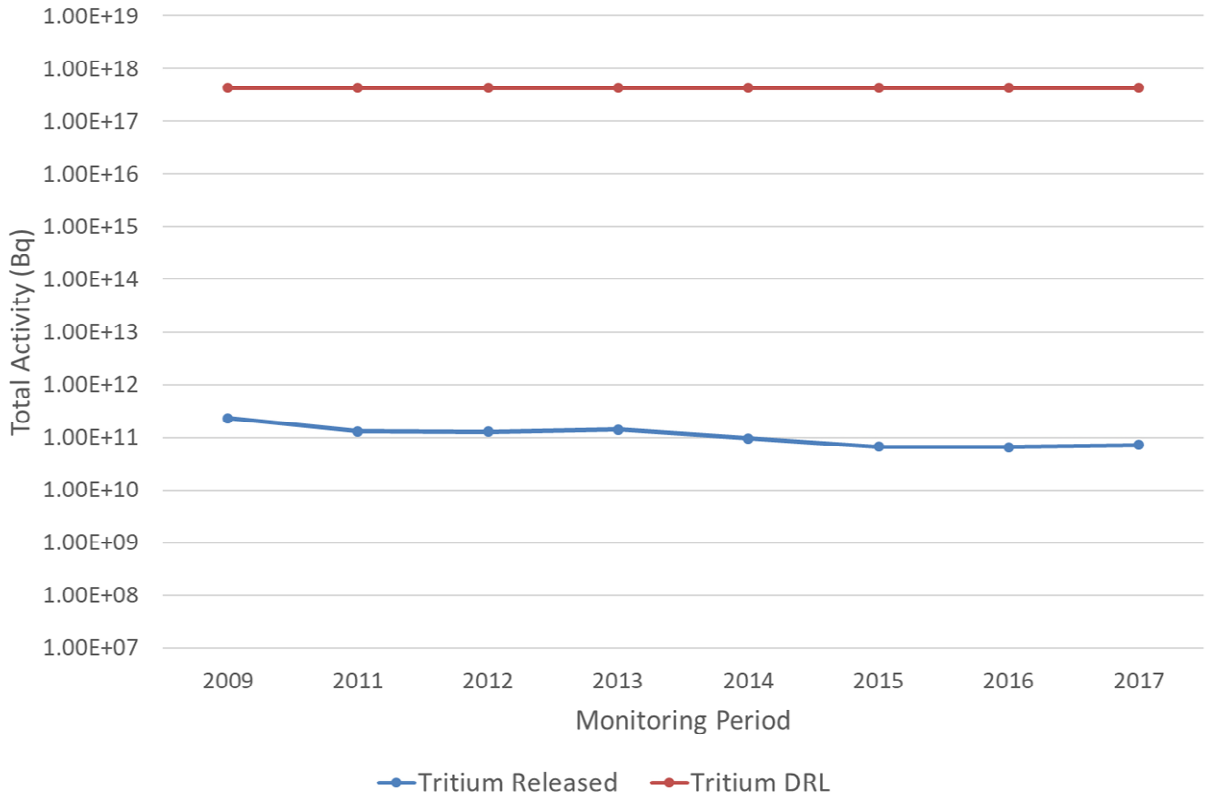
Year	Number of Discharges	Total Volume (m^3)	I-131 (Bq)	Cs-137 (Bq)	Ce-144 (Bq)	C-14 (Bq)	Co-60 (Bq)	Beta/Gamma (Bq)[c]	Gross Beta (Bq)[d]	Gross Gamma (Bq)[e]	Tritium (Bq)	Reference
1997	5	49.19	$<2.4x10^4$	$2.04x10^6$	$<9.8x10^5$	NA	$1x10^4$	$9.7x10^5$	NA	NA	$5.02x10^{11}$	(Wills 2013)
1998	5	49.47	$<1.6x10^4$	$2.55x10^6$	$<4.9x10^4$	NA	$7x10^4$	$1.37x10^6$	NA	NA	$5.01x10^{11}$	(Wills 2013)
1999	5	44.44	$<1.4x10^4$	$2.52x10^6$	$<4.5x10^4$	NA	$1.6x10^5$	$9.6x10^5$	NA	NA	$7.75x10^{11}$	(Wills 2013)
2000	5	44.4	$<1.2x10^4$	$3.06x10^6$	$<2.0x10^4$	NA	$9x10^4$	$5.5x10^5$	NA	NA	$1.09x10^{11}$	(Wills 2013)
2001	5	41.05	$<1.2x10^4$	$1.77x10^6$	$<4.1x10^4$	NA	$5x10^4$	$6.2x10^5$	NA	NA	$8.92x10^{11}$	(Wills 2013)
2002	3	22.44	$<8.2x10^3$	$8.5x10^5$	$<3.1x10^4$	NA	$1x10^4$	$2.1x10^5$	NA	NA	$3.67x10^{11}$	(Wills 2013)
2003	3	28.8	$<1.3x10^4$	$1.16x10^6$	$<4.7x10^4$	NA	$<2.3x10^3$	$4.5x10^5$	NA	NA	$2.98x10^{11}$	(Wills 2013)
2004[a]	3	24.8	NA	$8.2x10^5$	NA	$9.54x10^6$	$1x10^4$	$3.1x10^5$	NA	NA	$1.45x10^{11}$	(Wills 2013)
2004[b]			NA	NA	NA	$4.23x10^6$	NA	NA	$2.16x10^6$	$2.53x10^6$	$1.02x10^{11}$	(Wills 2013)
2005	2	21.4	NA	NA	NA	$8.60x10^6$	NA	NA	$4.10x10^6$	$1.90x10^6$	$2.00x10^{11}$	(Wills 2013)
2006	2	32.1	NA	NA	NA	$6.71x10^6$	NA	NA	$2.48x10^6$	$1.24x10^6$	$1.22x10^{11}$	(Wills 2013)
2007	2	21.4	NA	NA	NA	$7.23x10^6$	NA	NA	$2.73x10^6$	$1.44x10^6$	$1.27x10^{11}$	(Wills 2013)
2008	3	32.1	NA	NA	NA	$1.71x10^7$	NA	NA	$4.89x10^6$	$3.00x10^6$	$7.34x10^{11}$	(Verney 2009)
2009	3	32.1	NA	NA	NA	$1.61x10^7$	NA	NA	$6.94x10^6$	$4.01x10^6$	$2.33x10^{11}$	(Primeau 2016)
2010	0	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	(Primeau 2016)
2011	1	10.7	NA	NA	NA	$9.30x10^6$	NA	NA	$2.1x10^6$	$1.5x10^6$	$1.30x10^{11}$	(Primeau 2016)
2012	1	10.2	NA	NA	NA	$3.75x10^6$	NA	NA	$1.01x10^6$	$1.4x10^6$	$1.27x10^{11}$	(Primeau 2016)
2013	5	6.7	ND	3.64E+06	ND	Unavailable	5.91E+08	NA	$9.76x10^5$		$1.41x10^{11}$	(Taylor 2014)
2014	4	8.0	NA	NA	NA	$9.84x10^6$	NA	NA	$6.08x10^6$		$9.60x10^{10}$	(Primeau 2016)
2015	2	16	NA	NA	NA	$5.35x10^6$	NA	NA	$4.86x10^6$		$6.61x10^{10}$	(Primeau 2016)
2016	2	16	NA	NA	NA	NA	NA	NA	$2.35 x10^6$	NA	$6.57 x10^{10}$	(Primeau 2017)
2017	1	8	NA	NA	NA	NA	NA	NA	$9.69 x10^5$	NA	$7.21 x10^{10}$	(Athauda-Arachchige 2018)

Notes:

a Monitoring period 1 January to 29 July.
b Monitoring period 30 July to 16 November.
c Gross beta determined using Microspec--1 using Sr-90/Y-90 as a standard.
d Results determined using a Canberra Packard Gross Alpha/Beta counter and the activity is based on Co-60.
e Results determined using a NaI gamma spectrometer and the activity is based on Co-60.
NR no releases
NA not available (i.e., not monitored)
ND Not detected

The total liquid tritium release in 2017 was 7.21x10^{10} Bq, which was less than 0.01% of the DRL (Primeau 2016). There is no evident trend in the liquid tritium releases, as shown in Figure 8.3-3. As discussed above, in 2018, CNL ceased the practise of discharging liquid effluent to the Ottawa River, and arranged for waste to be sent to the Waste Treatment Centre at the CRL site.

Figure 8.3-3 NPDWF Liquid Release Trend: Tritium

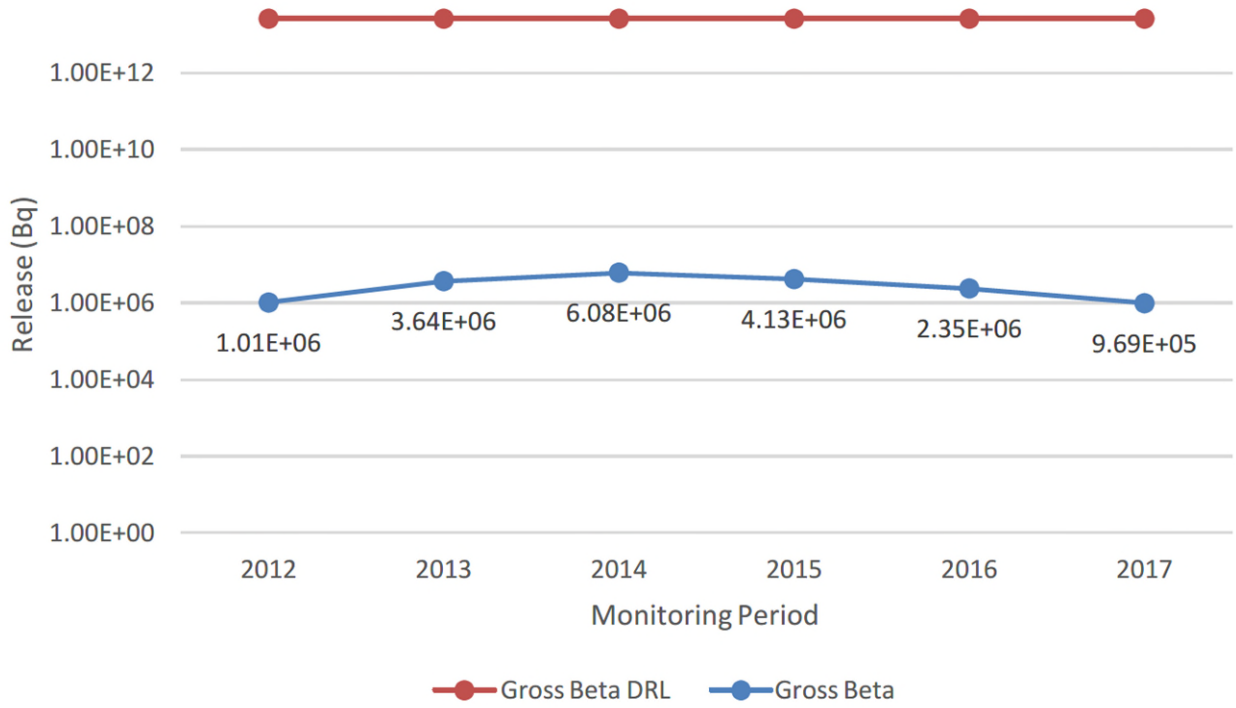


Notes:

2010 results are not shown as there were no pump-outs of the WAS at NPDWF during 2010. In 2018, CNL changed its strategy for managing liquid effluent from the WAS. Instead of discharging liquid effluent from facility sumps to the Ottawa River, it is now transferred to the Waste Treatment Centre on the CRL site.

In 2017, the total liquid gross beta release was 4.86 x10^{6} Bq, which corresponds to less than 0.01% of the DRL (Primeau 2016). There is no evident trend in the liquid gross beta/gamma releases, as shown in Figure 8.3-4.

Figure 8.3-4 NPDWF Liquid Release Trend: Gross Beta (Athauda-Arachchige 2018)



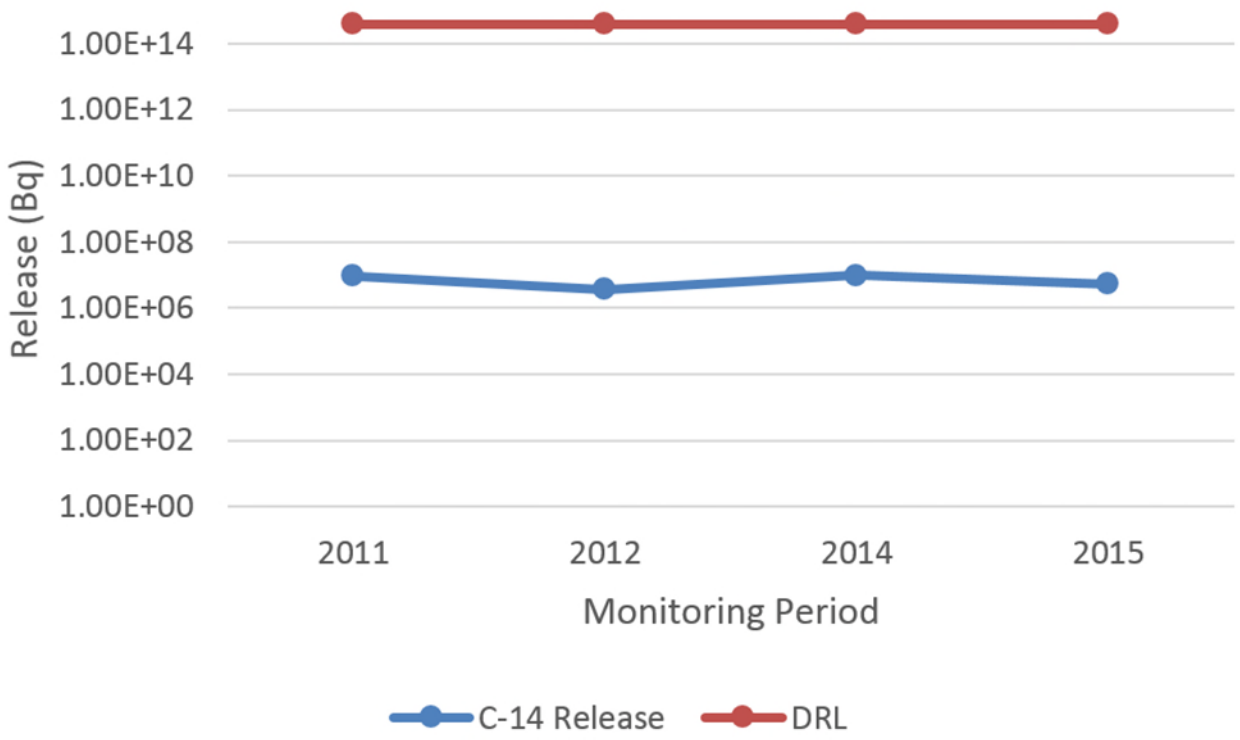
Notes:

2010 results are not shown as there were no pump-outs of the WAS at NPDWF during 2010.

In 2018, CNL changed its strategy for managing liquid effluent from the WAS. Instead of discharging liquid effluent from facility sumps to the Ottawa River, it is now transferred to the Waste Treatment Centre on the CRL site.

The total liquid C-14 release was 5.35 x10^6 Bq, which is less than 0.01% of the DRL (Primeau 2016). The average liquid release for 2011 to 2014 for C-14 was 7.63 x10^6 Bq; this average does not include 2013 measurement results, as they were not available for that year. There is no evident trend in the liquid C-14 releases, as shown in Figure 8.3-5.

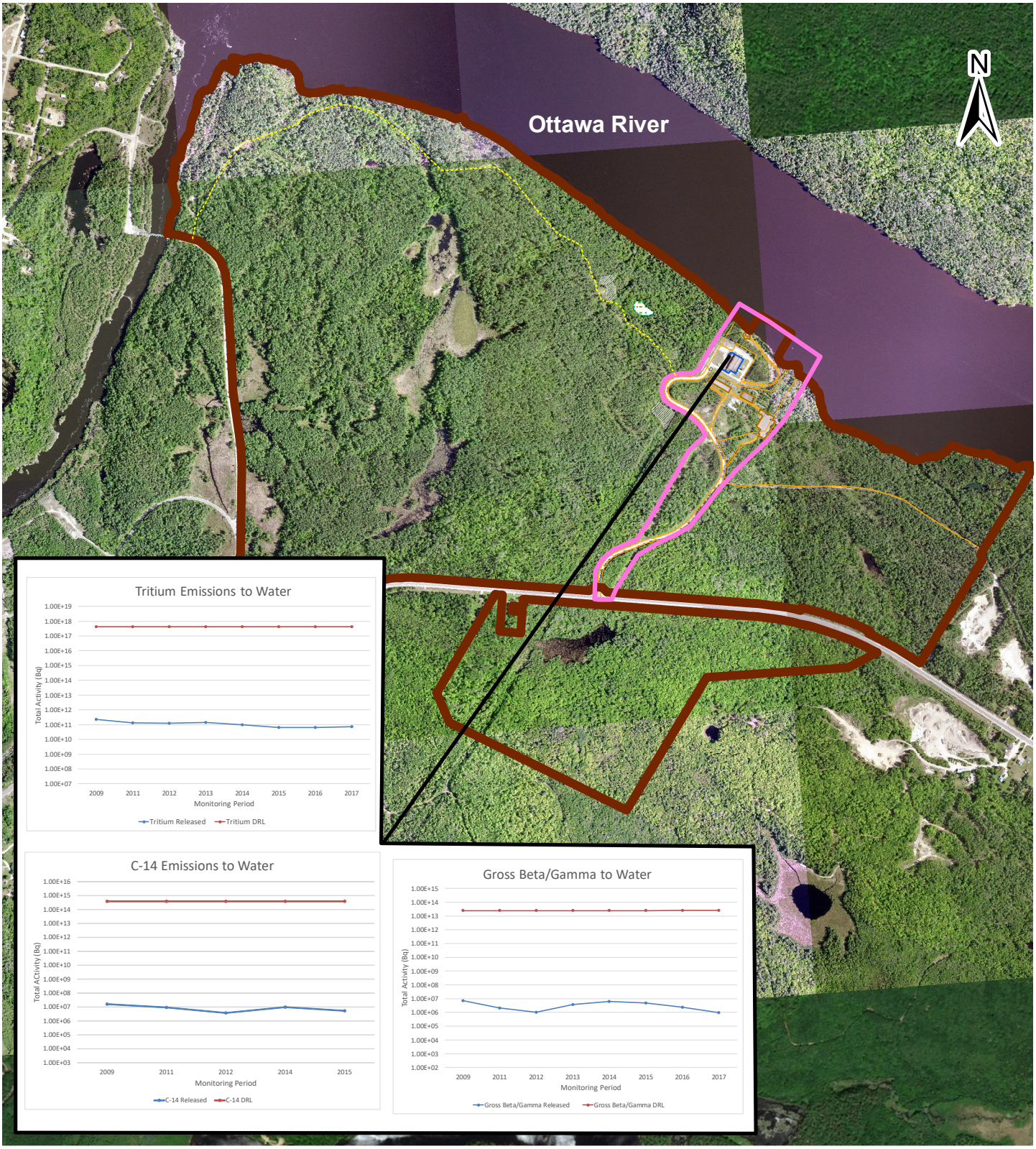
Figure 8.3-5 NPDWF Liquid Release Trend: C-14 (Source: Primeau 2016)



Notes:

2010 results are not shown as there were no pump-outs of the WAS at NPDWF during 2010. 2013 results are not shown as they were not available. C-14 monitoring did not continue past 2015.

Figure 8.3-6 shows historical trends for radiological surface water releases from the NPD site, from 2009 to 2017.



Legend

- Guardhouse
- Pumphouse
- Parking
- Wetland
- Road
- Trail
- Landfill
- Local Study Area
- Site Study Area
- NPDWF

0 150 300 600 Meters

Baseline Emissions to Surface Water from NPDWF

ARCADIS

Date: **February, 2020**

351240-000

Reference: ESRI ArcGIS Online Base Layer and NPD Closure Project Description

Non-Radiological

For non-radiological parameters, environmental-based quality guidelines are not directly applicable to effluent concentrations, as effluent concentrations are subject to dispersion and dilution processes in a receiving water body. In order to complete a meaningful assessment, the assimilative capacity of the receiving waters must also be accounted for to determine the actual concentrations in the surface water environment. Table 8.3-2 shows the WAS effluent concentrations, as well as the calculated maximum discharged concentrations (i.e., calculated maximum concentrations in the Ottawa River just beyond the NPD discharge pipe), and the relevant water quality guidelines, including Quebec surface water quality criteria (MELCC 2020). All discharged concentrations were well below the relevant guidelines, thus indicating little impact on the environment.

In 2018, CNL changed its strategy for managing liquid effluent from the WAS. Instead of discharging liquid effluent from facility sumps to the Ottawa River, it is now transferred to the Waste Treatment Centre on the CRL site.

Table 8.3-2 Non-Radiological Liquid WAS Effluent Concentrations, Calculated Maximum Discharged Concentrations and Water Quality Guidelines (Source: Athauda-Arachchige 2018)

Contaminant	2016		2017		Canadian Water Quality Guideline[1]	Quebec Surface Water Quality Criteria[6]
	Effluent Concentration	Calculated Maximum Discharged Concentration	Effluent Concentration	Calculated Maximum Discharged Concentration		
Iron	320 µg/L	8.74×10^{-3} µg/L	230 µg/L	6.09×10^{-3} µg/L	300 µg/L[1]	1300 µg/L
Lead	46 µg/L	1.22×10^{-3} µg/L	102 µg/L	2.70×10^{-3} µg/L	1 µg/L[1,2]	0.17 µg/L
Mercury	0.31 µg/L	8.21×10^{-6}µg/L	0.36 µg/L	9.53×10^{-6}µg/L	0.026 µg/L[1]	0.91 µg/L
Total PCBs	0.2 µg/L	5.3×10^{-5}µg/L	0.2 µg/L	5.3×10^{-5}µg/L	0.001 µg/L[3]	ncl[5]
Total Dioxins/ Furans	5.85 pg/L	1.55×10^{-4}pg/L	5.85 pg/L[4]	1.55×10^{-4}pg/L[4]	ncl[5]	ncl[5]

Notes:

[1] Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life: Freshwater (CCME 1999a).
[2] The CWQG for lead is hardness related and the value shown is the most stringent, for hardness ≤60 mg/L.
[3] Provincial Water Quality Objectives for the Protection of Aquatic Life (MOEE 1994).
[4] Due to laboratory unavailability, dioxins/furans were not measured, utilized data from 2016.
[5] no criterion listed.
[6] Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC). Surface Water Quality Criteria. Retrieved from the MELCC webpage: http://www.environnement.gouv.qc.ca/eau/criteres_eau/index.asp; lead criterion was conservatively calculated for a hardness of 10 mg/L $CaCO_3$.

8.3.4 Surface Water Quality

A recent study of near-field surface water releases has evaluated the potential impacts of transient operational releases of liquid effluent from the NPDWF on the Ottawa River. This study calculated the maximum concentrations in the Ottawa River that could be due to such releases and compared these to environmental quality guidelines (Garisto *et al.*, 2018). This assessment demonstrates that the transient release of liquid effluent from the NPDWF into the Ottawa River is in line with regulatory requirements, as the calculated maximum concentrations of chemical contaminants (e.g., lead, mercury, PCBs) are at least two orders of magnitude below the provincial (i.e., Ontario and Quebec) and federal surface water quality guidelines.

Due to the negligible impact of releases from the NPDWF while under SwS, surface water monitoring for chemical contaminants was not necessary or required. Further, the calculated concentrations would be unmeasurable for all contaminants except for tritium, for which data has been presented in Section 8.3.4.2.

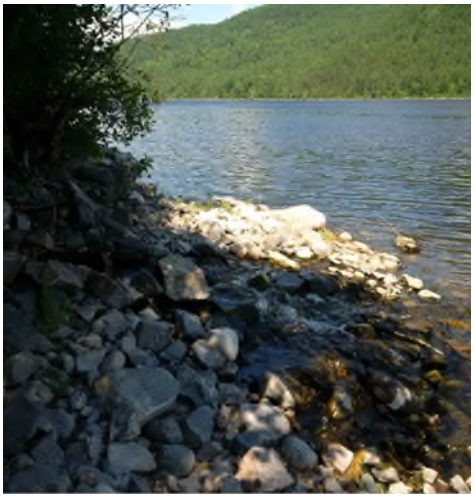
Additionally, available water quality data were reviewed for locations upstream of the NPD site (MOECC 2016 and MOECC 2018a), however no data was available for parameters relevant to the NPD Closure Project.

8.3.4.1 Site/Local Study Area

All manholes (MH-1, MH-2, and MH-3, as shown in Figure 8.3-7 were evaluated as part of the development of the NPD Effluent Monitoring Plan (CNL 2022b) in accordance with CSA N288.5. The NPD Effluent Monitoring Plan provides a rationale for monitoring points included or not included in the plan.

This report determined that monitoring is not required for MH-1 as it is upstream of MH-2, which is monitored.

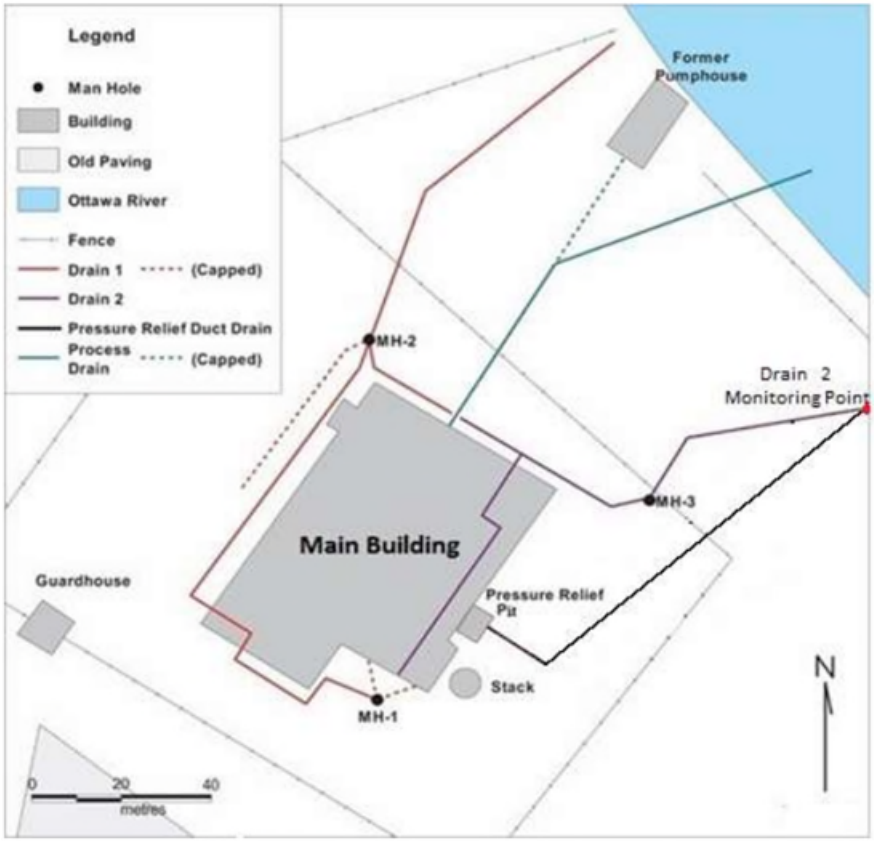
Tile Drain No.2 had been routinely dry, as shown by measurement results at MH-3. No maintenance activities or other work had been undertaken at the site which would have caused the dry conditions during 2007 – 2012. Observations of MH-3 typically indicated that when water was present, it was stagnant. Because there was no flow observed, discharge volumes were not measured at MH-3.



Tile Drain 1 discharge at shoreline

However, as described in Johnson (2022b), investigations conducted in the fall of 2021 identified low but consistent flow in Tile Drain #2 *downgradient* of MH-3. The major source of flowing water in this section of Tile Drain #2 is thought to be groundwater intercepted by a tile drain adjacent to and underneath the Pressure Relief Pit. The Pressure Relief Pit also collects precipitation which drains by natural gravity via a sump. The groundwater and precipitation intercepted at the Pressure Relief Pit is directed to a drain line referred to as the Pressure Relief Duct Drain which connects to Tile Drain #2 near the shoreline of the Ottawa River (Johnson, 2022a). In fall of 2021, a new monitoring point was installed in Tile Drain #2 downgradient of MH-3 and of the interception point, near the discharge point to the Ottawa River (see Figure 8.3-7). Effluent monitoring at this location began in 2022.

Figure 8.3-7 Drainage systems around the NPD facility ("Main Building"). The Process Drain (green line) is no longer used. (Source: Johnson 2022b)



Note:
The pressure relief duct drain connects to Drain 2 before exit to the Ottawa River.

MH-2 has a consistent, observable flow and is monitored as part of the NPD Effluent Monitoring Plan. Monitoring of MH-2 provides an indication of unusual or unforeseen conditions and provides data for trending purposes. It is monitored for Tritium Oxide (semi-annually), Gross Beta Activity (semi-annually) and a flow measurement (annually). Non-radiological contaminants are not monitored because the results of a characterization campaign undertaken in 2015 (Audet 2016) did not identify any non-radiological contaminants of interest.

Contaminants from MH-2 typically do not exceed the Health Canada Guidelines for Canadian Drinking Water Quality. However MH-1, which is upstream of MH-2 in the subsurface drain network and on the south side of the facility (close to the ventilation stack), does consistently contain tritium at levels exceeding 7,000 Bq/L. Tritium and gross beta are measured semi-annually.

Formal effluent monitoring of MH-2 commenced in 2016 April, when CSA Standard N288.5 (CSA 2022a) was officially implemented at NPD.

Required MH-2 monitoring results are presented in ACRs that are submitted to the CNSC, and are also presented below.

Radiological

Drainage ditches, which are located on both sides of roads on-site, as well as around the facility, collect and divert precipitation during storm events. Due to the nature of the source and its diversion away from the main building, monitoring is not required (Audet 2016).

Water samples from subsurface drains located around the NPDWF are analyzed semi-annually for average gross beta and tritium levels. Figure 8.3-7 shows the tile drain layout and the sampling locations (MH-1, MH-2 and MH-3). Drain 1 contains two manholes that act as vents, observation stations, cleanouts, and sample points. MH-1 is in collector pipe 1 on the south side and MH-2 is in the same collector pipe on the west side. Drain 1 discharges onto the shore of the Ottawa River. There is one manhole in Drain 2, which is MH-3 on the east side. MH-3 does not have a consistent, observable flow, and is dry for most of the year. Thus, it is a negligible loading to the Ottawa River.

The data from these measurements are presented in Table 8.3-3 for gross beta and Table 8.3-4 for tritium.

Table 8.3-3 Average Gross Beta Values (in Bq/L) for MH-1, MH-2, MH-3

Year	MH-1	MH-2	MH-3	Reference
1993	<17	<17	<17	(Wills 2013)
1994	83	<17	50	(Wills 2013)
1995	<220	<220	<220	(Wills 2013)
1996	6.4	2.7	4.5	(Wills 2013)
1997	300	<7.7	<2.9	(Wills 2013)
1998	<1.2	<2.7	<2.6	(Wills 2013)
1999	<4	<4.6	<4.1	(Wills 2013)
2000	<2.3	<4	<4.4	(Wills 2013)
2001	<2.2	<1.2	<1.2	(Wills 2013)
2002	<0.8	<0.8	<0.8	(Wills 2013)
2003	<0.8	<0.8	<0.41	(Wills 2013)
2004	<1.9	<1.9	2.3	(Wills 2013)
2005	1.9	<2	2.9	(Wills 2013)
2006	<2.5	4	<3.2	(Wills 2013)
2007	<1.8	<1.8	dry	(Wills 2013)
2008	2.1	1.7	dry	(Verney 2011)
2009	<1.2	<1.2	dry	(Verney 2011)
2010	<1.4	<1.4	dry	(Verney 2011)
2011	<2.6	<2.6	dry	(Primeau 2016)
2012	<MDA	<MDA	dry	(Primeau 2016)
2013	<MDA	<MDA	<MDA	(Primeau 2016)
2014	<1.1	<1.1	<1.1	(Primeau 2016)
2015	1.35	<1.35	<1.52	(Primeau 2016)
2016	NA	<0.17	NA	(Primeau 2017)
2017	NA	<0.32	NA	(Athauda-Arachchige 2018)
2018	NA	<0.0003	NA	(Luiz 2019)
2019	NA	0.16	NA	(Vaidya 2020)
2020	NA	1.13	NA	(Vaidya 2021)
2021	NA	0.29	NA	(Johnson 2022b) (CNL 2021a)

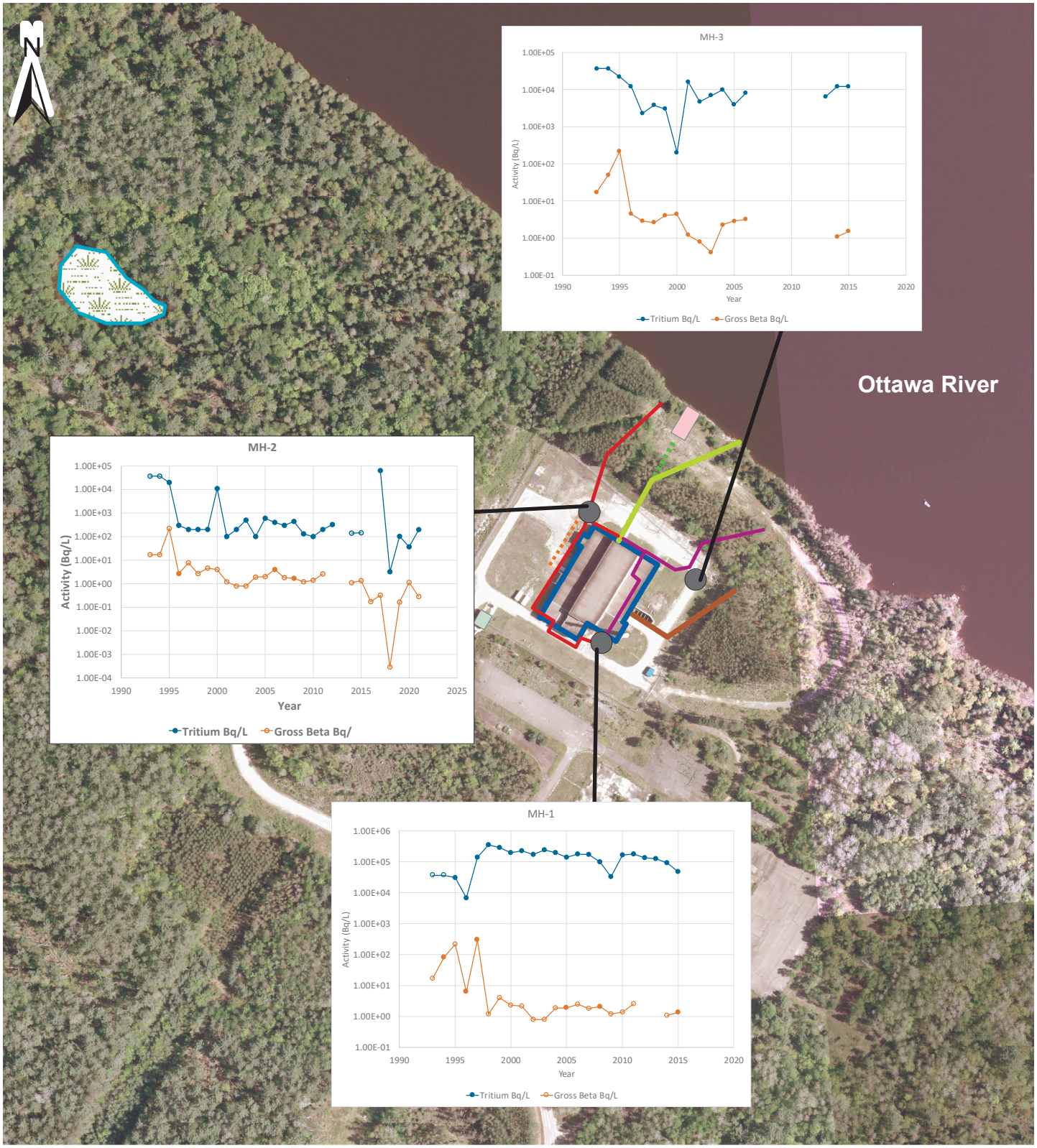
Notes:
MDA: Minimum Detectable Activity.
NA – No longer monitored, as per De Waele (2016)

Table 8.3-4 Average Tritium Values (in Bq/L) for MH-1, MH-2, MH-3

Year	MH-1	MH-2	MH-3	Reference
1993	$<3.70x10^4$	$<3.70x10^4$	$<3.70x10^4$	(Wills 2013)
1994	$<3.70x10^4$	$<3.70x10^4$	$<3.70x10^4$	(Wills 2013)
1995	$3.10 x10^4$	$2.00 x10^4$	$2.20 x10^4$	(Wills 2013)
1996	$6.7 x10^3$	$3 x10^2$	$1.20 x10^4$	(Wills 2013)
1997	$1.400 x10^5$	$2 x10^2$	$2.3 x10^3$	(Wills 2013)
1998	$3.600 x10^5$	$2 x10^2$	$3.8 x10^3$	(Wills 2013)
1999	$2.900 x10^5$	$2 x10^2$	$3.0 x10^3$	(Wills 2013)
2000	$2.000 x10^5$	$1.10 x10^4$	$2 x10^2$	(Wills 2013)
2001	$2.300 x10^5$	$1 x10^2$	$1.60 x10^4$	(Wills 2013)
2002	$1.700 x10^5$	$2 x10^2$	$4.7 x10^3$	(Wills 2013)
2003	$2.400 x10^5$	$5 x10^2$	$6.9 x10^3$	(Wills 2013)
2004	$1.970 x10^5$	$1 x10^2$	$9.9 x10^3$	(Wills 2013)
2005	$1.400 x10^5$	$6 x10^2$	$3.9 x10^3$	(Wills 2013)
2006	$1.760 x10^5$	$04 x10^2$	$8.0 x10^3$	(Wills 2013)
2007	$1.750 x10^5$	$3 x10^2$	Dry	(Wills 2013)
2008	$1.00 x10^5$	$4.4 x10^2$	Dry	(Verney 2011)
2009	$3.3 x10^4$	$1.3 x10^2$	Dry	(Verney 2011)
2010	$1.65 x10^5$	$1 x10^2$	Dry	(Verney 2011)
2011	$1.80 x10^5$	$2 x10^2$	Dry	(Primeau 2016)
2012	$1.35 x10^5$	$3 x10^2$	Dry	(Primeau 2016)
2013	$1.25 x10^5$	<MDA	$6.40 x10^3$	(Primeau 2016)
2014	$9.3 x10^4$	$<1.4 x10^2$	$1.2 x10^4$	(Primeau 2016)
2015	$4.77 x10^4$	$<1.45 x10^2$	$1.2 x10^4$	(Primeau 2016)
2016	NA	ND	NA	(Primeau 2017)
2017	NA	$<6.38 x10^4$	NA	(Athauda-Arachchige 2018)
2018	NA	<8.84	NA	(Luiz 2019)
2019	NA	$1.02 x10^2$	NA	(Vaidya 2020)
2020	NA	36.8	NA	(Vaidya 2021)
2021	NA	$<1.98 x10^2$	NA	(Johnson 2022b) (CNL 2021a)

Notes:
MDA: Minimum Detectable Activity.
ND – results are below critical level, reported as “Not Detected”.
NA – No longer monitored, as per De Waele (2016)

The historical trend of this data is presented in Figure 8.3-8 below. In this figure, open circles for data points represent the MDA value; however, these results were found to be below MDA. From 2007 – 2012 MH-3 was dry at the time of sampling. Other gaps in the plots represent results that were found to be below MDA, but no MDA value was provided (see Table 8.3-3 and Table 8.3-4).



Guardhouse
Pumphouse
Manhole
Wetland
Road
NPDWF
Drain 1
Drain1(Capped)
Drain 2
Pressure Relief Duct Drain
Process Drain
Procees Drain (Capped)

0 25 50 100 Meters

Manhole Water Quality

ARCADIS

Date: June, 2023

351240-000

Reference: ESRI ArcGIS Online Base Layer and NPD Closure Project Description

Non-Radiological

Drainage ditches, which are located on both sides of roads on-site as well as around the facility, collect and divert precipitation during storm event. Due to the nature of the source and its diversion away from the main building, monitoring is not required (Audet 2016).

Drain 1 was sampled in 2014. All samples were well below the Health Canada screening criteria for drinking water (Killey 2014). In 2015, the tile drain system (i.e., Drains 1 and 2) was sampled for non-radiological parameters, including physical and inorganic parameters, volatile organic compounds, and extractable organic compounds, including PCBs and dioxins and furans (Audet 2016). Exceedances above CCME (1999a) Water Quality Guidelines were reported for iron and zinc in samples from MH-3; however, it is noted in Audet (2016) that there MH-3 had no flow during the sampling campaign, and sample volume issues were experienced.

In addition to CNL's on-site water quality monitoring described above, the CNSC (2018b) leads an IEMP designed to verify that the public and the environment around licensed nuclear facilities are protected. As part of its IEMP, the CNSC analyzed selected radiological parameters (tritium and Cesium-137) and non-radiological parameters (copper, lead, mercury and cadmium) in the Ottawa River adjacent to the NPDWF. All results were below applicable federal benchmark values and CNSC screening levels, indicating no expected impacts on the public or the environment based on the 2018 results (available at: http://nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/cnl-nuclear-power-demonstration-waste-facility.cfm). However, some exceedances of Quebec (MELCC) surface water quality criteria for the protection of aquatic life (chronic) were noted, specifically for cadmium. All samples were below the detection limit for cadmium, however the detection limit is above the CCME criterion (i.e., no difference between upstream and downstream monitoring locations).

In addition, baseline monitoring for non-radiological parameters of interest in the Ottawa River (Site and Local Study Areas) will be undertaken to document pre-project conditions. This will enable comparison of future follow-up monitoring results to baseline conditions. This baseline monitoring will be undertaken at the same locations, frequency, and for the same parameters as those proposed for follow-up monitoring. Sections 9.3.5.2 and 12.3.2 provide additional details of proposed monitoring of non-radiological parameters in the Ottawa River.

8.3.4.2 Regional Study Area

Radiological

The CRL Environmental Monitoring Program overlaps regionally with the NPD site, so the information is relevant for the NPD site. Surface water sampled by CNL in the Ottawa River is reported in the NPD Baseline Report, ACRs, and CNL's Environmental Performance webpage (Verney 2011, Wills 2013, Neville 2015, Primeau 2016, Primeau 2017, Athauda-Arachchige 2018, Luiz 2019, CNL 2021a). River water samples are collected at the former hamlet of Rolphton (near the Des Joachims dam) and at Deep River, which are upstream and downstream respectively of the NPD site. These locations are described in Table 8.3-5.

Additionally, the CNSC (2018b) led an IEMP including sampling and analysis of surface water near the NPDWF, both upstream and downstream. Values for tritium, Cs-137 and Sr-90 from water river samples collected between 1988 and 2018 are presented in Table 8.3-6, and Figure 8.3-9 shows the historical trends at each location. At both sampling stations, river tritium concentrations are less than 0.00004% of the current Maximum Acceptable Concentration (MAC) of 7,000 Bq/L in drinking water, specified by Health Canada (2017). Quebec (MELCC) has also adopted the drinking water quality guideline of 7,000 Bq/L for tritium. Based on the data collected, there is no statistically significant difference between the two locations. For the most part, the Sr-90 concentrations at the two locations are also not significantly different (Wills 2013). The health Canada MACs for Cs-137 and Sr-90 are 10 Bq/L and 5 Bq/l, respectively, which have also been adopted by Quebec (MELCC) (Chapter Q-2, r.40).

Table 8.3-5 Ottawa River Upstream and Downstream Sampling Locations (Source: Wills 2013)

Name	Location	Location Code	UTM Easting (m)	UTM Northing (m)
Deep River	Ottawa River, Deep River Water Treatment Plant	ORD	307431	5109106
Des Joachims	Ottawa River, Rolphton (Des Joachims Generating Station)	ORR	291805	5117576

Table 8.3-6 Ottawa River Radionuclide Concentrations 1988 - 2021

Year	Quarter	Tritium (Bq/L)		Cs-137 (Bq/L)		Sr-90 (Bq/L)		Reference
		Des Joachims	Deep River	Des Joachims	Deep River	Des Joachims	Deep River	
1988	4	21	23	$<2.0 \times 10^{-3}$	$<4.5 \times 10^{-3}$	7×10^{-3}	5.3×10^{-3}	(Wills 2013)
1989	1	19	14	$<3.5 \times 10^{-3}$	$<2.1 \times 10^{-3}$	7.4×10^{-3}	8.5×10^{-3}	
	2	7.1	8.1	$<3.0 \times 10^{-3}$	$<3.8 \times 10^{-3}$	2.8×10^{-3}	7.4×10^{-3}	
	4	6.2	8.9	$<3.5 \times 10^{-3}$	$<0.9 \times 10^{-3}$	7.4×10^{-3}	1.49×10^{-2}	
1990	1	5.6	6.5	$<1.5 \times 10^{-3}$	$<2.1 \times 10^{-3}$	1.04×10^{-2}	1.06×10^{-2}	(Wills 2013)
	2	7.8	6.6	$<2.1 \times 10^{-3}$	2.8×10^{-3}	1.14×10^{-2}	1.22×10^{-2}	
	3	5.5	4.3	$<2.1 \times 10^{-3}$	$<1.5 \times 10^{-3}$	1.55×10^{-2}	1.19×10^{-2}	
	4	4.4	5	$<2.2 \times 10^{-3}$	$<1.2 \times 10^{-3}$	6.9×10^{-3}	4.3×10^{-3}	
1991	1	6.8	6.1	$<1.2 \times 10^{-3}$	$<2.3 \times 10^{-3}$	9×10^{-3}	6.9×10^{-3}	(Wills 2013)
	2	6.3	6.6	5.1×10^{-3}	4×10^{-3}	9.3×10^{-3}	7.3×10^{-3}	
	3	5.5	5.5	2.7×10^{-3}	$<4.1 \times 10^{-3}$	1.04×10^{-2}	8.2×10^{-3}	
	4	0.5	4.9	1.8×10^{-3}	$<2.5 \times 10^{-3}$	6.8×10^{-3}	7.9×10^{-3}	
1992	1	6.6	4.6	$<0.9 \times 10^{-3}$	$<5.7 \times 10^{-3}$	6.7×10^{-3}	9.8×10^{-3}	(Wills 2013)
	2	4.5	5.8	$<4.3 \times 10^{-3}$	$<3.8 \times 10^{-3}$	7.1×10^{-3}	8.1×10^{-3}	
	3	5.2	3.8	3.1×10^{-3}	$<2.8 \times 10^{-3}$	7.7×10^{-3}	1.13×10^{-2}	
	4	3.9	3.4	$<1.3 \times 10^{-3}$	$<2.2 \times 10^{-3}$	3.1×10^{-3}	3.6×10^{-3}	
1993	1	6.6	4.5	$<7.7 \times 10^{-3}$	5.4×10^{-3}	3.9×10^{-3}	5.6×10^{-3}	(Wills 2013)
	2	3.7	4.6	$<2.2 \times 10^{-3}$	$<9.9 \times 10^{-3}$	4.1×10^{-3}	9.4×10^{-3}	
	3	9.6	5.4	4.9×10^{-3}	$<5 \times 10^{-3}$	1.04×10^{-2}	$<2.8 \times 10^{-3}$	
	4	6.5	5.2	4.5×10^{-3}	$<3.4 \times 10^{-3}$	8.7×10^{-3}	6.4×10^{-3}	
1994	1	4.4	4.5	$<2.4 \times 10^{-3}$	2.6×10^{-3}	1.03×10^{-2}	4.8×10^{-3}	(Wills 2013)
	2	4.5	4.7	3.8×10^{-3}	5.2×10^{-3}	4.5×10^{-3}	4.7×10^{-3}	
	3	4.8	3.4	$<2.7 \times 10^{-3}$	$<2 \times 10^{-3}$	7.3×10^{-3}	6.6×10^{-3}	
	4	5.5	3.9	$<3 \times 10^{-3}$	$<2.9 \times 10^{-3}$	7.4×10^{-3}	6.3×10^{-3}	
1995	1	4.1	2.9	$<2.1 \times 10^{-3}$	$<1.4 \times 10^{-3}$	7.4×10^{-3}	7.1×10^{-3}	(Wills 2013)
	2	5.1	4.3	$<2 \times 10^{-3}$	$<2.4 \times 10^{-3}$	8.9×10^{-3}	6.9×10^{-3}	
	3	4	2.5	3.6×10^{-3}	$<1.1 \times 10^{-3}$	6.6×10^{-3}	8×10^{-3}	
	4	4.1	4.5	2.7×10^{-3}	2.7×10^{-3}	3.5×10^{-3}	4.3×10^{-3}	
1996	1	4.3	3.8	1.7×10^{-3}	1.7×10^{-3}	5.5×10^{-3}	6.3×10^{-3}	(Wills 2013)
	2	4.6	3.5	2.2×10^{-3}	3.8×10^{-3}	3.7×10^{-3}	5.7×10^{-3}	
	3	4.2	4.1	1.9×10^{-3}	1.8×10^{-3}	3.3×10^{-3}	3.3×10^{-3}	
	4	6	5.2	1.9×10^{-3}	3.5×10^{-3}	4.8×10^{-3}	5.1×10^{-3}	
1997	1	3.5	3.3	2.2×10^{-3}	1.9×10^{-3}	7.4×10^{-3}	6.4×10^{-3}	(Wills 2013)
	2	3.3	2.2	1.2×10^{-3}	2.8×10^{-3}	6.4×10^{-3}	7.8×10^{-3}	
	3	4.1	3.4	1.3×10^{-3}	0.4×10^{-3}	8.9×10^{-3}	1.07×10^{-2}	
	4	3.8	5.4	1.1×10^{-3}	2.8×10^{-3}	9.1×10^{-3}	1.11×10^{-2}	
1998	1	3.3	2.8	3.1×10^{-3}	$<1.62 \times 10^{-3}$	1.14×10^{-2}	7.9×10^{-3}	(Wills 2013)
	2	3.2	3.6	1.4×10^{-3}	1.8×10^{-3}	6×10^{-3}	5.5×10^{-3}	
	3	3.9	5.3	1×10^{-3}	2.7×10^{-3}	2.1×10^{-3}	4.3×10^{-3}	
	4	3.2	3.5	$<1.26 \times 10^{-3}$	$<1.57 \times 10^{-3}$	4×10^{-3}	1.5×10^{-3}	
1999	1	3.3	3.4	1.1×10^{-3}	3.8×10^{-3}	5.7×10^{-3}	$<2.14 \times 10^{-2}$	(Wills 2013)
	2	3.7	3.6	1.4×10^{-3}	2.1×10^{-3}	5×10^{-3}	$<1.03 \times 10^{-2}$	

Year	Quarter	Tritium (Bq/L)		Cs-137 (Bq/L)		Sr-90 (Bq/L)		Reference
		Des Joachims	Deep River	Des Joachims	Deep River	Des Joachims	Deep River	
	3	4.4	2.8	5×10^{-3}	1.9×10^{-3}	3.1×10^{-3}	5.5×10^{-3}	
	4	3.4	2.7	1.4×10^{-3}	1.3×10^{-3}	3.4×10^{-3}	7.6×10^{-3}	
2000	1	3.8	2.8	$<1.4 \times 10^{-3}$	2.9×10^{-3}	7.1×10^{-3}	10.2	(Wills 2013)
	2	3.8	3.4	1.6×10^{-3}	5.1×10^{-3}	2.3×10^{-3}	7.4×10^{-3}	
	3	3.2	2.7	2.7×10^{-3}	1.13×10^{-2}	3.7×10^{-3}	4.6×10^{-3}	
	4	3.7	3.9	$<0.8 \times 10^{-3}$	$<1.6 \times 10^{-3}$	2.6×10^{-3}	5.5×10^{-3}	
2001	1	3.1	4.4	$<0.9 \times 10^{-3}$	$<1.8 \times 10^{-3}$	3.3×10^{-3}	4.9×10^{-3}	(Wills 2013)
	2	3.8	4	$<1 \times 10^{-3}$	$<2 \times 10^{-3}$	3.6×10^{-3}	4×10^{-3}	
	3	4.8	3.7	1.2×10^{-3}	4.8×10^{-3}	3.7×10^{-3}	5.8×10^{-3}	
	4	4.6	5.3	0.8×10^{-3}	3×10^{-3}	3.3×10^{-3}	3.7×10^{-3}	
2002	1	3.2	3.8	1.3×10^{-3}	1.2×10^{-3}	3.2×10^{-3}	4.1×10^{-3}	(Wills 2013)
	2	3.5	3.6	1.7×10^{-3}	1.5×10^{-3}	4.7×10^{-3}	3.9×10^{-3}	
	3	3.5	2.9	1.4×10^{-3}	$<1.3 \times 10^{-3}$	2.5×10^{-3}	4×10^{-3}	
	4	3.2	3.1	1.8×10^{-3}	3.3×10^{-3}	$<2.4 \times 10^{-3}$	$<2.1 \times 10^{-3}$	
2003	1	3.1	2.9	1.3×10^{-3}	0.9×10^{-3}	2.8×10^{-3}	3×10^{-3}	(Wills 2013)
	2	3.4	3.6	1.6×10^{-3}	1.5×10^{-3}	7.9×10^{-3}	6.5×10^{-3}	
	3	3.1	3	1.3×10^{-3}	0.7×10^{-3}	4.4×10^{-3}	5.3×10^{-3}	
	4	3.7	3.3	1.1×10^{-3}	0.6×10^{-3}	3.3×10^{-3}	3.9×10^{-3}	
2004	1	3	2.3	$<1.4 \times 10^{-3}$	$<1.1 \times 10^{-3}$	4.5×10^{-3}	3×10^{-3}	(Wills 2013)
	2	3.3	3.3	1.3×10^{-3}	1.4×10^{-3}	3.2×10^{-3}	3.3×10^{-3}	
	3	2.8	2.4	0.9×10^{-3}	0.9×10^{-3}	4.4×10^{-3}	5.7×10^{-3}	
	4	2.5	1.9	1.2×10^{-3}	1×10^{-3}	5.9×10^{-3}	7.5×10^{-3}	
2005	1	3.1	2.8	0.9×10^{-3}	0.7×10^{-3}	7.7×10^{-3}	4.9×10^{-3}	(Wills 2013)
	2	4.5	3.9	1.1×10^{-3}	0.9×10^{-3}	8.6×10^{-3}	3.5×10^{-3}	
	3	3.2	2.5	0.6×10^{-3}	1.3×10^{-3}	5.2×10^{-3}	3.8×10^{-3}	
	4	2.3	3.4	2.5×10^{-3}	$<0.6 \times 10^{-3}$	1.43×10^{-2}	6.1×10^{-3}	
2006	1	<2.5	<2.3	0.7×10^{-3}	1.1×10^{-3}	4.9×10^{-3}	4.9×10^{-3}	(Wills 2013)
	2	<3.2	<3.3	$<0.6 \times 10^{-3}$	1.2×10^{-3}	1.1×10^{-2}	5.2×10^{-3}	
	3	<3.1	<3.0	0.8×10^{-3}	1.1×10^{-3}	$<1.5 \times 10^{-3}$	5.3×10^{-3}	
	4	<3.5	<3.5	0.8×10^{-3}	$<0.4 \times 10^{-3}$	4.2×10^{-3}	4.3×10^{-3}	
2007	1	<3.5	<3.8	$<0.5 \times 10^{-3}$	0.7×10^{-3}	2.1×10^{-3}	5.5×10^{-3}	(Wills 2013)
	2	3.7	<3.9	1×10^{-3}	0.5×10^{-3}	4.6×10^{-3}	6.2×10^{-3}	
	3	<5.3	<5.2	0.6×10^{-3}	0.6×10^{-3}	5.4×10^{-3}	3.6×10^{-3}	
	4	<5.5	<5.0	$<0.3 \times 10^{-3}$	0.4×10^{-3}	2.9×10^{-3}	4.2×10^{-3}	
2008	1	<4.6	4.9	$<0.2 \times 10^{-3}$	$<0.6 \times 10^{-3}$	4.5×10^{-3}	2.5×10^{-3}	(Verney 2011)
	2	4.4	4.7	0.6×10^{-3}	$<0.6 \times 10^{-3}$	8.2×10^{-3}	6.8×10^{-3}	
	3	2.9	3.3	2.4×10^{-3}	$<0.5 \times 10^{-3}$	2.2×10^{-3}	2.4×10^{-3}	
	4	3.3	4.9	1.5×10^{-3}	$<0.7 \times 10^{-3}$	4.2×10^{-3}	4.9×10^{-3}	
2009	1	<2.8	<2.7	1.1×10^{-3}	1.3×10^{-3}	4.9×10^{-3}	5.4×10^{-3}	(Verney 2011)
	2	<3.0	<3.0	0.9×10^{-3}	1.0×10^{-3}	8.2×10^{-3}	7.7×10^{-3}	
	3	<3.2	<3.4	6.7×10^{-3}	5.6×10^{-3}	6.2×10^{-3}	5.6×10^{-3}	
	4	<3.3	<3.3	0.9×10^{-3}	$<0.7 \times 10^{-3}$	8.1×10^{-3}	5.7×10^{-3}	
2010	1	<3.4	<3.3	$<0.5 \times 10^{-3}$	1.8×10^{-3}	6.5×10^{-3}	5.2×10^{-3}	(Neville 2015)
	2	<3.4	<3.4	$<0.5 \times 10^{-3}$	2.1×10^{-3}	3.8×10^{-3}	5.3×10^{-3}	

Year	Quarter	Tritium (Bq/L)		Cs-137 (Bq/L)		Sr-90 (Bq/L)		Reference
		Des Joachims	Deep River	Des Joachims	Deep River	Des Joachims	Deep River	
	3	<3.5	<3.5	1.0 x10^{-3}	< 0.7 x10^{-3}	4.2 x10^{-3}	6.4 x10^{-3}	
	4	<3.3	<3.5	< 0.7 x10^{-3}	1.4 x10^{-3}	8.4 x10^{-3}	5.2 x10^{-3}	
2011	1	<3.3	<3.4	1.0 x10^{-3}	1.1 x10^{-3}	3.6 x10^{-3}	4.1 x10^{-3}	(Primeau 2016)
	2	<3.5	<3.5	<0.8 x10^{-3}	1.3 x10^{-3}	3.3 x10^{-3}	5.1 x10^{-3}	
	3	<3.5	<3.4	<0.8 x10^{-3}	0.9 x10^{-3}	2.1 x10^{-3}	<2.1 x10^{-3}	
	4	<3.0	<3.0	<0.8 x10^{-3}	<0.7 x10^{-3}	6.5 x10^{-3}	<2.5 x10^{-3}	
2012	1	<3.3	<3.3	0.9 x10^{-3}	<0.8 x10^{-3}	1.5x10^{-3}	<5.3 x10^{-3}	(Primeau 2016)
	2	<3.2	<3.2	1.8 x10^{-3}	1.4 x10^{-3}	<3.9 x10^{-3}	<7.0 x10^{-3}	
	3	<3.6	<3.6	01.0 x10^{-3}	<0.7 x10^{-3}	<2.1 x10^{-3}	<2.3 x10^{-3}	
	4	<3.3	5.7	<0.6 x10^{-3}	<0.7 x10^{-3}	<3.1 x10^{-3}	<3.0 x10^{-3}	
2013	1	0.9	<0.9	1.2 x10^{-3}	0.7 x10^{-3}	2.8 x10^{-3}	2.5 x10^{-3}	(Primeau 2016)
	2	<0.9	0.9	1.2 x10^{-3}	1.7 x10^{-3}	2.9 x10^{-3}	1.3 x10^{-3}	
	3	1.3	<0.9	<0.6 x10^{-3}	1.0 x10^{-3}	2.3 x10^{-3}	1.7 x10^{-3}	
	4	1.6	<0.9	0.6 x10^{-3}	<0.6 x10^{-3}	2.3 x10^{-3}	1.2 x10^{-3}	
2014	1	<3.3	<3.2	<0.5 x10^{-3}	<0.8 x10^{-3}	7.0 x10^{-3}	3.9 x10^{-3}	(Primeau 2016)
	2	<3.3	<3.2	0.7 x10^{-3}	0.7 x10^{-3}	2.8 x10^{-3}	3.0 x10^{-3}	
	3	<3.6	<3.6	<0.5 x10^{-3}	1.3 x10^{-3}	8.8 x10^{-3}	6.8 x10^{-3}	
	4	<3.5	<3.4	<0.9 x10^{-3}	3.7 x10^{-3}	<2.4 x10^{-3}	5.3 x10^{-3}	
2015	1	0.9	1.7	5.8 x10^{-3}	<0.5 x10^{-3}	<4.5 x10^{-3}	<0.6 x10^{-3}	(Primeau 2016)
	2	1.5	1.6	2.5 x10^{-3}	2.4 x10^{-3}	3.3 x10^{-3}	<3.4 x10^{-3}	
	3	1.3	1.6	0.7 x10^{-3}	<0.5 x10^{-3}	<1.3 x10^{-3}	<2.0 x10^{-3}	
	4	1.8	1.9	<0.9 x10^{-3}	1.4 x10^{-3}	<1.7 x10^{-3}	<1.6 x10^{-3}	
2016	1	2.3	2.1	0.55	0.74	Not measured*		(Primeau 2017)
	2	2.3	2.2	0.25	0.42			
	3	1.9	1.9	0.69	0.41			
	4	2.2	2	0.87	0.55			
2017	Average	3.5	3.6	<0.3 x10^{-3}	<0.3	Not Measured*		(Athauda-Arachchige 2018)
2018	Average	2.62	2.7	<0.3 x10^{-3}	<0.3	Not Measured*		(Luiz 2019)
2019	Average	2.77	2.8	V 0.5 x10^{-3}	<0.4 x10^{-3}	Not Measured*		(CNL 2021a)
2020	Average	1.88	2.09	<0.4 x10^{-3}	<0.7 x10^{-3}	Not Measured*		(CNL 2021a)
2021	Average	1.65	1.71	V 0.1 x10^{-2}	<0.6 x10^{-3}	Not Measured*		(CNL 2021a)

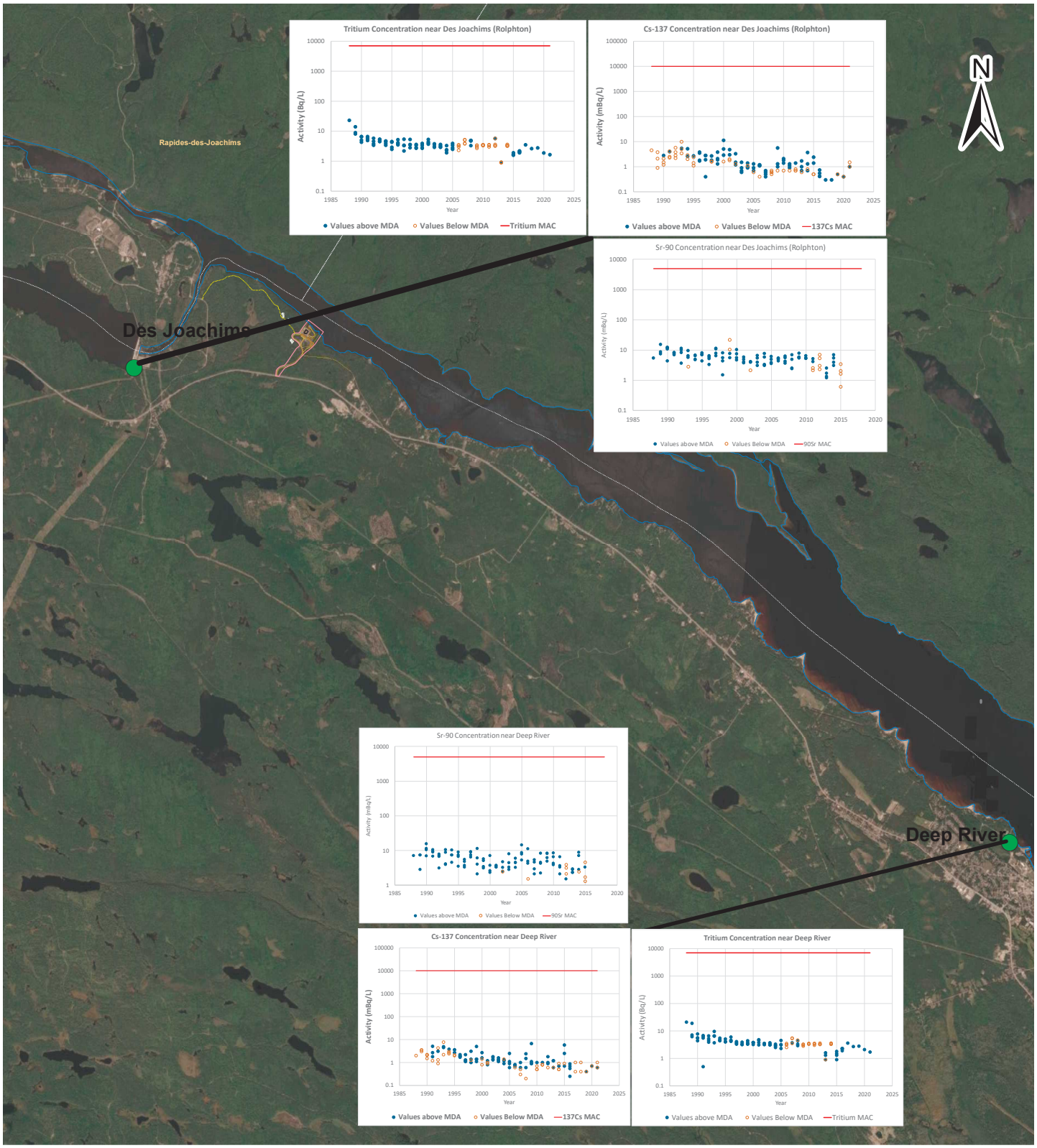
Notes:

For the 2008-2015 data, the source documents provide uncertainty (i.e., +/-) values; these are not presented in this table, for clarity.

* Not Measured – bulk parameter analysis resulted in no trigger to measure Sr-90 directly (Boileau 2018).

'V' Indicates that one or more of the values used to calculate the result is below the critical level (LC) and/or the detection level (LD) (CNL 2021a).

Figure 8.3-9 Ottawa River Radioactive Concentration Historical Trends



Legend

- Road
- Trail
- Regional Study Area
- Site Study Area
- Municipality Boundary

0 750 1,500 3,000 Meters

Baseline Surface Water Quality in the Ottawa River

ARCADIS

Date: June, 2023

351240-000

Reference: ESRI ArcGIS Online Base Layer and NPD Closure Project Description

Gross alpha and beta results of monitoring of radioactivity in the Ottawa River upstream (Rolphton) and downstream (Deep River) of NPDWF from 2011 to 2021 are shown in Table 8.3-7, and the sampling locations are shown in Figure 8.3-9. The observed concentrations are at natural background levels, and far below the screening levels for radioactivity in drinking water specified by Health Canada (0.5 Bq/L for gross alpha and 1.0 Bq/L for gross beta). These screening levels have also been endorsed by Chapter Q-2, r. 40 of the Quebec Regulation for drinking water quality.

As discussed in Section 8.3.4.1, the CNSC (2018b) leads an IEMP designed to verify that the public and the environment around licensed nuclear facilities are protected. As part of its IEMP, the CNSC samples and analyzes surface water upstream and downstream of the NPDWF. As part of its 2018 IEMP activity, the CNSC analyzed radioactive parameters in surface water upstream, adjacent to and downstream of the NPDWF in the summer of 2018. All results were below applicable benchmark values and CNSC screening levels, therefore indicating no surface water impacts from the NPDWF. The IEMP results are available on the CNSC website: (http://nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/cnl-nuclear-power-demonstration-waste-facility.cfm). The IEMP results for 2018 confirm that the public and the environment around the NPDWF are protected and that there are no expected health impacts.

In addition, baseline monitoring for radiological parameters of interest in the Ottawa River (Regional Study Area) will be undertaken to document pre-project conditions. This will enable comparison of future follow-up monitoring results to baseline conditions. Baseline monitoring will be undertaken at the same locations, frequency and for the same parameters as those proposed for follow-up monitoring. Sections 9.3.5.2 and 12.3.2 provide additional details of proposed monitoring of radiological parameters in the Ottawa River.

Table 8.3-7 Radioactivity in the Ottawa River (Bq/L) 2011 – 2018 (Boileau and Rahman 2016, Luiz 2019, CNL 2021a)

Year	Gross Beta (Bq/L)		Gross Alpha (Bq/L)		Source
	Rolphton	Deep River	Rolphton	Deep River	
2011	0.045	0.042	0.0064	0.0046	Boileau and Rahman 2016
2012	0.056 ± 0.006	0.061 ± 0.007	0.0056 ± 0.0005	0.0056 ± 0.0005	Boileau and Rahman 2016
2013	V 0.039 ± 0.002	0.042 ± 0.002	0.0046 ± 0.0001	0.0045 ± 0.0001	Luiz 2019
2014	0.042 ± 0.001	0.046 ± 0.001	0.0115 ± 0.0004	0.0095 ± 0.0003	Luiz 2019
2015	0.04 ± 0.001	0.039 ± 0.001	0.0091 ± 0.0003	0.0079 ± 0.0003	Luiz 2019
2016	0.046 ± 0.012	0.052 ± 0.013	0.0072 ± 0.0006	0.0065 ± 0.0006	Luiz 2019
2017	0.046 ± 0.012	0.054 ± 0.013	0.0074 ± 0.0006	0.007 ± 0.0006	Luiz 2019
2018	0.047 ± 0.012	0.053 ± 0.013	0.0068 ± 0.0007	0.0059 ± 0.0006	Luiz 2019
2019	0.041 ± 0.008	0.046 ± 0.009	0.0075 ± 0.0007	0.0066 ± 0.0006	CNL 2021a
2020	0.044 ± 0.004	0.048 ± 0.004	0.0087 ± 0.001	0.0097 ± 0.001	CNL 2021a
2021	0.05 ± 0.004	0.05 ± 0.004	0.0097 ± 0.001	0.0078 ± 0.001	CNL 2021a

Note:

± - Represents the uncertainty in the counting statistics, except for the 5-year averages, where it represents the uncertainty in the result population (i.e. one standard deviation of the annual averages).

In 2016, the CNL Environmental Monitoring Program moved from reporting a ±1 sigma uncertainty to a method (described in the CSA N288.4) that more accurately represents the uncertainty associated with the measured value. This has, in general, resulted in a higher reported uncertainty than what has been seen in previous years.

Non-Radiological

As discussed in Section 8.3.4.1, the CNSC (2018b) leads an IEMP designed to verify that the public and the environment around licensed nuclear facilities are protected. As part of its IEMP, the CNSC samples and analyzes surface water upstream and downstream of the NPDWF (including sampling for non-radiological parameters). See Table 8.3-5 for sampling locations.

As part of its 2018 IEMP activity, the CNSC analyzed non-radioactive surface water upstream, adjacent to and downstream of the NPDWF in the summer of 2018. The analysis included non-radioactive parameters (copper, lead, mercury, and cadmium). The IEMP results are available on the CNSC website: (http://nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/cnl-nuclear-power-demonstration-waste-facility.cfm). However, some exceedances of CCME Water Quality Guidelines for the Protection of Aquatic Life and/or Quebec (MELCC) surface water quality criteria for the protection of aquatic life (chronic) were noted for cadmium and lead. In the case of cadmium, all samples were below the detection limit, however the detection limit is above the CCME criterion (i.e., no difference between upstream and downstream monitoring locations). One exceedance of the lead criterion was observed at NP05-W05 (6.60 µg/L measured, exceeding CCME and MELCC criteria), roughly two km downstream from the NPDWF.

The CNSC concluded that the IEMP results for 2018 confirm that the public and the environment around the NPDWF are protected and that there are no expected health impacts.

A recent study of near-field surface water releases has evaluated the potential impacts of transient operational releases of liquid effluent from the NPDWF on the Ottawa River. This study calculated the maximum concentrations in the Ottawa River that could be due to such releases and compared these to environmental-quality guidelines (Garisto *et al*., 2018a). This assessment demonstrates that the transient release of liquid effluent from the NPDWF into the Ottawa River is in line with regulatory requirements, as the calculated maximum concentrations of chemical contaminants (e.g., lead, mercury, PCBs) are at least two orders of magnitude below the provincial (i.e., Ontario and Quebec) and federal surface water quality guidelines. It is noted that in 2018, CNL changed its strategy for managing liquid effluent from the WAS. Instead of discharging liquid effluent from facility sumps to the Ottawa River, it is now transferred to the Waste Treatment Centre on the CRL site.

8.3.5 Sediment Quality

8.3.5.1 Site/Local Study Area

Radiological

A Phase Two Environmental Site Assessment (Phase Two ESA) of the NPD property was completed over 2016 and 2017.

In this campaign, Ottawa River sediment samples were obtained from a small boat using a Ponar sampler (McVeigh, 2018b). Eight random samples were retrieved from an area upstream of the NPD outfalls and eight from an area immediately downstream of the NPD outfalls. Those sediment samples that were selected and submitted are presented, including location and description, in Table 8.3-8.

Table 8.3-8 2016 Sediment Sample Descriptions

Sample	Sample Collection Date	Sample Starting Depth (meters below water surface)	Sample Description
SA-001 (downstream)	11/30/16	5.90	Brown SILTY SAND
SA-002 (downstream)	11/30/16	4.10	Brown SILTY SAND
SA-003 (downstream)	11/30/16	4.10	Brown SILTY SAND
SA-004 (downstream)	11/30/16	0.61	Brown SAND
SA-008 (downstream)	12/01/16	15.90	Brown SILTY SAND
SA-010 (upstream)	11/30/16	11.10	Brown SILTY SAND
SA-012 (upstream)	11/30/16	6.20	Brown SILTY SAND, trace cobbles
SA-013 (upstream)	12/01/16	5.10	Dark brown SILTY SAND

Source: McVeigh (2018b)

As shown in Table 8.3-9, all radionuclides are well below the Unconditional Clearance Criteria, Schedule 1, SOR2000-207 Nuclear Substances and Radiation Device Regulations.

Comparison of upstream and downstream data using the appropriate statistical test (Wilcoxon Mann-Whitney), shows that the sediments immediately downstream of the NPD river outfalls are comparable to the upstream area. This demonstrates that the sediment tritium concentrations at the NPD site are non-impacted.

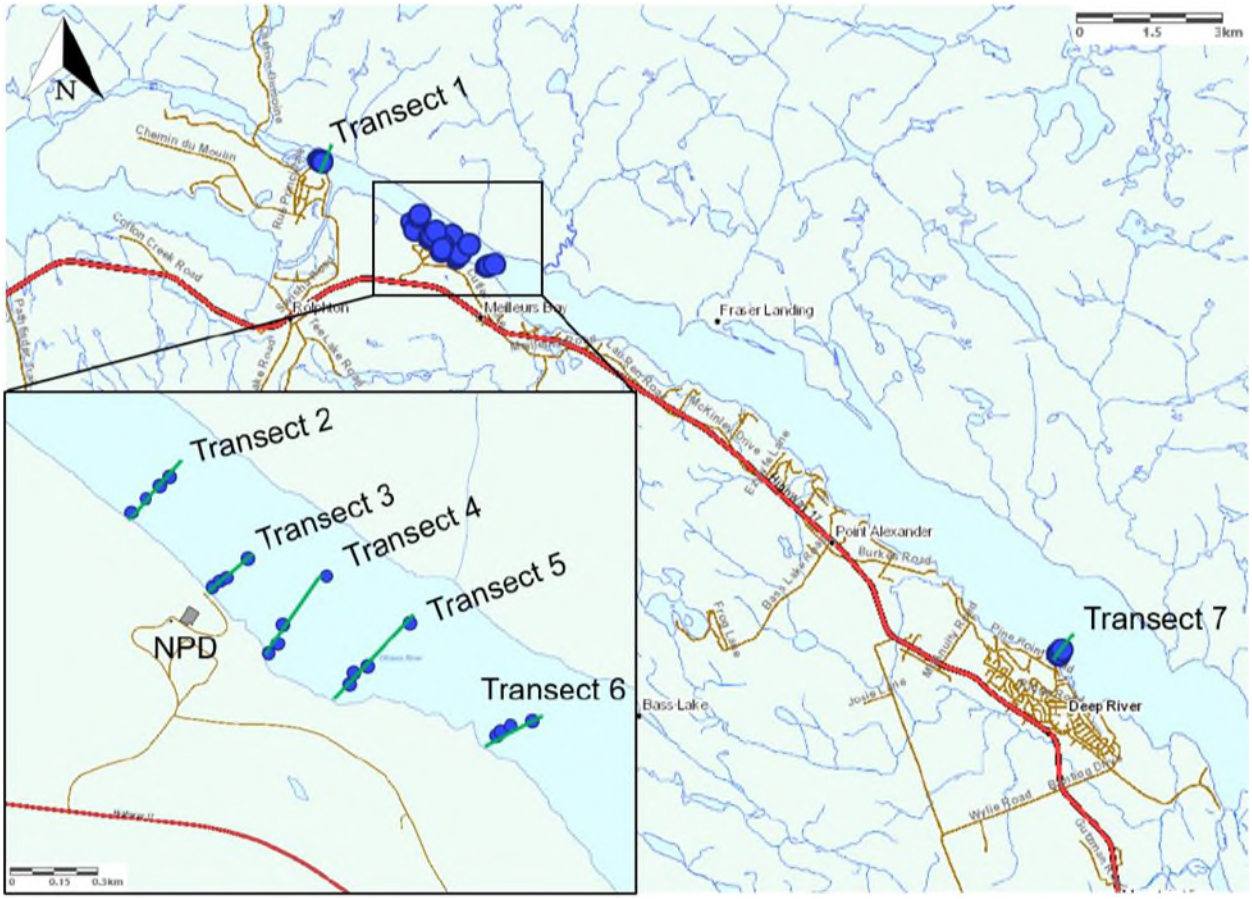
Table 8.3-9 Radionuclide concentrations in Ottawa River sediment upstream and downstream of NPD outfalls (McVeigh 2018b)

Radionuclide	DCGL[a]	Average Upstream Concentration		Average Downstream Concentration	
		Bq/g	pCi/g	Bq/g	pCi/g
Am-241	0.1	0.00307	0.082973	0.00257	0.069459
Co-60	0.1	0.00030	0.008108	0.00048	0.12973
Cs-137	0.1	0.01398	0.377838	0.01900	5.135135
Eu-152	0.1	0.00107	0.028919	0.00110	0.02973
U-235	1	0.00205	0.055405	0.00675	0.182432
U-238	1	0.01525	0.412162	0.02075	0.560811
H-3	100	0.00310	0.083784	0.00242	0.065405
C-14	1	0.01400	0.378378	0.00203	0.054865
Sr-90	1	0.04175	1.128649	0.05789	1.564595
Tc-99	1	<0.2000		<0.2000	

Note:
a. Derived Concentration Guideline Level (DCGL) is based on Unconditional Clearance Levels, Schedule 1, SOR2000-207 Nuclear Substances and Radiation Device Regulations.

In June 2020, CNL undertook sediment sampling in the Ottawa River to better understand baseline conditions in the context of EA follow-up monitoring (Bond and Carr 2021). Sediment was sampled along seven transects, five of which are located partly within the Site/Local Study Area and extend into the Regional Study Area. The remaining two transects (transects 1 and 7) are located within the Regional Study Area and include an upstream reference transect as well as a downstream transect at Deep River. Within each transect, a sediment sample was collected from each of four water column depth bins: 0-5, 5-10, 10-15, and 15-20 m deep. The transect locations are shown in Figure 8.3-10.

Figure 8.3-10 Map of Sediment Sampling Locations (blue dots) along transects (green lines) on the Ottawa River



The only anthropogenic radionuclide detected in Ottawa River sediments was Cesium-137, which was detected in nearly all samples at a mean activity concentration of 0.47 ± 0.52 pCi/g. Cesium-137 in sediments upstream of CRL is due to atmospheric nuclear weapon tests during the early 1960s.

Mean Gross Alpha and Gross Beta activity concentrations in river sediments (± Standard Deviation) were 8.79±3.60 pCi/g and 25.44 ± 14.86 pCi/g, respectively (Bond and Carr 2021). The alpha activity in these samples is due to naturally occurring isotopes such as U-238 or Th-232 and their progeny. Gamma spectrometry of the samples confirmed the presence of uranium and thorium progeny. All samples were

below the Nuclear Substances and Radiation Device Regulations (NSRDR) Clearance Level of 1 Bq/g (or 27.027 pCi/g) for all of natural origin. Tritium and Carbon-14 activity concentrations were below detection in all samples. Previous studies by CNL have determined that the major proportion of gross beta is due to Potassium-40. (Bond and Carr 2021)

All radionuclides measured were less than the Derived Concentration Guideline Levels (DCGL), which are based on Unconditional Clearance Levels, Schedule 1, SOR2000-207 Nuclear Substances and Radiation Device Regulations. (CNSC 2010)

A summary of sediment radionuclides across all transects (which includes transects in the Regional Study Area) is presented in Table 8.3-10 below.

Table 8.3-10 Summary statistics for Ottawa River sediment radiochemistry results near NPD

Analyte	Unit	Minimum	Maximum	Mean	Geometric Mean	Median	± Standard Deviation	95% UCLM[a]	% Non-detect	DCGL[b]
Ac-228	pCi/g	<0.262	1.42	0.541	-	-	0.265	0.63	11.1	2.7027
Am-241	pCi/g	<0.0456	<0.358	-	-	-	-	-	100	27.027
Cs-137	pCi/g	<0.053	2.56	0.466	-	-	0.515	0.669	14.8	270.27
Co-60	pCi/g	<0.0417	<0.102	-	-	-	-	-	100	2.7027
Eu-152	pCi/g	<0.0861	<0.208	-	-	-	-	-	100	2.7027
Pb-212	pCi/g	0.252	1.31	0.541	0.509	0.508	0.211	0.610	0	270.27
Pb-214	pCi/g	0.221	0.663	0.421	0.408	0.419	0.105	0.455	0	-
K-40	pCi/g	12.7	19.3	16.99	16.91	17.2	1.553	17.49	0	2,702.7
Ra-228	pCi/g	0.262	1.42	0.541	-	-	0.265	0.63	11.1	270.27
Th-234	pCi/g	<0.599	1.44	0.705	-	-	0.252	-	92.6	27,027
U-235	pCi/g	<0.149	<0.349	-	-	-	-	-	100	27.027
U-238	pCi/g	<0.599	1.44	0.705	-	-	0.252	-	92.6	27.027
Gross Alpha	pCi/g	<2.61	16.2	8.786	-	-	3.596	9.99	7.4	27.027
Gross Beta	pCi/g	13.8	93.6	25.44	23.42	21.7	14.86	30.32	0	-
H-3	Bq/g	<0.138	<0.222	-	-	-	-	-	100	100
C-14	Bq/g	<0.0344	<0.0964	-	-	-	-	-	100	1

Notes:

[a] UCLM is the one-sided confidence limit above the mean.
[b] Derived Concentration Guideline Level (DCGL) is based on Unconditional Clearance Levels, Schedule 1, SOR2000-207 Nuclear Substances and Radiation Device Regulations.

Results for sediment radiochemistry are presented for transects 2-6 in the Site and Local Study Areas in Table 8.3-11.

Table 8.3-11 Mean Values for radiological parameters in Ottawa River Sediment near NPD by sampling Transect - Site and Local Study Areas

Analyte	Unit	Transect 2 0.20 km upstream of NPD	Transect 3 Adjacent to NPD	Transect 4 0.34 km downstream of NPD	Transect 5 0.65 km downstream of NPD	Transect 6 Point Stewart 1.19 km downstream of NPD
Ac-228	pCi/g	0.54	0.65	0.66	0.52	0.43
Cs-137	pCi/g	0.32	0.39	0.42	0.34	0.36
Pb-212	pCi/g	0.53	0.53	0.54	0.52	0.52
Pb-214	pCi/g	0.46	0.43	0.39	0.44	0.47
K-40	pCi/g	17.43	16.90	17.68	18.18	17.60
Ra-228	pCi/g	0.54	0.65	0.66	0.52	0.43
Gross Alpha	pCi/g	9.40	9.28	8.79	7.86	9.79
Gross Beta	pCi/g	48.25	24.53	21.13	20.33	21.98

Notes:

Only parameters that were above the DL/MDA for the majority of samples are included in this table. All concentrations are presented as dry weight (d.w.) concentrations.

Non-Radiological

As part of the Phase Two ESA described above, CNL also conducted sediment sampling for analysis of non-radiological contaminants to establish baseline conditions in the sediment. A statistical summary, including the average, maximum, minimum and 90th percentile of the sediment data collected for each contaminant analysed is presented below in Table 8.3-12. The sediment sampling locations are shown in Figure 8.3-11 (including observed exceedances). A general discussion of selected results is provided below, based on the following guidance/criteria:

- **CCME CSQG PEL:** Canadian Council of Ministers of the Environment, Canadian Sediment Quality Guidelines for the Protection of Aquatic Life - Probable Effects Levels - freshwater (CCME 2001).
- **CCME ISQG:** Canadian Council of Ministers of the Environment Interim Sediment Quality Guidelines (CCME 2001).
- **MOECC PSQG SEL:** Ministry of the Environment and Climate Change (now Ministry of the Environment, Conservations and Parks) Provincial Sediment Quality Guidelines Severe Effect Level (MOECC 2008).
- **MOECC PSQG LEL:** Ministry of the Environment and Climate Change (now Ministry of the Environment, Conservations and Parks) Provincial Sediment Quality Guidelines Lowest Effect Level (MOECC 2008).
- **O. Reg 153:** Ontario Regulation 153/04 - Records of Site Condition - Part XV.1 of the Environmental Protection Act (MOECC 2011).

Sediments in downstream areas had slightly higher concentrations of some metals (arsenic, copper, cadmium, chromium and nickel) compared to upstream areas. The measured concentrations of these metals at some downstream sampling locations were slightly above the lowest federal or provincial guideline levels, but were well below guidelines identified with potential adverse effects on aquatic life, as follows:

- **Arsenic**: the highest concentration measured was 10 mg/kg at SA-002 (downstream of NPD) with other downstream concentrations ranging from 7.4 mg/kg to 9.1 mg/kg. By comparison the CCME PEL for arsenic is 17 mg/kg. The PEL is the level at which adverse effects on some sensitive species could occur. Upstream ambient concentrations ranged up to 3.5 mg/kg.
- **Copper**: exceeded the MOECC PSQG LEL/Reg 153 Table 8 guideline of 16 mg/kg at three downstream locations downstream, ranging from 17 mg/kg (just above the guideline) to a high of 21 mg/kg at SA-008. The maximum value is below the CCME ISQG for copper of 35.7 mg/kg and well below the PEL of 197 mg/kg. Upstream ambient concentrations ranged from 12 to 15 mg/kg.
- **Cadmium**: the highest concentration measured downstream was 0.61 mg/kg, which is similar to the CCME ISQG and MOECC PSQG LEL of 0.6 mg/kg. The measured concentration is within the laboratory measurement error and this value is not considered to be significant. the average upstream concentration was 0.36 mg/kg.
- **Chromium**: a single exceedance of the MOECC PSQG LEL for chromium (26 mg/kg) was recorded in downstream location SA-008. The concentration of 28 mg/kg measured at SA-008 was below the CCME ISQG of 37.3 mg/kg and is well below both the MOECC PSQG SEL of 110 ug/g and the CCME PEL of 90 mg/kg. Upstream chromium concentrations ranged between 21 mg/kg and 23 mg/kg.
- **Nickel**: Ni exceeded the MOECC PSQG LEL of 16 mg/kg at three of the downstream locations (SA-001, SA-002 and SA-008), ranging from 17 to 20 mg/kg. Upstream concentrations were 16 mg/kg. While the CCME has not provided CSQGs for Ni, the MOECC PSQGs provide an SEL of 75 mg/kg. The highest measured concentration downstream was well below this potential effect concentration.

Non-radiological contaminant concentrations of all samples were below the CCME (2001) Probable Effect Levels. Except for a few samples, the concentration of analyzed contaminants met the O.Reg 153 Table 8 Site Condition Standards for sediment for all property uses and CCME Interim Sediment Quality Guidelines (ISQG). Based on the type, magnitude and distribution of exceedances, it is considered unlikely that the CNL NPD site has contributed to the elevated levels of select contaminants in the Ottawa River sediment.

Table 8.3-12 Summary of Sediment Analysis (Golder 2017b)

Parameter	Unit	CCME Sediment ISQG (freshwater)[1]	CCME Sediment PEL (freshwater)[2]	REG153 (11) T8-Sediment[3] or Other[9]	Average	Max	Min	90th percentile
Metals								
Antimony	mg/kg	--	--	--[4]	0.20	0.21	0.20	0.20
Arsenic	mg/kg	5.9	17	6	5.0	**10**	1.0	9.4
Barium	mg/kg	--	--	--[4]	61	76	11	75
Beryllium	mg/kg	--	--	--[4]	0.32	0.42	0.20	0.37
Boron	mg/kg	--	--	--[4]	5.0	5.0	5.0	5.0
Cadmium	mg/kg	0.6	3.5	0.6	0.37	**0.61**	0.13	0.55
Chromium	mg/kg	37.3	90	26	21	**28**	3.4	25
Cobalt	mg/kg	--	--	50	7.4	9.5	1.7	8.9
Copper	mg/kg	35.7	197	16	14	**21**	1.6	20
Hexavalent Chromium	mg/kg	--	--	--[4]	0.21	0.30	0.20	0.23
Lead	mg/kg	35	91.3	31	7.4	13	1.1	10
Mercury	mg/kg	0.17	0.486	0.2	0.05	0.05	0.05	0.05
Molybdenum	mg/kg	--	--	--[4]	0.58	0.81	0.50	0.71
Nickel	mg/kg	--	--	16	15	**20**	2.8	19
Selenium	mg/kg	--	--	--[4]	0.50	0.50	0.50	0.50
Silver	mg/kg	--	--	0.5	0.20	0.20	0.20	0.20
Sodium	mg/kg	--	--	--[4]	160	190	72	190
Thallium	mg/kg	--	--	--[4]	0.13	0.16	0.05	0.16
Uranium	mg/kg	--	--	--[4]	0.86	1.5	0.20	1.3
Vanadium	mg/kg	--	--	--[4]	24	31	5.0	30
Zinc	mg/kg	123	315	120	73	88	11	87
Polychlorinated Biphenyls (PCBs)								
Aroclor 1242	mg/kg	--	--	--	0.02	0.03	0.01	0.025
Aroclor 1248	mg/kg	--	--	--	0.02	0.03	0.01	0.025
Aroclor 1254	mg/kg	0.06[5]	0.34[6]	--	0.024	0.054	0.01	0.038
Aroclor 1260	mg/kg	--	--	--	0.02	0.03	0.01	0.025
Polychlorinated Biphenyls	mg/kg	0.0341	0.277	0.07	0.025	0.054	0.01	0.042

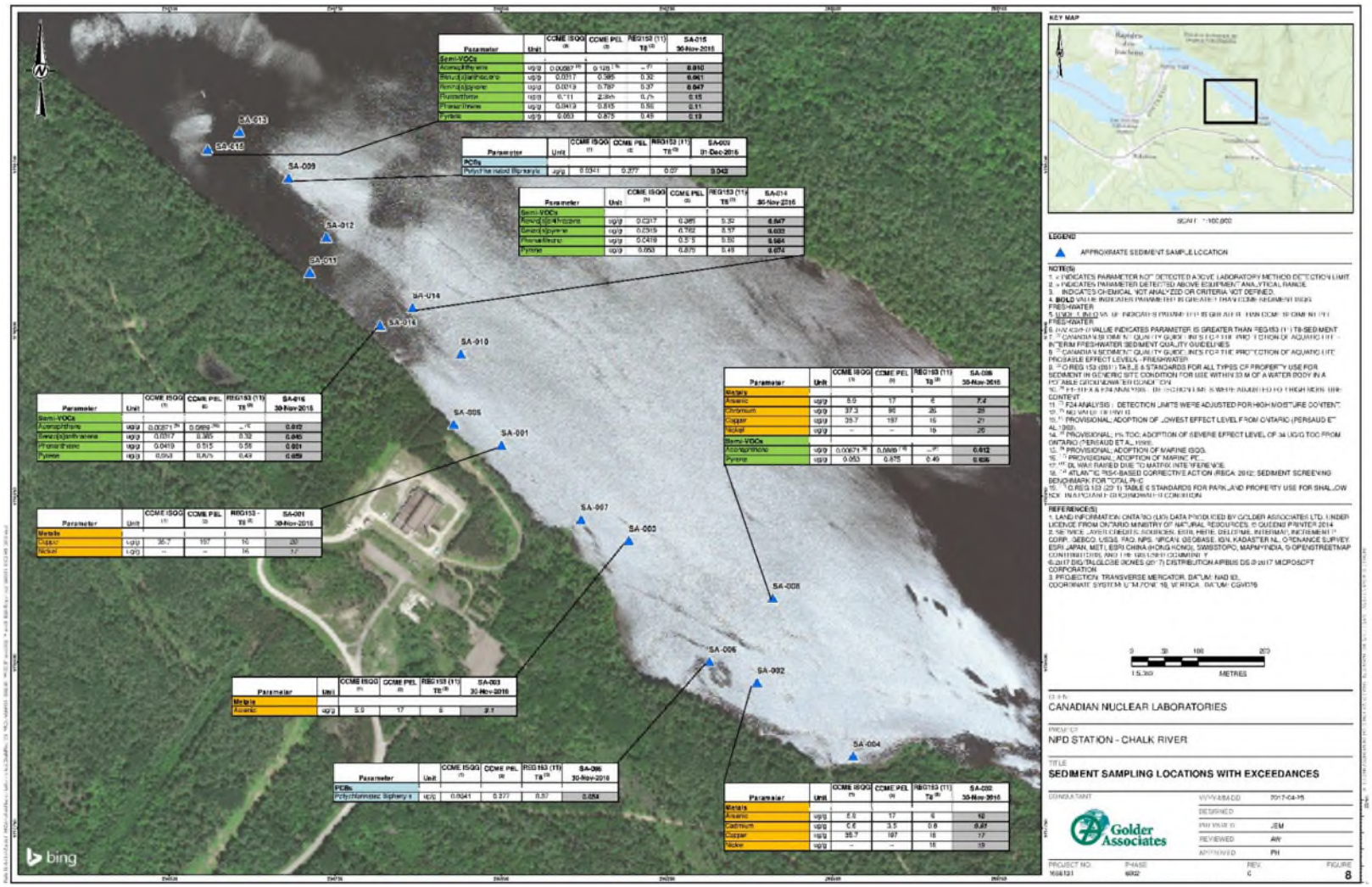
Parameter	Unit	CCME Sediment ISQG (freshwater)[1]	CCME Sediment PEL (freshwater)[2]	REG153 (11) T8-Sediment[(3)] or Other[(9)]	Average	Max	Min	90th percentile
Petroleum Hydrocarbons								
Benzene	mg/kg	--	--	--[(4)]	0.026	0.04	0.02	0.04
Ethylbenzene	mg/kg	--	--	--[(4)]	0.026	0.04	0.02	0.04
m,p-Xylenes	mg/kg	--	--	--	0.053	0.08	0.–4	0.08
o-Xylene	mg/kg	--	--	--	0.026	0.04	0.02	0.04
Petroleum Hydrocarbons - F1 (C6-C10)	mg/kg	--	--	--[(4)]	13	20	10	20
Petroleum Hydrocarbons - F1 (C6-C10)-BTEX	mg/kg	--	--	--[(4)]	13	20	10	20
Petroleum Hydr–carbons - F2 (C10-C16)	mg/kg	--	--	--[(4)]	16	20	10	20
Petroleum Hydrocarbons - F3 (C16-C34)	mg/kg	--	--	--[(4)]	81	100	50	100
Petroleum Hydrocarbons - F4 (C34-C50)	mg/kg	--	--	--[(4)]	81	100	50	100
Total Petroleum Hydrocarbons	mg/kg	--	--	500[(9)]	107	140	70	140
Toluene	mg/kg	--	--	--[(4)]	0.026	0.04	0.02	0.04
TPH as Gasoline	mg/kg	--	--	--	--	--	--	--
TPH-Diesel	mg/kg	--	--	--	81	100	50	100
Xylenes, Total	mg/kg	--	--	--[(4)]	0.06	0.08	0.04	0.08
Polycyclic Aromatic Hydrocarbons (PAHs) (Semi-VOCs)								
1- & 2-Methylnaphthalene	mg/kg	--	--	--	0.013	0.014	0.0071	0.014
1-Methylnaphthalene	mg/kg	--	--	--[(4)]	0.0094	0.01	0.005	0.01
2-Methylnaphthalene	mg/kg	0.0202[(7)]	0.201[(8)]	--[(4)]	0.0094	0.01	0.005	0.01
Acenaphthene	mg/kg	0.00671[(7)]	0.0889[(8)]	--[(4)]	0.0095	0.012	0.005	0.01
Acenaphthylene	mg/kg	0.00587[(7)]	0.128[(8)]	--[(4)]	0.0094	0.01	0.005	0.01
Anthracene	mg/kg	0.0469[(7)]	0.245[(8)]	0.22	0.012	0.028	0.005	0.020
Benzo [b,j] fluoranthene	mg/kg	--	--	--	0.027	0.066	0.005	0.056
Benzo[a]anthracene	mg/kg	0.0317	0.385	0.32	0.022	0.061	0.005	0.049

Parameter	Unit	CCME Sediment ISQG (freshwater)[1]	CCME Sediment PEL (freshwater)[2]	REG153 (11) T8-Sediment[(3)] or Other[(9)]	Average	Max	Min	90th percentile
Benzo[a]pyrene	mg/kg	0.319	0.782	0.37	0.016	0.047	0.005	0.031
Benzo[g,h,i]perylene	mg/kg	--	--	0.17	0.013	0.03	0.005	0.023
Benzo[k]fluoranthene	mg/kg	--	--	0.24	0.011	0.02	0.005	0.015
Chrysene	mg/kg	0.0571	0.862	0.34	0.018	0.055	0.005	0.032
Dibenzo[a,h]anthracene	mg/kg	0.00622[(7)]	0.135[(8)]	0.06	0.0094	0.01	0.005	0.01
Fluoranthene	mg/kg	0.111	2.355	0.75	0.062	0.15	0.005	0.13
Fluorene	mg/kg	0.0212[(7)]	0.144[(8)]	0.19	0.0096	0.014	0.005	0.01
Indeno[1,2,3-cd]pyrene	mg/kg	--	--	0.2	0.014	0.031	0.005	0.026
Naphthalene	mg/kg	0.0346[(7)]	0.391[(8)]	--[(4)]	0.0094	0.01	0.005	0.01
Phenanthrene	mg/kg	0.0419	0.515	0.56	0.028	0.11	0.005	0.073
Pyrene	mg/kg	0.053	0.875	0.49	0.037	0.13	0.005	0.067

Notes:

Value – Exceedance of CCME (2001) Interim Sediment Quality Guidelines for the Protection of Aquatic Life (freshwater)
Value – Exceedance of CCME (2001) Sediment Probable Effect Level (freshwater)
Value – Exceedance of REG153 (11) T8-Sediment site condition standards
Grey shading – indicates guideline values that are below detection
1 – Canadian Sediment Quality Guidelines for the Protection of Aquatic Life – Interim Sediment Quality Guidelines (freshwater)
2 – Canadian Sediment Quality Guidelines for the Protection of Aquatic Life – Probable Effect Level (freshwater)
3 – O.Reg 153 (2011) Table 8 Site Condition Standards for sediment for all types of property use
4 – No value derived
5 – Provisional; adoption of lowest effect level from Ontario (Persaud *et al.*, 1993)
6 – Provisional; 1% TOC; adoption of severe effect level of 34 µg/g TOC from Ontario (Persaud *et al.*, 1993)
7 – Provisional; adoption of marine ISQG
8 – Provisional; adoption of marine PEL
9 – Sediment screening benchmark (Atlantic RBCA 2012)

Figure 8.3-11 Sediment Sampling Locations Detailing Applicable Exceedances



Note: the colour-shading indicates analytical groups: orange: metals, green: semi-VOCs, blue: PCBs

As part of the sediment sampling undertaken by CNL in 2020 (Bond and Carr 2021) in the Ottawa River, sediment was also sampled for non-radiological parameters along seven transects. As discussed above, five transects are located partly within the Site/Local Study Area and extend into the Regional Study Area. The remaining two transects (transects 1 and 7) are located within the Regional Study Area and include an upstream reference transect as well as a downstream transect at Deep River.

There were a number of parameters that exceeded Interim Sediment Quality Guidelines (ISQG) (CCME 2001), the CCME Sediment Probable Effects Levels (PEL) (CCME 2001), and/or the Ontario Regulation 153 sediment standards for use under part XV.1 of the *Environmental Protection Act* (MOE 2011) for freshwater sediments, including mercury, arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc, as described below:

- Mercury: the highest concentration measured was 212 µg/kg in a single sample at ~20 m depth along Transect 7 in Deep River, with other concentrations typically ranging from 13 to 126 µg/kg (mean = 45.35 ± 42.51 µg/kg; 95% UCLM = 59.39 µg/kg). By comparison, the CCME ISQG for mercury is 170 µg/kg, the OReg153 value is 200 µg/kg, and the CCME PEL (the level at which adverse effects on some sensitive species could occur) for mercury is 486 µg/kg. Mercury contamination in aquatic ecosystems is ubiquitous in eastern North America due to atmospheric sources such as metal smelting, combustion of fossil fuels and incineration of waste (Depew *et al*., 2013). A 1987 study attributed elevated levels of heavy metals in sediments in this area of the Ottawa River, both upstream and downstream of NPD, to inputs from historical upstream metal mining (Merriman 1987). CNL's investigations indicate that elevated levels of mercury in Ottawa River sediment are due to secondary contaminant focusing from the deposition of both natural mercury and that originating from upstream, mainly historical, contamination sources (e.g., pulp and paper milling prior to stringent regulation and logging operations) (CNL 2014). Ramamoorthy and Rust (1978) found that Ottawa River sediments can act as efficient sinks for heavy metals, primarily due to the significant loading of organic material above natural amounts from the prior commercial use of the river for logging. (Bond and Carr 2021)
- Arsenic: the highest concentration measured was 27 mg/kg in a single sample at ~20 m depth along Transect 7 in Deep River, with other concentrations typically ranging from 0.68 to 16.9 mg/kg (mean = 5.15 ± 5.37 mg/kg; 95% UCLM = 6.88 mg/kg). By comparison, the CCME ISQG for arsenic is 5.9 mg/kg, the O. Reg 153 value is 6.0 mg/kg, and the CCME PEL for arsenic is 17 mg/kg. As with mercury, these elevated concentrations in arsenic are regional and have been previously described by Ramamoorthy and Rust (1978). (Bond and Carr 2021)
- Cadmium: the highest concentration measured was 1.76 mg/kg in a single sample at ~6 m depth along Transect 4 downstream of NPD, with other concentrations typically ranging from < 0.18 to 1.11 mg/kg (mean = 0.47 ± 0.41 mg/kg; 95% UCLM = 0.61 mg/kg). By comparison, the CCME ISQG and the OReg153 value for cadmium is 0.6 mg/kg, and the CCME PEL is 3.5 mg/kg. (Bond and Carr 2021)
- Chromium: the highest chromium concentration measured was 71.1 mg/kg in a single sample at ~20 m depth along Transect 7 in Deep River, with other concentrations typically ranging from 3.17 to 42.8 mg/kg (mean = 23.25 ± 15.16 mg/kg; 95% UCLM = 28.2 mg/kg). By comparison, the CCME ISQG for chromium is 37.3 mg/kg, the OReg153 value is 26 mg/kg, and the CCME PEL for chromium is 90 mg/kg. (Bond and Carr 2021)
- Copper: the highest copper concentration measured was 47.7 mg/kg in a single sample at ~20 m depth along Transect 7 in Deep River, with other concentrations typically ranging from 1.92 to

40.9 mg/kg (mean = 14.73 ± 10.43 mg/kg; 95% UCLM = 18.15 mg/kg). By comparison, the CCME ISQG for copper is 35.7 mg/kg, the OReg153 value is 16 mg/kg, and the CCME PEL for copper is 197 mg/kg. (Bond and Carr 2021)

- Lead: the highest lead concentration measured was 49.9 mg/kg in a single sample at ~20 m depth along Transect 7 in Deep River, with other concentrations typically ranging from < 0.6 to 12.6 mg/kg (mean = 8.61 ± 10.04 mg/kg; 95% UCLM = 12.36 mg/kg). By comparison, the CCME ISQG for copper is 35 mg/kg, the OReg153 value is 31 mg/kg, and the CCME PEL for lead is 91 mg/kg. (Bond and Carr 2021)
- Nickel: the highest nickel concentration measured was 59.1 mg/kg in a single sample at ~20 m depth along Transect 7 in Deep River, with other concentrations typically ranging from 2.73 to 24.5 mg/kg (mean = 16.75 ± 11.70 mg/kg; 95% UCLM = 20.59 mg/kg). By comparison, the only available benchmark value (OReg 153) is 16 mg/kg. (Bond and Carr 2021)
- Silver: the highest silver concentration measured was 316 mg/kg in a single sample at ~6 m depth along Transect 4 downstream of NPD, with other concentrations were highly variable and ranged from < 0.18 to 236 mg/kg (mean = 81.02 ± 91.14 mg/kg; 95% UCLM = 110.7 mg/kg). By comparison, the only available benchmark value (OReg153) is 0.5 mg/kg.
- Zinc: the highest zinc concentration measured was 1,150 mg/kg in a single sample at ~6 m depth along Transect 4 downstream of NPD, with other concentrations highly variable and typically ranging from < 1.8 to 1,090 mg/kg (mean = 296.9 ± 418.6 mg/kg; 95% UCLM = 431.9 mg/kg). By comparison, the CCME ISQG for zinc is 123 mg/kg, the OReg153 value is 120 mg/kg, and the CCME PEL for zinc is 315 mg/kg. (Bond and Carr 2021)

Results for sediment chemistry are presented for transects 2-6 in the Site and Local Study Areas in Table 8.3-13.

Table 8.3-13 Mean Values for chemical parameters in Ottawa River Sediment near NPD by sampling Transect - Site and Local Study Areas

Parameter	Unit	Transect 2 0.20 km upstream of NPD	Transect 3 Adjacent to NPD	Transect 4 0.34 km downstream of NPD	Transect 5 0.65 km downstream of NPD	Transect 6 Point Stewart 1.19 km downstream of NPD
Hg	(mg/kg)	0.0448	0.0479	0.0472	0.0243	0.0387
Al	(mg/kg)	7,463	10,160	8,415	7,973	8,823
Sb	(mg/kg)	0.5	0.5	0.59	0.5	0.82
As	(mg/kg)	3.8	4.3	6.54	5.06	3.39
Ba	(mg/kg)	61.3	82.3	68.9	62.4	71.2
Be	(mg/kg)	0.57	0.73	0.96	1.47	1.21
Bo	(mg/kg)	1.8	1.85	2.09	1.8	1.8
Cd	(mg/kg)	0.7	0.81	0.59	0.18	0.27
Ca	(mg/kg)	3,245	3,410	3,348	2,993	3,325
Cr	(mg/kg)	19.8	27.3	23.9	20.8	24.6
Co	(mg/kg)	7.26	8.8	8.42	9.23	8.31
Cu	(mg/kg)	12.26	18.68	15.95	12.41	13.23
Fe	(mg/kg)	14,525	18,075	14,535	17,100	14,100
Pb	(mg/kg)	5.04	5.41	10.86	8.1	8.59
Mg	(mg/kg)	4,693	6,070	4,241	4,943	4,095
Mn	(mg/kg)	283	370	327	382	279
Mo	(mg/kg)	0.42	0.39	0.56	0.36	0.36

Parameter	Unit	Transect 2 0.20 km upstream of NPD	Transect 3 Adjacent to NPD	Transect 4 0.34 km downstream of NPD	Transect 5 0.65 km downstream of NPD	Transect 6 Point Stewart 1.19 km downstream of NPD
Ni	(mg/kg)	14.2	18.4	17.5	15.4	17.1
P	(mg/kg)	1,165	1,543	1,256	949	733
K	(mg/kg)	3	3	50	824	1,160
Se	(mg/kg)	3,993	4,445	5,063	3,510	1
SiO_2	(mg/kg)	1,848	2,058	2,710	5,170	7,355
Si	(mg/kg)	3	3	176	1,616	3,388
Ag	(mg/kg)	116.6	144.2	151.3	75.6	0.2
Na	(mg/kg)	10.5	12.4	23.4	110.3	215
Sr	(mg/kg)	223.2	307.8	416.6	84	11.5
S	(mg/kg)	2.6	2.7	19.7	87.3	294.8
Tl	(mg/kg)	0.9	0.9	431.5	720.5	0.9
Sn	(mg/kg)	898	1,120	330	359	789
Ti	(mg/kg)	0.7	0.2	99.5	53.3	24.5
U	(mg/kg)	25.4	31.9	416.2	283.4	65.7
V	(mg/kg)	71	85.6	43.6	0.5	3.2
Zn	(mg/kg)	869	818	291.4	2.4	2.8
Li	(mg/kg)	13.4	14.5	11.8	9.9	9.7
Moisture	(%)	40.9	44.5	40.4	41.2	45.3
4cmx*	(µg/kg)	8.83	8.18	8.78	7.39	8.46
$C_{12}Cl_{10}$**	(µg/kg)	11.62	10.74	11.54	9.1	9.71

Notes:
Only parameters that were above the DL/MDA for the majority of samples are included in this table. All concentrations are presented as dry weight (d.w.) concentrations.
* - 4cmx is a semi-volatile PCB
** - Decachlorobiphenyl, a PCB

Generally speaking, the results for non-radiological parameters are typical of what has been observed for Ottawa River sediments in other studies; and the metal concentrations reflect local geology. Metals in aquatic systems occur both naturally and from anthropogenic sources, such as past or present mining and mineral processing in the basin and other industrial activities, as well as leaching due to acidification of soils, from soil erosion, and from atmospheric transport from more industrialized areas. It is not known what fraction of the metals currently found in the river is from natural sources and what fraction is from anthropogenic sources (Bond and Carr 2021).

8.3.5.2 Regional Study Area

Radiological

Sediment samples taken as part of Lee (2014), McVeigh (2018b), and Bond and Carr (2021) are located within both the Site and Local Study Areas (e.g., within 50 m into the Ottawa River from the NPD Shoreline) and Regional Study Area (e.g. beyond 50 m into the Ottawa River from the NPD shoreline). As described in Section 8.3.5.1, samples in both studies were located upstream and downstream of NPD and no trend in elevated radiological conditions were observed.

Results for sediment radiochemistry results from Bond and Carr (2021) are presented - for Transects 1 and 7 in the Regional Study Area - in Table 8.3-14.

Table 8.3-14 Mean Values for Radiological Parameters in Ottawa River Sediment near NPD by Sampling Transect – Regional Study Area

Parameter	Unit	Transect 1 Rapides-des-Joachims, 2.73 km upstream of NPD	Transect 7 Deep River, 14.86 km downstream of NPD
Ac-228	pCi/g	0.31	0.67
Cs-137	pCi/g	0.08	1.27
Pb-212	pCi/g	0.35	0.75
Pb-214	pCi/g	0.27	0.47
K-40	pCi/g	16.85	14.65
Ra-228	pCi/g	0.31	0.68
Gross Alpha	pCi/g	4.47	11.12
Gross Beta	pCi/g	17.13	21.70

Notes:

Only parameters that were above the DL/MDA for the majority of samples are included in this table. All concentrations are presented as dry weight (d.w.) concentrations.

Non-Radiological

Chalk River Laboratories has undertaken extensive sediment sampling campaigns in the Ottawa River, in particular Silke and Wills (2012) and Bond and Carr (2021).

Silke and Wills (2012) included sediment sampling at background areas (as shown on Figure 8.3-12) and demonstrated that certain metals in Ottawa River sediment are elevated but not due to CNL operations. These metals are arsenic, cadmium, chromium, copper, lead, manganese, nickel, zinc and mercury. Sampling results were compared to federal guidelines (CCME 2001) for arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury or provincial benchmarks (MOE 2008) for manganese.

Sediment chemistry results from Bond and Carr (2021) are presented in Table 8.3-15 for Transects 1 and 7 in the Regional Study Area.

Moisture content data indicates the Ottawa River bed near NPD is erosional in nature, and no sediment accumulation would be expected. Given the cross-sectional area in this reach (500 m width x 20 m depth = 10,000 m^2), currents would be about 5 cm/s at low summer flows (500 m^3/s) and about 20 cm/s at high spring flows (2,000 m^3/s). These currents are too fast to allow for accumulation of fine-grained sediment, which requires a current of less than 2 cm/s. These high spring currents would be sufficient to erode any fine-grained sediment that may temporarily deposit. Closer to Deep River, the river widens to about 2,000 m and deepens to about 30 m. Given the cross-sectional area of this reach (2,000 m x 30 m = 60,000 m^2), currents would be < 1 cm/s at low summer flows (500 m^3/s) and 3 cm/s at high spring flows (2,000 m^3/s). The 2 cm/s sediment deposition threshold is reached here at flows less than about 1,200 m^3/s. This suggests that the Deep River reach of the river (Transect 7) is marginally depositional (< 2 cm/s) for the majority of the year and this results in some accumulation of fine-grained sediment at this location. Deep River is also near the upper limit of the deposition of marine clays from the Champlain Sea. Presence of these clays greatly increases the partition coefficient (k_d) for particle reactive contaminants in soil and sediment in Deep River and the Chalk River Laboratories site that were historically flooded by the Champlain Sea. (Bond and Carr 2021)

Figure 8.3-12 Sediment Sampling Locations - Regional Study Area

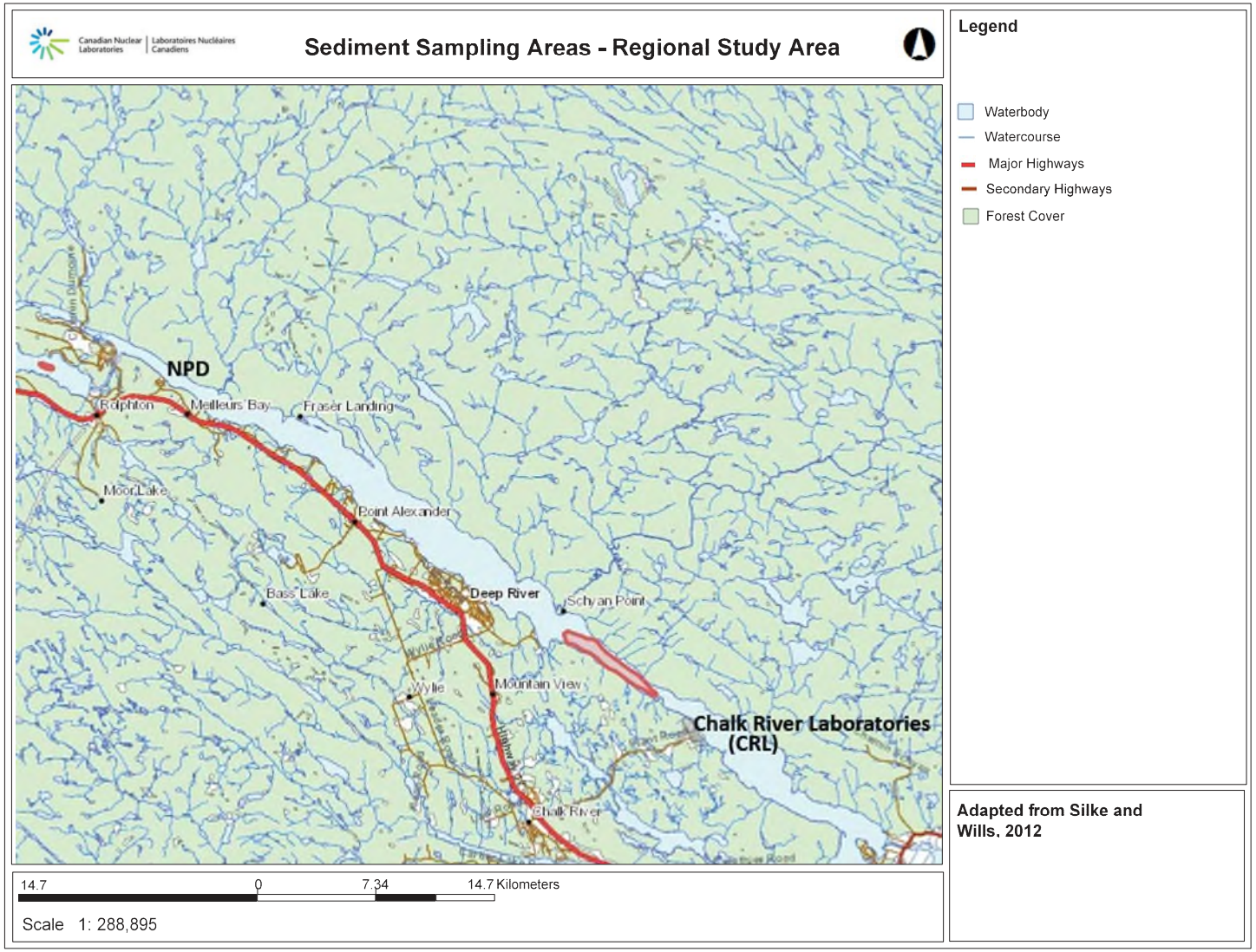


Table 8.3-15 Mean Values for Chemical Parameters in Ottawa River Sediment near NPD by sampling transect – Regional Study Area

	Unit	Transect 1 Rapides-des-Joachims, 2.73 km upstream of NPD	Transect 7 Deep River, 14.86 km downstream of NPD
Hg	(mg/kg)	0.0191	0.0926
Al	(mg/kg)	3,475	11,820
Sb	(mg/kg)	0.5	1.01
As	(mg/kg)	1.03	10.92
Ba	(mg/kg)	30.8	97.6
Be	(mg/kg)	0.28	1.45
Bo	(mg/kg)	1.67	1.8
Cd	(mg/kg)	0.23	0.6
Ca	(mg/kg)	1,428	3,893
Cr	(mg/kg)	8.7	33.6
Co	(mg/kg)	2.94	11.79
Cu	(mg/kg)	5.94	22.12
Fe	(mg/kg)	6,875	20,043
Pb	(mg/kg)	0.64	19.71
Mg	(mg/kg)	2,415	4,903
Mn	(mg/kg)	109	520
Mo	(mg/kg)	0.36	0.47
Ni	(mg/kg)	6.1	25.7
P	(mg/kg)	423	939
K	(mg/kg)	759	1,141
Se	(mg/kg)	2	2,171
SiO_2	(mg/kg)	2,280	7,213
Si	(mg/kg)	1,053	2,861
Ag	(mg/kg)	0.2	59.1
Na	(mg/kg)	52.7	210.6
Sr	(mg/kg)	4.4	210.5
S	(mg/kg)	42.1	453.3
Tl	(mg/kg)	1.4	275.7
Sn	(mg/kg)	0.58	641
Ti	(mg/kg)	513.3	57.1
U	(mg/kg)	0.7	307.8
V	(mg/kg)	12.6	0.5
Zn	(mg/kg)	24.3	2.4
Li	(mg/kg)	6.6	16.0
Moisture	(%)	27.5	44.3
4cmx*	(µg/kg)	6.99	8.76
$C_{12}Cl_{10}$**	(µg/kg)	9.16	11.21

Notes:
Only parameters that were above the DL/MDA for the majority of samples are included in this table. All concentrations are presented as dry weight (d.w.) concentrations.
* - 4cmx is a semi-volatile PCB
** - Decachlorobiphenyl, a PCB

8.4 Aquatic Environment

8.4.1 Spatial Boundaries

The Site and Local Study Areas for the aquatic environment are consistent with the general Site and Local Study Areas outlined in Section 5.2.1.1. The Regional Study Area for the aquatic environment is consistent with the surface water environment Regional Study Area outlined in Figure 8.3-1 above.

8.4.2 Physical Aquatic Habitat

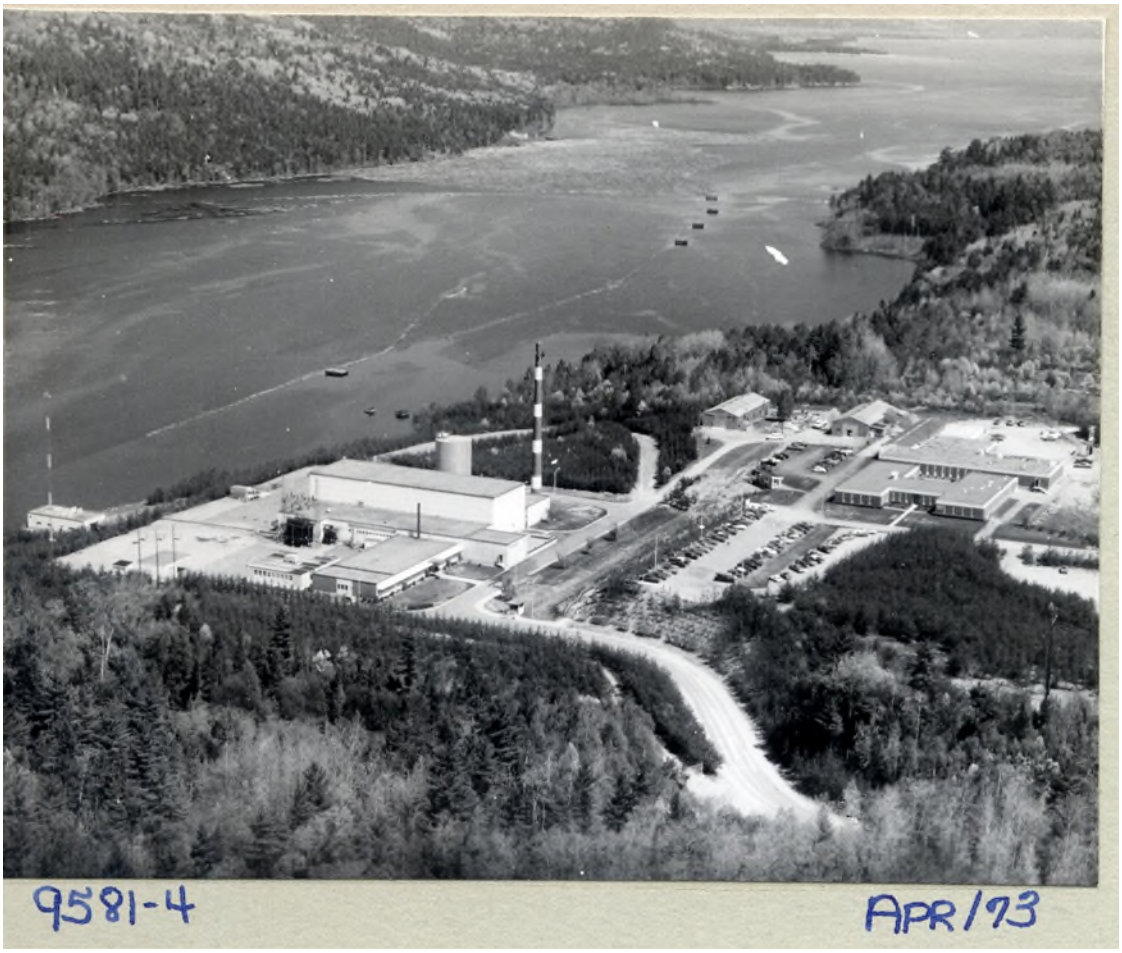
8.4.2.1 Site/Local Study Area

The design and construction of the Des Joachims Power Site (Hydro-Electric Power Commission of Ontario, 1943) located immediately upstream of the NPD site provides information on the historical regional and site setting. In 1945, Ontario Hydro initiated the construction of the Swisha dam at Les Rapides Des Joachims in the village of Rolphton. The power dam stretched 120 ft high and spanned the entire width of the Ottawa River. The pre dam riverbed and the flood discharge channel was blasted from the southeast end of McConnell Lake to the Ottawa River. The excavation of the tailrace channel involved pumping out pools of water from tailrace outlet and removing approximately 1.5 million cubic yards of rock (Figure 8.4-1) (School House Museum 2024). These historic activities resulted in significant anthropogenic disturbance of the Ottawa River shoreline within the local study area.

Figure 8.4-1 The tailrace channel nearing completion, taken from the Des Joachims bridge looking upstream (School House Museum 2024)

The Ottawa River near the NPD site is a popular area for fishing, in part due to the turbulent discharge from the Des Joachims Hydro-Electric Generating Station and the submerged, broken cribbing and sunken logs within 2.5 km of the tailrace. The Des Joachims tailrace provides consistent (year-round) swift flow from the hydropower facility through a relatively deep (approximately 9 metres) channel (Bond and Carr 2021). Historically, log booms and rock cribs were constructed along and near the shoreline of the Ottawa River near NPD. This involved excavating large piles of rock to secure the log booms to. The former crib structures can be seen in Figure 8.4-2. The above water cribbing has been removed, but some structures remain underwater. The underwater structures date from the days of transporting logs on the Ottawa River to mills, an operation that was ongoing during operation of the NPDNGS (Lee 2014).

Figure 8.4-2 Former Cribbing seen in the Ottawa River Offshore of NPD (1973)



The shoreline in the area downgradient of the facility was disturbed during the construction of the NPD reactor and supporting infrastructure (i.e. coolant water intake and pump house). The beach is made of up of river rocks of various sizes. The beach is made of up of river rocks of various sizes. Along the beach and in the river, no aquatic macrophytes or suitable fish nursery habitat were observed. The bank substrate is composed of boulders and gravel with no aquatic vegetation noted (ELC TSD) (Figure 8.4-3).

Figure 8.4-3 Construction of the pumphouse and cooling water intake (1958)

There is a dry hydrant in this area, with a water intake pipe extending approximately 10 m into the Ottawa River. The dry hydrant was installed in 2015 to provide an emergency water supply to the local fire department pumper and increase the capability of fighting fires at the facility as well as forest fires. There is a strainer attached to the intake pipe, which was designed for the protection of fish, in accordance with DFO guidelines. A rip-rap pad was placed under the intake to reduce attractant habitat.

This stretch of the Ottawa River was selected as an ideal location for the NPDNGS due to its depth and ability to supply cold water for reactor cooling (Quebec-Labrador Foundation 2005).

As discussed in Section 8.3.2, various types of wetland areas are scattered throughout the NPD site, found mainly on the western side of the property.

8.4.2.2 Regional Study Area

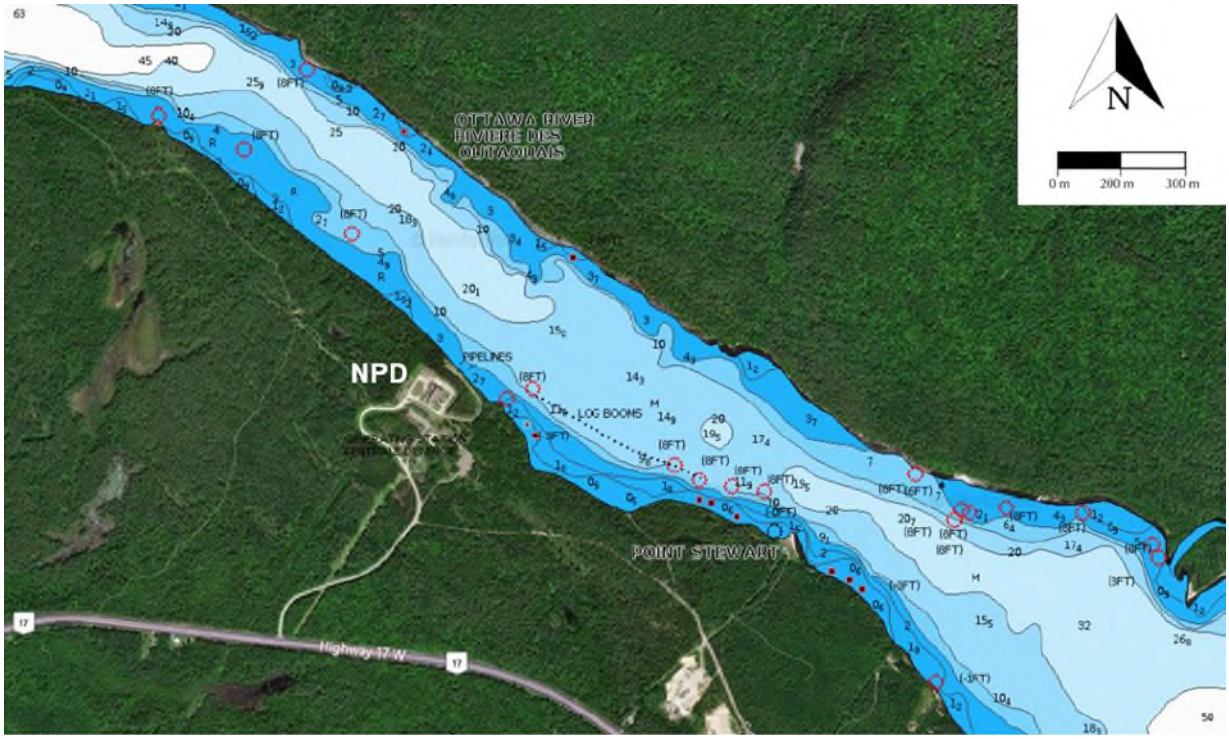
The NPD site is located in the reach of the Ottawa River extending approximately 90 km between the Des Joachims Dam upstream and La Passe at the downstream end. Specifically, the NPD site is about 2 km downstream of the Des Joachims Dam. This reach of the river consists of several lake-like sections separated by short rapids. Upstream of these lakes and rapids, the Ottawa River becomes quite deep,

reaching depths of over 60 m. In this section of river, the water can become thermally stratified (Haxton and Chubbuck 2002).

There are a number of important fish habitat features in the Ottawa River near NPD, including riffle zones, smaller tributaries and rivers feeding into the Ottawa River, Meilleurs Bay (a shallow, warmer bay which provides important spawning, nursery, rearing and feeding habitat), and the tailrace of the Des Joachims dam.

There is minimal littoral zone in this stretch of the Ottawa River, with relatively steep slope along both shores. Depths directly adjacent to NPD approach 20 m, while they approach up to 50 m downstream of Point Stewart and 84 m about 1.5 km upstream of NPD near the Rapides-des-Joachims hydropower generating station tailrace. The release of cool water from the Des-Joachims hydropower station's reservoir results in relatively cool water throughout the year.

Figure 8.4-4 Bathymetry Map of the Ottawa River near the NPD Site. Depth contour values are expressed in metres (m). Map provided by Navionics in Bond & Carr (2021).



In 2016, the Ottawa River was designated under the Canadian Heritage River System. With this designation, an annual report is prepared describing changes, improvements and threats to the river, and a monitoring report is prepared every 10 years (CHRS 2017).

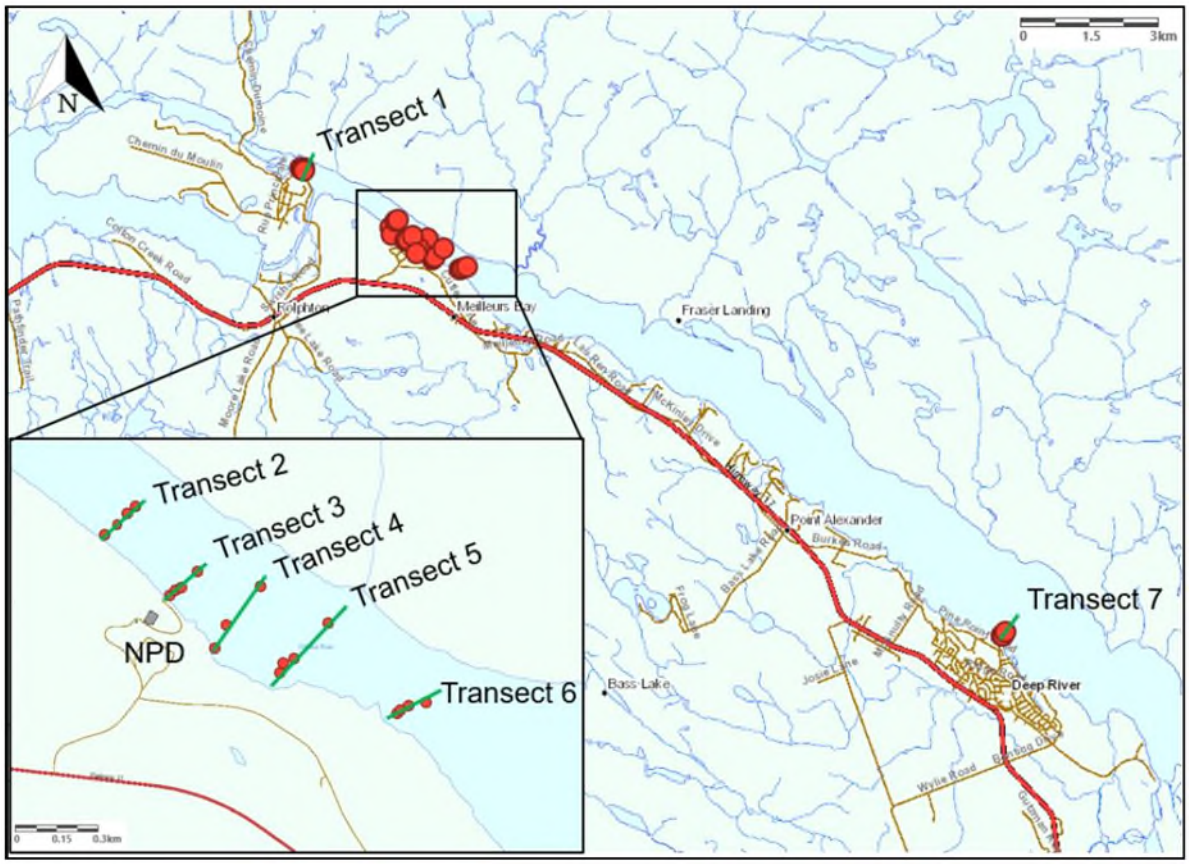
8.4.3 Aquatic Biota

8.4.3.1 Site/Local Study Area

In June 2020, CNL undertook benthic macroinvertebrate sampling in the Ottawa River to better understand baseline conditions in the context of EA follow-up monitoring (Bond and Carr 2021). Sediment was sampled along seven transects, five of which are located partly within the Site/Local Study Area and extend into the Regional Study Area. The remaining two transects (transects 1 and 7) are located within the Regional Study Area and include an upstream reference transect as well as a downstream transect at Deep River. Within each transect, a sediment sample was collected from each of four water column depth bins: 0-5, 5-10, 10-15, and 15-20 m deep. The transect locations are shown in Figure 8.4-5. This section details the results for all transects, including those in the Regional Study Area.

The benthic invertebrate community descriptors/metrics recommended for use to determine effects include total benthic invertebrate density, taxa richness and evenness index (Simpson's). These metrics were calculated with the Ottawa River baseline data to assist with future monitoring, if required. Additional community descriptors used are reported by Bond and Carr (2021).

Figure 8.4-5 Map of Benthic Macroinvertebrate Sampling Locations (red dots) along Transects (green lines) on the Ottawa River. Five replicate samples were collected at each blue dot.



A total of 5,288 benthic macroinvertebrates that constitute 32 unique Families from 15 different Orders were collected among the 140 samples. The most frequently collected taxa included midge flies (Chironomidae; 31.5% of total count), segmented worms (Naididae; 17.8% of total count), fingernail clams (Sphaeriidae; 16.5% of total count), crane fly larvae (Tipulidae; 8.9% of total count), burrowing mayflies (Ephemeridae; 7.5% of total count), long-horned caddisflies (Leptoceridae; 3.3% of total count), freshwater scuds (Gammaridae; 2.6% of total count), valve snails (Valvatidae; 2.1% of total count), riffle beetles (Elmidae; 1.4% of total count), tube/net-spinning caddisflies (Polycentropodidae; 1.3% of total count), mud snails (Hydrobiidae; 1.2% of total count) and no-see-ums (Ceratopogonidae; 1.1% of total count). The results of this invertebrate community study are similar to those obtained in a recent study of Ottawa River benthic invertebrate community structure near Chalk River Laboratories. (Bond and Carr 2021)

The most common taxa living in Ottawa River sediments near NPD belong to two functional feeding groups: collector-gatherers, which collect fine particulate organic matter (FPOM) from the bottom substrate, and collector-filterer, which collect FPOM from the water column using a variety of filters. This is typical for benthic invertebrate community structure in large, relatively deep rivers, such as the Ottawa River. (Bond and Carr 2021)

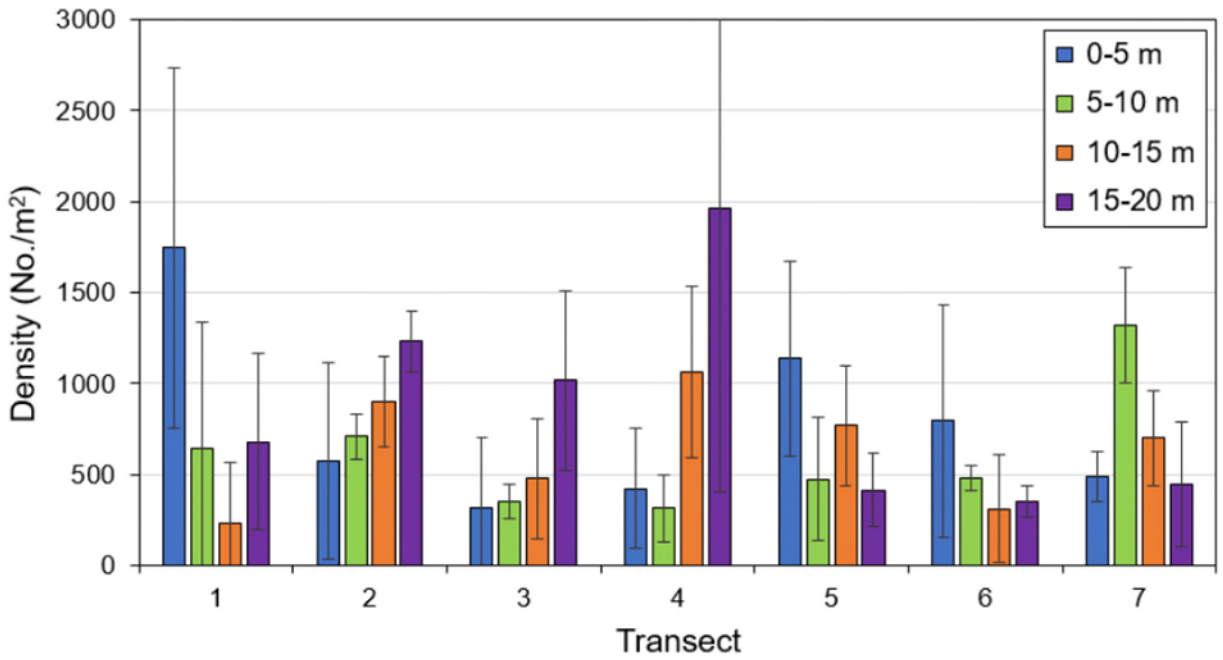
Table 8.4-1 Summary of Benthic Invertebrate Results for all Samples Showing Overall Species Composition by Relative Abundance

Order	Family	Common Name	Total Count	Proportion of Total Count (%)
Diptera	Chironomidae	Midge fly	1666	31.505
Oligochaeta	Naididae	Segmented worm	943	17.833
Bivalvia	Sphaeriidae	Fingernail/pea clam	871	16.471
Diptera	Tipulidae	Crane fly larvae	473	8.945
Ephemeroptera	Ephemeridae	Burrowing mayfly	396	7.489
Trichoptera	Leptoceridae	Long-horned caddisfly	173	3.272
Amphipoda	Gammaridae	Freshwater scud	140	2.648
Gastropoda	Valvatidae	Valve snail	113	2.137
Coleoptera	Elmidae	Riffle beetle	75	1.418
Trichoptera	Polycentropodidae	Tube/net-making caddisfly	70	1.324
Gastropoda	Hydrobiidae	Mud snail	65	1.229
Diptera	Ceratopogonidae	No-see-um/biting midge	58	1.097
Bivalvia	Unionidae	Bivalve mollusc	48	0.908
Isopoda	Asellidae	Aquatic sow bug	47	0.889
Oligochaeta	Lumbriculidae	Segmented worm	21	0.397
Trichoptera	Molannidae	Hood casemaker caddisfly	14	0.265
Nemata	*unknown*	Roundworm	14	0.265
Odonata	Macromiidae	Cruiser dragonfly larvae	9	0.17
Ephemeroptera	Caenidae	Small squaregill mayfly	8	0.151
Hirudinea	Glossiphoniidae	Freshwater jawless leach	8	0.151
Gastropoda	Physidae	Bladder snail	7	0.132
Megaloptera	Sialidae	Alderfly	7	0.132

Order	Family	Common Name	Total Count	Proportion of Total Count (%)
Amphipoda	Crangonyctidae	Cave-dwelling scud	5	0.095
Odonata	Gomphidae	Club-tailed dragonfly nymph	5	0.095
Trichoptera	Glossosomatidae	Saddle casemaker caddisfly	4	0.076
Trichoptera	Helicopsychidae	Snail-case caddisfly	3	0.057
Trichoptera	Brachycentridae	Humpless casemaker caddisfly	2	0.038
Amphipoda	Hyalellidae	Freshwater scud	1	0.019
Ephemeroptera	Baetidae	Small minnow mayfly	1	0.019
Hemiptera	Corixidae	Water boatmen	1	0.019
Hydrachnidia	*unknown*	Water mite	1	0.019
Megaloptera	Corydalidae	Dobsonfly/fishfly	1	0.019
Trichoptera	Odontoceridae	Mortarjoint casemaker caddisfly	1	0.019
Sum			5,288	100

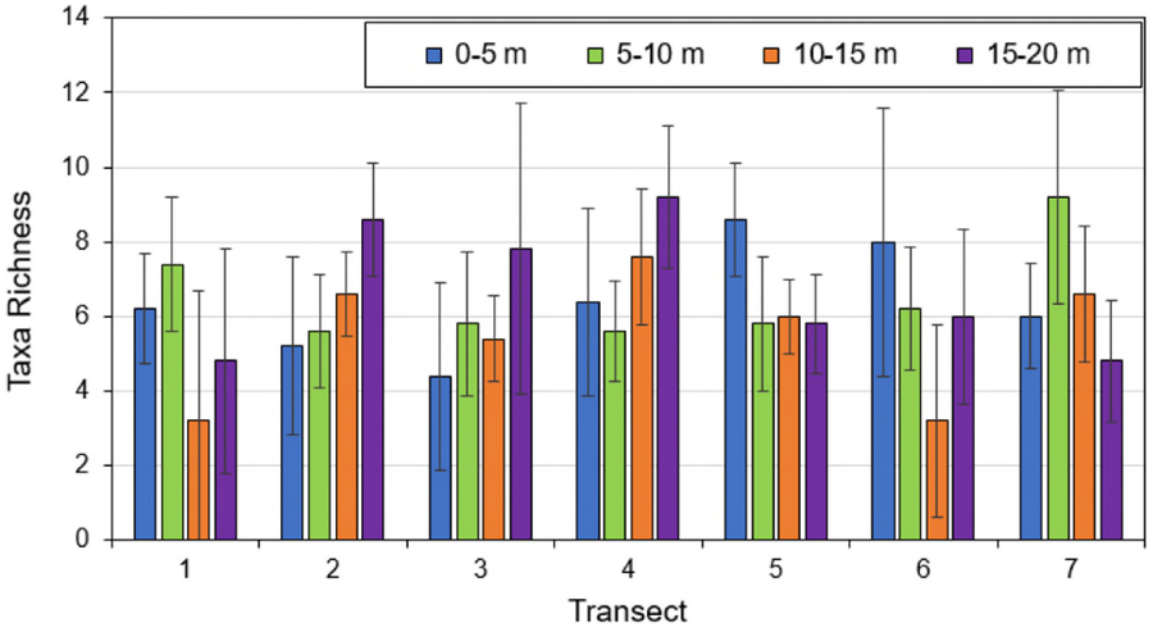
The benthic invertebrate community in Ottawa River sediment near NPD is typical of low-productivity, oligotrophic systems, with low density (typically < 1,500 individuals/m^2) and low biomass (typically < 2.5 g/m^2) estimates. Mean benthic invertebrate density ranged from 310 to 1,964 individuals/m^2, with the majority of samples less than 1,000 individuals/m^2 (Figure 8.4-6).

Figure 8.4-6 Density (total number of individuals per m^2± S.D.) of Benthic Invertebrates in the Ottawa River near NPD at four different depth strata (Bond and Carr 2021)



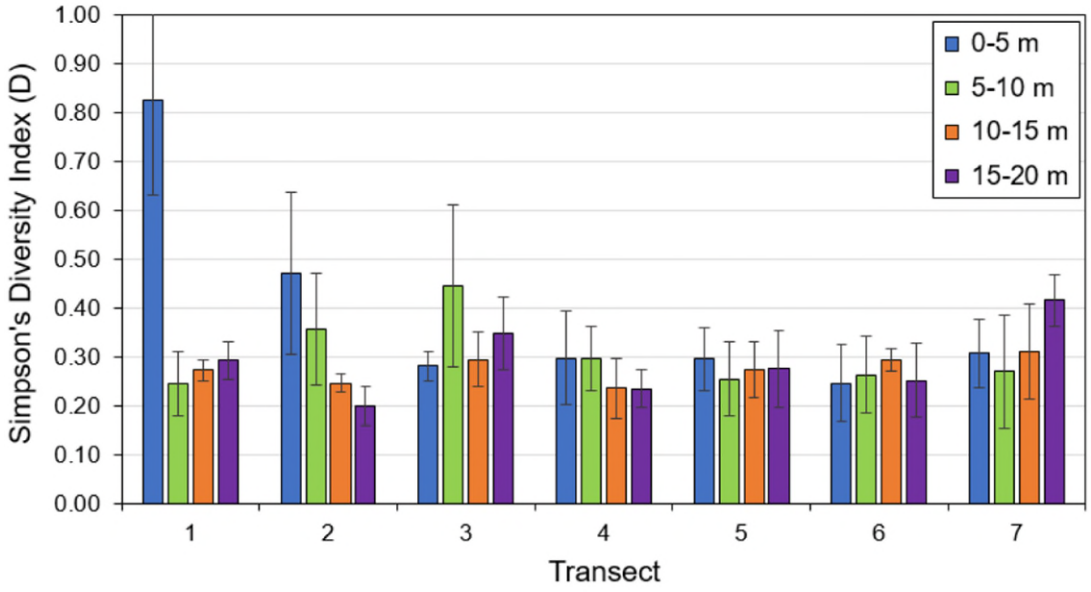
Mean benthic invertebrate taxa richness ranged from 3.2 to 9.2 unique taxa per sample, with an overall mean of about 6 (Figure 8.4-7). This result is in excellent agreement with previous studies of invertebrate structure on the Ottawa River near CRL, which found that taxa richness ranged from 4 to 10 unique taxa per sample. As with density and biomass, there was no clear trend with depth. (Bond and Carr 2021)

Figure 8.4-7 Taxa Richness (number of discrete taxa per sample ± S.D.) of Benthic Invertebrates in the Ottawa River near NPD at four different depth strata. (Bond and Carr 2021)



Simpson's Diversity Index (*D*), a measure of evenness, measures the probability that two randomly selected individuals from a sample will be the same. The value of *D* will always fall between 0 and 1, with 0 representing complete diversity and 1 representing complete uniformity. Mean Simpson's Diversity Indices from the sampling program ranged from 0.20 to 0.83, with an overall mean of 0.31 (Figure 8.4-8). This suggests a good deal of diversity within the Ottawa River benthic invertebrate community. Like with the other metrics, there was no clear trend with depth. The least diverse location was in the 0 to 5 m depth strata at Transect 1 near Rapides-des-Joachims. Interestingly, this location has relatively high invertebrate density, lowest %EPT score and highest HBI score, suggesting that the invertebrate community is least 'healthy' at this location. This is driven by the fact that it is dominated by a high number of tolerant taxa (Chironomidea). Transect 1 also had considerably sandier sediment than the other six transects, which may be a factor in limited diversity at this location. (Bond and Carr 2021)

Figure 8.4-8 Simpson's Diversity Index (D ± S.D.) in the Ottawa River near NPD at four different depth strata. (Bond and Carr 2021)



8.4.3.2 Regional Study Area

The Ottawa River in this area supports diverse warmwater and coolwater fish communities consisting of at least 55 documented species. The provincially-rare fish species in the Ottawa River include the river redhorse. Typical catches from the river include walleye, northern pike, channel catfish, smallmouth bass, and lake sturgeon (Wills 2013).

The Ontario Ministry of Natural Resources and Forestry (MNRF) reviewed the natural environment and resource uses of the Ottawa River, sub-divided by river reach (Haxton and Chubbuck 2002). In the reach of the Ottawa River in the Regional Study Area (i.e., from Des Joachims to La Passe), lake sturgeon (listed as a provincial species at risk, and under consideration for addition to Schedule 1 of *SARA*) are more abundant than other reaches of the river. This could be in part because of the abundance of both lacustrine and rapid riverine habitats for spawning and foraging. Although lake sturgeon are relatively abundant in the Allumette Lake segment of the Ottawa River, the stretch of river near NPD is relatively slow-moving and deep with sand/silt substrate. Thus, it is not considered to be important spawning habitat for lake sturgeon which select spawning habitat that is relatively shallow, fast-flowing (usually below waterfalls, rapids or dams) with gravel and boulder bottom substrate. (Bond and Carr 2021)

Although they were once abundant, American eels have not been recently observed in this reach, in large part due to the presence of multiple barriers (dams) between the Ottawa River at NPD and the ocean. There have been very few reports of lake trout despite stocking efforts. (Haxton and Chubbuck 2002)

River redhorse, a species designated as 'Special Concern' under Schedule 1 of *SARA*, has also been historically documented in the Ottawa River. However, the presence of this species in the Allumette Lake region of the river near NPD has been disputed and range maps of this species provided by the province of Ontario indicate that their range is confined to lower reaches of the river (downstream of Renfrew). (Bond and Carr 2021)

Rainbow smelt (*Osmerus mordax*) and trout-perch (*Percopsis omiscomaycus*) are the most numerically abundant and ecologically important forage fish in deep sections of the Ottawa River near NPD, and rainbow smelt are the main prey items of adult walleye in the Upper Allumette Lake section of the Ottawa River. (Bond and Carr 2021)

Popular sport and food fish abundant in the Ottawa River near NPD include walleye (Sander vitreus), sauger (*Sander canadensis*), northern pike (*Esox lucius*) and smallmouth bass (*Micropterus dolomieu*). Other abundant, non-sport species include channel catfish (*Ictalurus punctatus*), burbot (*Lota lota*), yellow perch (*Perca flavescens*) and lake sturgeon (*Acipenser fulvescens* – a species at risk). The Upper Allumette Lake section of the Ottawa River where NPD is located supports a relatively healthy population of the threatened lake sturgeon in the Ottawa River system. (Bond and Carr 2021)

There is a fish sanctuary located about 5 km upstream of the NPD site at McConnell Lake, with no fishing permitted between April and June to protect the spawning grounds of a number of spring-spawning species that congregate in this location. (Bond and Carr 2021)

Table 8.4-2 lists the fish species present and potentially present in the Regional Study Area, based on the SARs identified in the NPD Biodiversity Report (Morin and Carr 2015), information in Bond and Carr (2021), and the species listed in the MNRF Ottawa River review (Haxton and Chubbuck 2002). SAR designations (i.e., *SARA*, SARO, COSEWIC) are listed for species in the table below. Although *SARA* was originally legislated in 2002, the species list is updated frequently based on recommendations from COSEWIC.

Table 8.4-2 Fish Species Present and Potentially Present in the Site, Local and Regional Study Areas. *SARA* and SARO Queries Conducted in January 2023

Species		Status*		Reference
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO – Ontario	
American eel	*Anguilla rostrata*	No Status (THR)	THR	Morin and Carr (2015)
Banded killifish	*Fundulus diaphanous*	Not at Risk	Not Listed	(Bond and Carr 2021)
Black crappie	*Pomoxis nigromaculatus*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Blackchin shiner	*Notropis heterodon*	Not at Risk	Not Listed	(Bond and Carr 2021)
Blacknose shiner	*Notropis heterolepis*	Not Listed	Not Listed	(Bond and Carr 2021)
Bluntnose minnow	*Pimephales notatus*	Not at Risk	Not Listed	(Bond and Carr 2021)
Brassy minnow	*Hybogranthus hankinsoni*	Not Listed	Not Listed	(Bond and Carr 2021)
Brook stickleback	*Culea inconstans*	Not Listed	Not Listed	(Bond and Carr 2021)
Brown bullhead	*Ameiurus nebulosus*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Burbot	*Lota lota*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Channel catfish	*Ictalurus punctatus*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Common carp	*Cyprinus carpio*	Not Listed	Not Listed	(Bond and Carr 2021)
Common white sucker	*Catostomus commersonii*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Creek chub	*Semotilus atromaculat*	Not Listed	Not Listed	(Bond and Carr 2021)
Emerald shiner	*Notropis atherinoides*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Fallfish	*Semotilus corporalis*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Fathead minnow	*Pimephales promelas*	Not Listed	Not Listed	(Bond and Carr 2021)
Finescale dace	*Phoxinus neogaeus*	Not Listed	Not Listed	(Bond and Carr 2021)
Freshwater drum	*Aplodinotus grunniens*	Not Listed	Not Listed	(Bond and Carr 2021)
Golden shiner	*Notemigonus crysoleucas*	Not Listed	Not Listed	(Bond and Carr 2021)
Iowa darter	*Etheostoma exile*	Not Listed	Not Listed	(Bond and Carr 2021)
Johnny darter	*Etheostoma nigrum*	Not Listed	Not Listed	(Bond and Carr 2021)
Lake herring	*Coregonus artedi*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Lake sturgeon	*Acipenser fulvescens*	No Status (THR)	END	Morin and Carr (2015)

Species		Status*		Reference
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO – Ontario	
Lake trout	*Salvelinus namaycush*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Lake whitefish	*Coregonus clupeiformis*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Largemouth bass	*Micropterus salmoides*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Logperch	*Percina caprodes*	Not Listed	Not Listed	(Bond and Carr 2021)
Longnose dace	*Rhinichthys cataractae*	Not Listed	Not Listed	(Bond and Carr 2021)
Longnose gar	*Lepisosteus osseus*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Longnose sucker	*Catostomus catostomus*	Not Listed	Not Listed	(Bond and Carr 2021)
Mimic shiner	*Notrpos colucellus*	Not Listed	Not Listed	(Bond and Carr 2021)
Mooneye	*Hiodon tergisus*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Mottled sculpin	*Cottus bairdi*	Not Listed	Not Listed	(Bond and Carr 2021)
Muskellunge	*Esox masquinongy*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Northern brook lamprey	*Ichthyomyzon fossor*	SC	SC	Morin and Carr (2015)
Ninespine stickleback	*Pungitius pungitius*	Not Listed	Not Listed	(Bond and Carr 2021)
Northern pike	*Esox lucius*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Northern redbelly dace	*Phoxinus eos*	Not Listed	Not Listed	(Bond and Carr 2021)
Pearl dace	*Semotilus margarita*	Not Listed	Not Listed	(Bond and Carr 2021)
Pumpkinseed	*Lepomis gibbosus*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Rainbow smelt	*Osmerus mordax*	Not Listed	Not Listed	(Bond and Carr 2021)
Rainbow trout	*Salmo gairdneri*	Not Listed	Not Listed	(Bond and Carr 2021)
River redhorse	*Moxostoma carinatum*	SC	SC	Morin and Carr (2015)
Rock bass	*Ambloplites rupestris*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Rosyface shiner	*Notropis rubellus*	Not at Risk	Not Listed	(Bond and Carr 2021)
Sand shiner	*Notropis stramineus*	Not Listed	Not Listed	(Bond and Carr 2021)
Sauger	*Sander canadensis*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Shorthead redhorse	*Moxostoma macrolepidotum*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Silver lamprey	*Icthymyzon unicuspis*	SC	SC	(Bond and Carr 2021)

Species		Status*		Reference
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO – Ontario	
Silver redhorse	*Moxostoma anisurum*	Not Listed	Not Listed	(Bond and Carr 2021)
Slimy sculpin	*Cottus cognatus*	Not Listed	Not Listed	(Bond and Carr 2021)
Smallmouth bass	*Micropterus dolomieu*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
Spottail shiner	*Notropis hudsonius*	Not Listed	Not Listed	(Bond and Carr 2021)
Tessellated darter	*Etheostoma olmstedi*	Not at Risk	Not Listed	(Bond and Carr 2021)
Threespine stickleback	*Gasterosteus aculeatus*	Not Listed	Not Listed	(Bond and Carr 2021)
Walleye	*Sander vitreus*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
White sucker	*Catostomus commerson*	Not Listed	Not Listed	(Bond and Carr 2021)
Yellow bullhead	*Ictalurus natalis*	Not Listed	Not Listed	(Bond and Carr 2021)
Yellow perch	*Perca flavescens*	Not Listed	Not Listed	Haxton and Chubbuck (2002)
* Status: **NAR**: Not at Risk; **END**: Endangered; **THR**: Threatened; **SC**: Special Concern.				

In addition to fish species, some characterization of the aquatic invertebrates in the Ottawa River within the Regional Study Area has been carried out. The benthic community at CRL is typical of low-productivity oligotrophic systems (Bond *et al*., 2013). The hickorynut, a type of mollusc, is a species potentially present in the Site Study Area, is listed as Endangered under Ontario SAR (SARO).

8.5 Geological and Hydrogeological Environment

8.5.1 Spatial Boundaries

The Site and Local Study Areas for the geological and hydrogeological environment consist of the lands delineated in the general Site and Local Study Areas (i.e., Figure 5.2-1 and Figure 5.2-2 respectively). This includes the two closed landfills on the NPD site (shown in Figure 5.2-1 and Figure 5.2-2). The Regional Study Area defined for the geological and hydrogeological environment, illustrated in Figure 8.5-1, extends 5 km beyond the Site Study Area.

Figure 8.5-1 Geological and Hydrogeological Environment Regional Study Area

Reference: ESRI ArcGIS Online Base Layer and NPD Closure Project Description

8.5.2 Geology

8.5.2.1 Site/Local Study Area

Figure 8.5-2 shows the regional and local physiography or terrain features in the vicinity of the NPD site based on Chapman and Putnam (2007). The area surrounding the NPD site can be classified into five physiographic units: shallow till and rock, eskers, sand plains, kame moraines, and spillways. Spillways and shallow till and rock comprise the physiographic terrain features on the NPD site. Sand and gravel deposits comprise most of the spillway landforms adjacent to the Ottawa River, and extend for about a kilometre southwest of the Ottawa River at the NPD site. These spillway landforms are occasionally terraced (e.g., southeast of the NPDWF).

Site characterization work at Landfill #1 in 2017. (ORAU 2017)

All of the identified landforms and sediment deposits are the result of glacial and fluvial processes (Gadd 1963). The shallow till and rock physiographic unit occupies the majority of the map area shown in Figure 8.5-2 and is present in the southern part of the NPD site near Highway 17. Ice-contact glaciofluvial kame moraines and esker landforms consisting of gravel and sand are evident southeast, southwest and northwest of the NPDWF. These outwash deposits are not evident at the site. Southeast of the site, the northern extent of the Petawawa Sand Plain, uniformly fine-grained sand plain deposited by glacial and post-glacial stream and river flows, is present.

Regional and local structural geology of the NPD site is dominated by the major regional structural feature of the Mattawa Fault that defines the course of the Ottawa River, and the northern limit of the regional Ottawa-Bonnechere graben system.

Lumbers (1976) and Hydro-Electric Power Commission of Ontario (1943) provide information on the local structural geology of the NPDWF site. The local bedrock near the NPDWF site as mapped by Lumbers is tightly folded with gneissosity striking northwest-southeast, parallel to the Ottawa River and dipping shallowly to moderately (10º to 30º) to the northeast toward the Ottawa River. Lumbers also mapped northwest-southeast striking faults southeast of site through Tee Lake, and northwest of the site within the Ottawa River. Lumbers also maps distortions in bedrock gneissosity in the area of the Des Joachims hydroelectric power development located immediately northwest of the NPDWF site, with gneissosity primarily striking north-south and moderately dipping east.

Figure 8.5-2 Physiography and Geomorphology (from: Geosynthesis TSD)

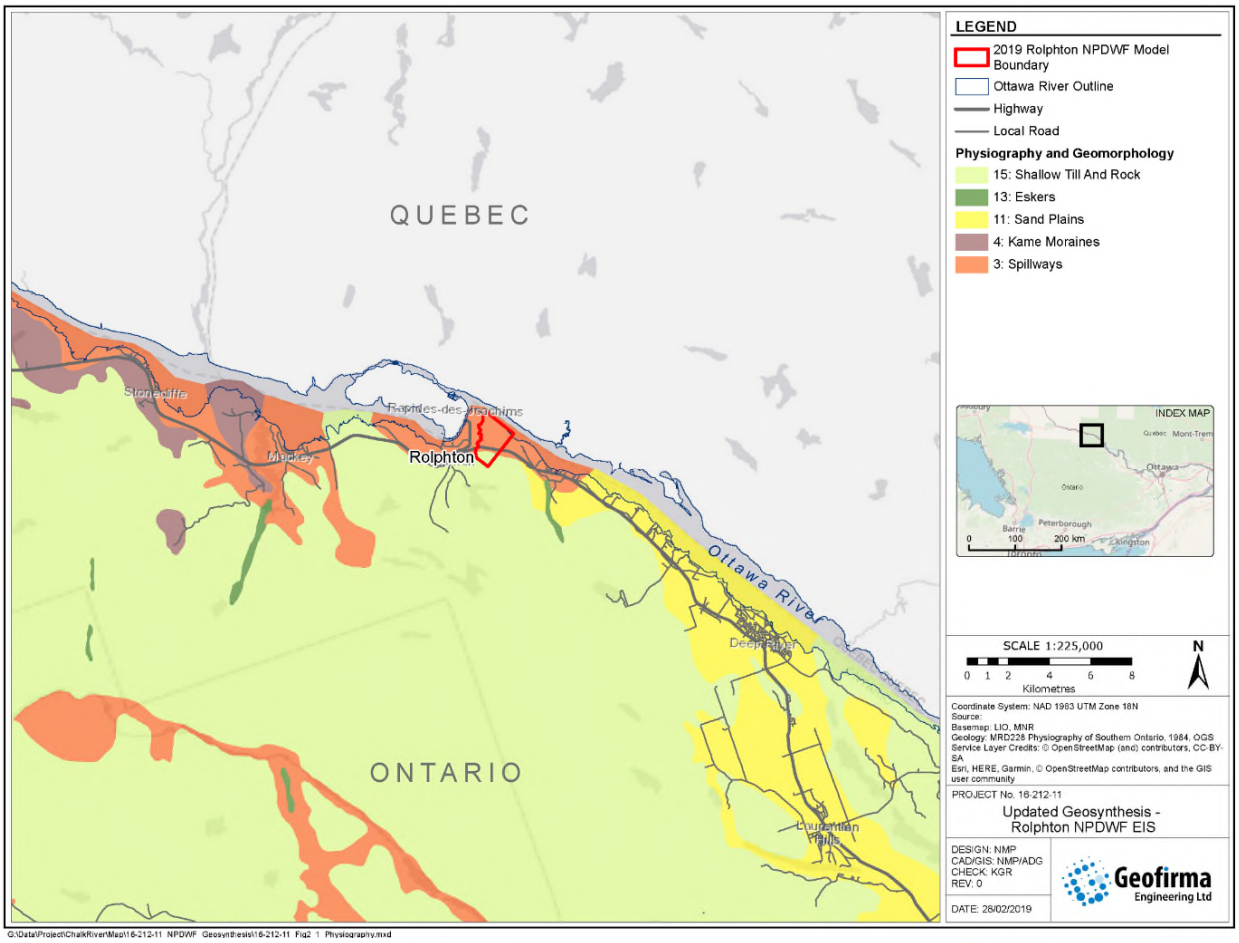
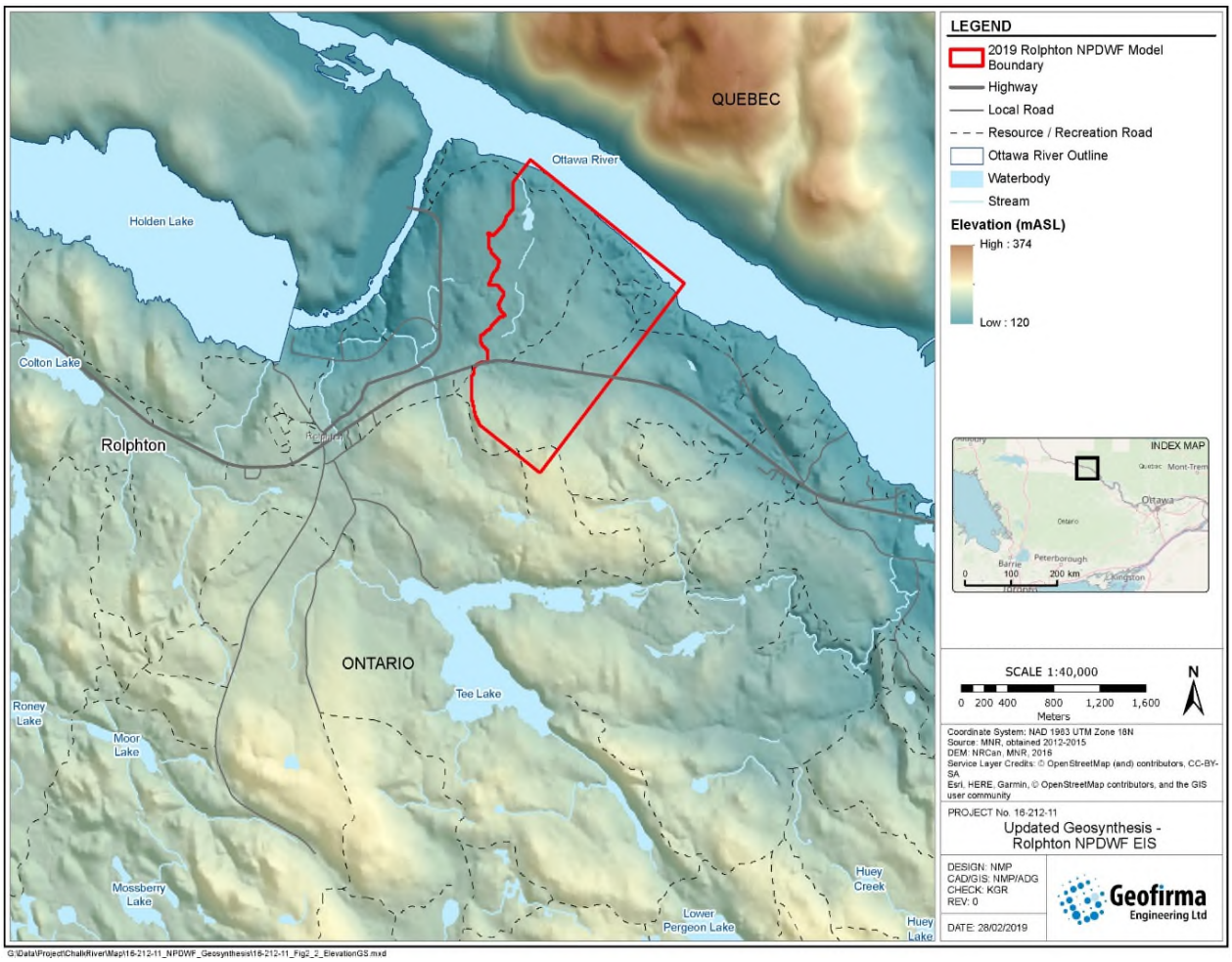


Figure 8.5-3 shows the elevation of the ground surface in the vicinity of the NPDWF site based on Canadian digital elevation data (Geobase 2011). The ground surface at the NPD site at the Ottawa River has an average elevation of 111 metres above sea level (mASL), and rises to about 128 mASL at the current NPDWF building. Southwest of the current NPD building the ground surface rises to an elevation of about 164 mASL at Highway 17 reflecting the rising bedrock surface elevations. Southwest of Highway 17 the ground surface rises to elevations of 215 to 220 mASL north of Tee Lake to elevations of 230 to 245 mASL southwest of Tee Lake. Ground surface elevation on the Quebec side of the Ottawa River rises rapidly to about 345 to 370 mASL (Geofirma 2021).

As discussed in Section 8.2 above, the topography of the NPD site has been taken into consideration in the air dispersion modelling.

Figure 8.5-3 Elevation of Ground Surface in the Vicinity of the NPDWF (from: Geosynthesis TSD)



Historical photographs of NPD under construction (Figure 8.5-4 and Figure 8.5-5) show that disturbance throughout the nuclear power plant grounds, including the shoreline of the Ottawa River, was deep and extensive (Archaeology TSD). A significant excavation into the bedrock was advanced (Figure 8.5-6) and numerous man-made terraces and steep interconnecting benches were created for construction (Figure 8.5-4) and security purposes (Figure 8.5-7). This activity has resulted in a highly modified landscape at the NPD site (Wills 2013).

Figure 8.5-4 Benching of the site during construction (1958)

Figure 8.5-5 Bedrock excavation and cooling water pipe trench during construction (1958)

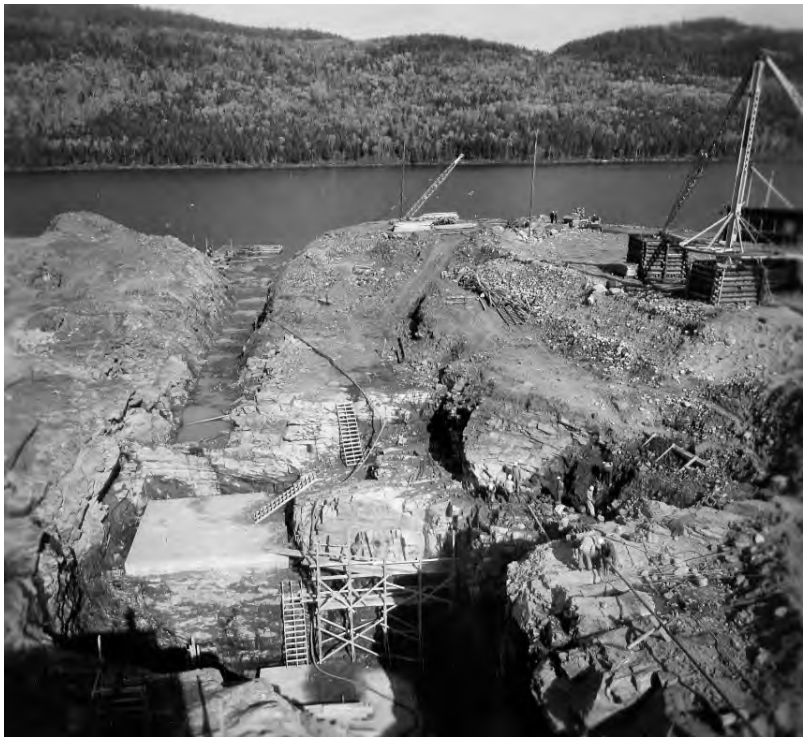


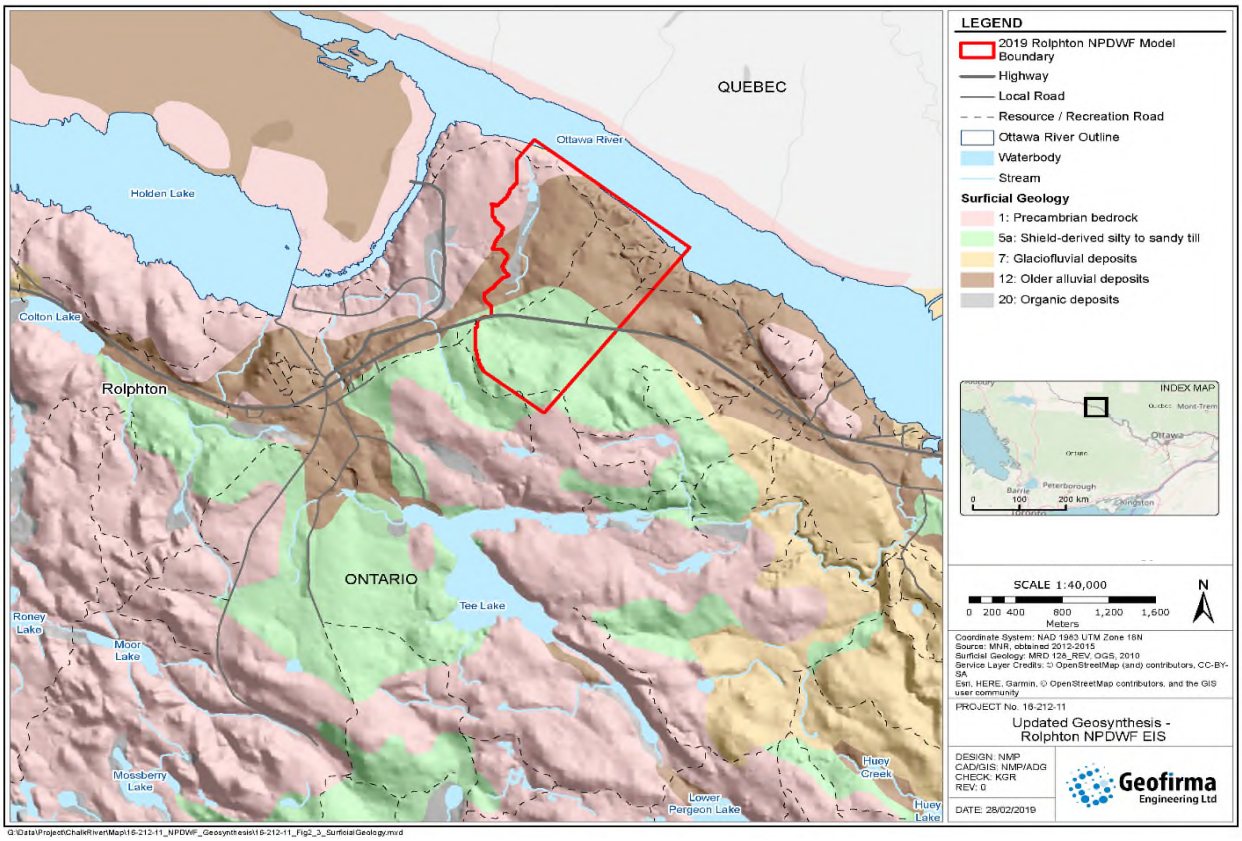
Figure 8.5-6 Excavation of the bedrock at the NPD site (1957)

Figure 8.5-7 Terracing and interconnecting benches

Figure 8.5-8 shows the surficial geology of the NPDWF site and surrounding area based on Ontario Geological Survey (OGS 2010) digital mapping. OGS (2010) identified five surficial map units in Figure 8.5-8 comprising, from oldest to youngest: Precambrian bedrock, shield-derived silty to sandy till, glaciofluvial deposits, older alluvial deposits and organic deposits. Gadd (1963) observed that the overburden deposits of the map area recorded a single glacial event of Wisconsinan (75,000 to 11,000 years ago) and younger age. The NPDWF site is comprised of mostly older alluvial deposits and Precambrian bedrock northeast of Highway 17, and glacial till southwest of Highway 17.

Gadd (1963) identified the bedrock geology as mainly pink and grey Precambrian granitic gneisses with some granite, pegmatite, amphibolite and Grenville-type metasedimentary gneisses. Mapping of bedrock outcrops as part of 2019 geoscientific characterization of the NPD site identify NPD bedrock geology as interlayered granitic to monzonitic gneiss and biotite hornblende gneiss with minor gabbroic gneiss. Core logging of shallow bedrock boreholes completed as part of the same 2019 investigations show the subsurface bedrock is principally an interlayered sequence of metre-scale bands of granitic gneiss and hornblende gneiss, with minor bands of dioritic gneiss and hornblende K-feldspar gneiss. Metre-scale to sub-metre-scale pegmatite dykes and occasional diabase dykes intrude the gneissic rock sequence. (Geofirma 2019).

Figure 8.5-8 Surficial Geology



The surficial overburden at the NPD site consists of fluvial sands and gravels and fills around the NPDWF, overlying silty sand till to sand along the shoreline, and gravel and cobble till overlying a boulder glacial till deposited upgradient of the building (Hydro-Electric Power Commission of Ontario 1956; Killey and Munch 1988; 1989; MacLarentech Inc. 1990; John D. Paterson and Associates 2002; Killey 2014; Geofirma 2019).

Based on Killey and Munch (1988), a “dense silty very stony sand till” underlies the sands and gravels and is assumed to lie directly on the bedrock for an unknown thickness throughout the Landfill 1 area. In some areas, fluvial sands and gravel lie directly over bedrock. Killey and Munch (1989) note that the surface exposures of till in the region are sand and gravel with silt and boulders up to 2 m in diameter, and that the till is geochemically different than the fluvial sands and gravels, indicative of lower permeability sediments. MacLarentech Inc. (1990) identifies mainly till in the overburden near the shoreline, however, these are identified as disturbed native glacial till used as fill.

Figure 8.5-10 and Figure 8.5-11 show geological-hydrogeological cross sections A-A’ and B-B’ (planes depicted in Figure 8.5-9) constructed perpendicular and parallel to the Ottawa River in the vicinity of the NPDWF based on recent and historical data and mapping (Geofirma 2019). Cross-sections A-A’ and B-B’ show a downward overburden sequence consisting of pockets of sand and gravel fill, fluvial sand and gravel, and silty sand to cobble till and boulder till. The boulder till identified on these cross sections occurs in the vicinity of NPDWF and consists of metre-size boulders directly overlying competent crystalline bedrock. Although historical boreholes inferred till to be bouldery based on poor sample recovery, such till is assumed to be primarily sand, gravel and cobble till. Southwest of the NPDWF to Highway 17, the glacial till has a silty sandy texture consistent with overburden mapping of Gadd (1963).

Overburden thickness at the NPD site ranges from about 2 m near the Ottawa River up to about 15-18 m southwest of the NPDWF and thinning to 5 to 7 m near Highway 17. Overburden thickness adjacent to the NPDWF building averages 5 to 6 m. Overburden thickness northwest and southeast of the NPDWF as shown in cross-section B-B’ is interpreted to average about 10 to 15 m based on available borehole data and OGS (2010) and Gadd (1963) overburden mapping. The noteworthy bedrock high at MW18-06 creates an overburden thickness of about 3 m and limits the southeastward extent of the fluvial sand and gravel unit from the area of the NPDWF.

Figure 8.5-9 Locations of Boreholes/Monitoring Wells and Cross Sections (Geosynthesis TSD)

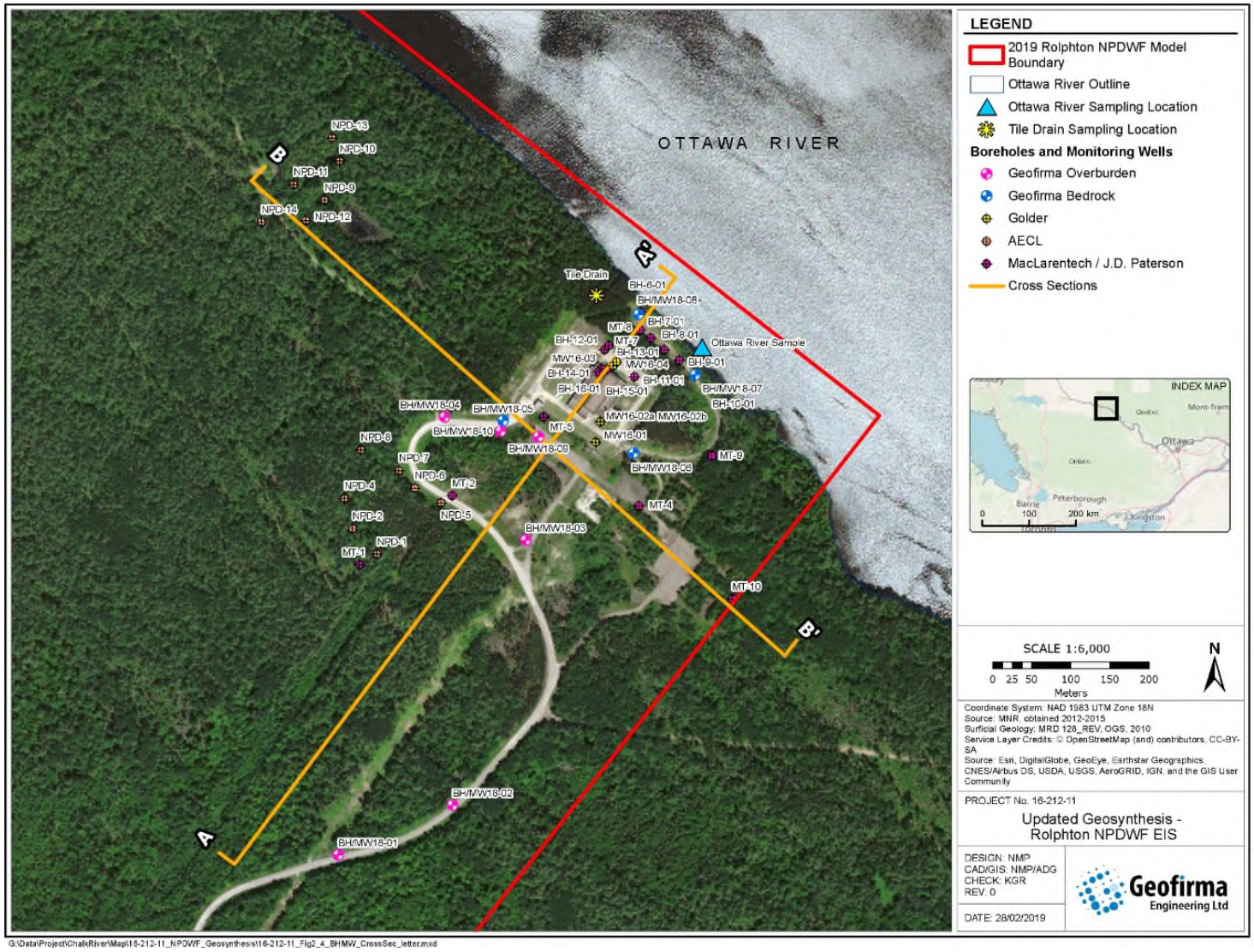


Figure 8.5-10 Geological-Hydrogeological Cross Section A-A' (Geosynthesis TSD)

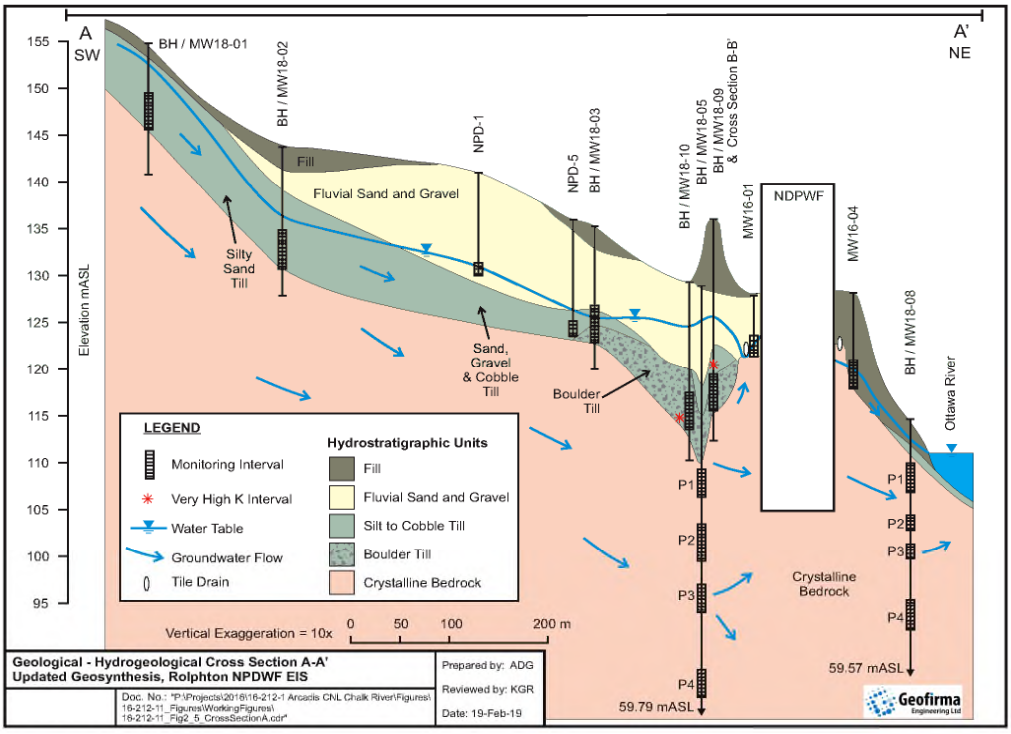
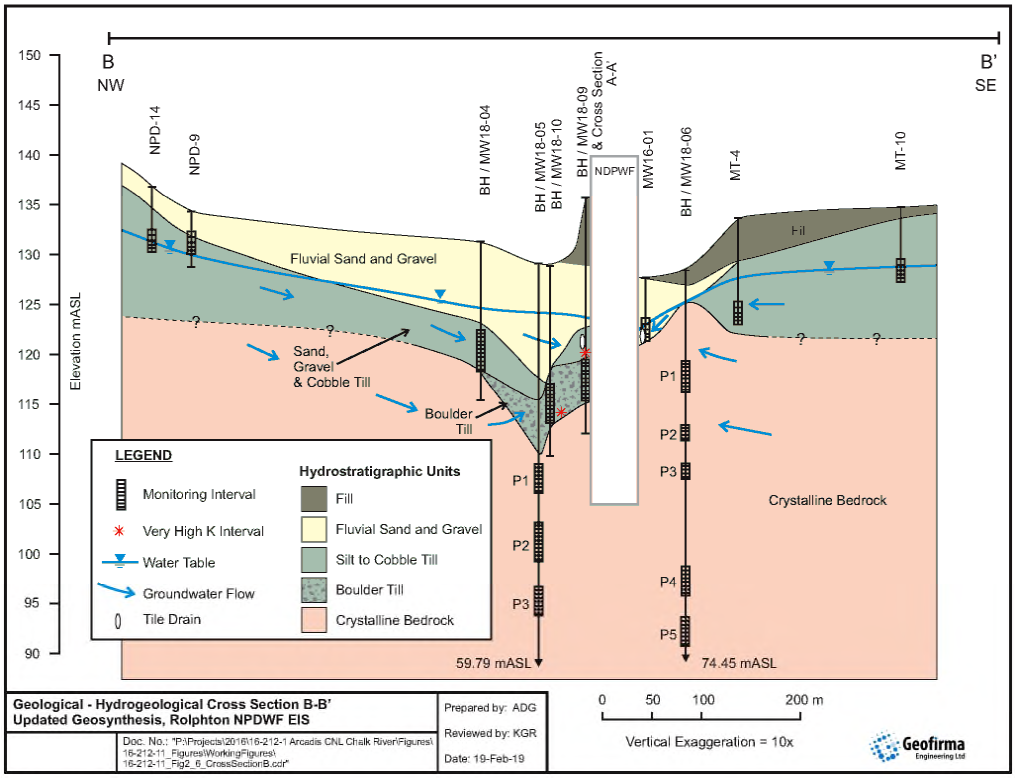


Figure 8.5-11 Geological-Hydrogeological Cross Section B-B' (Geosynthesis TSD)



Geology near the Former Landfill 1

The NPD Landfill 1 (L1), shown in Figure 5.2-1, was located in a former sand and gravel extraction pit situated along the main access road to the station approximately 250 m southwest of the guardhouse (Athauda-Arachchige 2015). The geology around L1 consists of very bouldery sand and gravel at surface uphill (southwest) of the former landfill, overlying a unit of medium to coarse sand. This sand lies directly below the NPD station access road northwest of the location of the former landfill, and appears to be the host material for L1 itself. A second sand and gravel coarse sand unit, less bouldery and frequently containing some silt, underlies the coarse sand unit and overlies glacially-deposited stony silty sand till. The water table lies just above or below the contact between the coarse sand and the underlying sand and gravel (Athauda-Arachchige 2015).

Geology near the Former Landfill 2

The NPD Landfill 2 (L2), shown in Figure 5.2-1, was located northwest of the powerhouse (Athauda-Arachchige 2015). From Highway 17, the land slopes down towards the Ottawa River through the NPD site. This slope is interrupted by a nearly level bench or terrace (at elevation between 135 and 140 mASL) that hosts the former sand and gravel pit which is the location of L2. The surface geology around L2 consists of river-lain sands and gravels, possibly overlaying glacial till, in turn overlying granitic bedrock. Most of the surface in the region is covered by a boulder pavement, a lag concentrate of subrounded rocks up to 2 m in diameter left by water scouring and removal of the finer-grained fraction of the sediments. Extensive areas of bedrock outcrop are found approximately 0.5 km west of L2 at similar elevations, and thin overburden encountered during construction of NPD, suggest that unconsolidated sediments around L2 may be relatively thin (Athauda-Arachchige 2015).

8.5.2.2 Regional Study Area

Extensive drilling investigations of the Rapides-des-Joachims site, in particular the main dam site located at the east end of Holden Lake, by Hydro-Electric Power Commission of Ontario (1943) identified the following bedrock structures at the Rapides des Joachims site:

- Schistosity (foliation or gneissosity) parting planes or fractures;
- Tight folds where folding is extreme such that the fold apex is sheared and crushed resulting in a plane of weakness parallel to schistosity;
- Network of faults evident as topographic lineaments that intersect one another at roughly 45º and 90º; and
- Shear zones located between faults and adjacent to faults, some of which are large and highly fractured creating erosional and weathering depressions in the bedrock surface.

Schistosity, sheared tight folds and thrust faults parallel to schistosity all striking approximately north-south were significant at the east end of Holden Lake, such that the main dam was relocated and realigned to its current location from a previous northeastern location.

Abundant regional structural geological information including ductile and brittle structures is available for the CRL property based on bedrock outcrop mapping, airborne and ground geophysical surveys and extensive bedrock drilling and testing (Thivierge 2011; McCrank 2016a; 2016b). Given the similar structural setting of the NPD and CRL sites, CRL data on regional and local structural geology is applicable to the NPD site.

Rocks at the CRL property and in the surrounding region show shallow- to moderately-dipping gneissosity and mineral aggregate foliation which is extensively folded in surface outcrops and boreholes cores. These mesoscopic ductile structures are part of larger macroscopic folds and synforms and antiforms defined based on grouped bedrock unit assemblages. Thivierge (2011) identifies a series of ductile structural elements in the area of the CRL property that include mineral layering, lineation and folding. Most of these planar ductile structures strike north-northwest with shallow to moderate dip to the northeast toward the Ottawa River and to the southwest. Most of the mineral stretching lineation and fold axes plunge shallowly to the north-northwest.

Brittle structures including faults, major fracture zones and diabase dykes at the CRL property have been tentatively identified based on lineament mapping using air photos, Lidar surveys and airborne and ground geophysical surveys (Raven 1980; Raven Beck Environmental Ltd. 1994a; Thivierge 2011; McCrank 2016a; 2016b). Review and analysis of these and other data shows the following bedrock brittle structural features are interpreted for the CRL site (Raven Beck Environmental Ltd. 1994a; Thivierge 2011, McCrank 2016a):

- The large regional-scale northwest-southeast striking, steeply southwest dipping (65º) Mattawa Fault defining the course of the Ottawa River northeast of the CRL site;
- Two site-wide east-west striking regional Grenville diabase dykes in the centre of the CRL site; and
- Interpreted faults generally striking northwest-southeast (parallel to the Mattawa Fault), east-west to east-southeast - west-northwest (such as the Upper Bass Lakes Fault), and subordinate north-northeast - south-southwest (perpendicular to the Mattawa Fault) across the entire CRL site.

These macroscopic brittle structural features are also expressed as steeply dipping fractures with similar orientations in CRL bedrock outcrops (Thivierge 2011). Interpretation of subsurface borehole fracture logging also shows the dominant presence of fractures subparallel to shallow-dipping gneissosity (Thivierge 2011) as well as the ubiquitous presence of subhorizontal sheeting joints in shallow bedrock (Raven 1986). Thivierge (2011) also interpreted subvertical north-northeast trending fractures as the earliest expression of syn- to post-tectonic brittle to brittle-ductile behaviour occurred in the last stages or after the Grenville ductile deformation since these fractures are mainly occupied by syn- to post-tectonic granitic/pegmatitic veins that are representative of high temperature (>700º C) filling materials.

The association of fractures with gneissosity or foliation of Grenville gneisses has also been reported from regional studies of Benson *et al*. (1974) and Raven and Gale (1986). These works described the occurrence of foliation shear zones in underground excavation sites in gneissic rock of the Grenville Province in the Canadian Shield. These studies concluded that foliation shear zones or zones of faulting and fracturing will occur in gneissic rocks of the Grenville Province at orientations parallel to gneissosity.

These studies also concluded that typical site investigation techniques (e.g., lineament mapping, drilling and coring) often do not detect some foliation shear zones, and hence such zones should be expected in underground excavations regardless of the results of site investigations.

ORAU (2017) describes the general geology of the region as Precambrian shield consisting of folded and faulted metamorphic rocks (gneiss).

A descriptive geological site model completed for the CRL site is used here to characterize the Regional Study Area, which falls in the Central Gneiss Belt of the Grenville Province (McCrank 2016a). The major rock types underlying the region, based on modal mineralogy, are granitoid types; differing in modal quartz content and variations in plagioclase feldspar vs potassic feldspar. Modal analyses falling in the granite-quartz monzonite-monzodiorite fields are dominant. These are mostly felsic rock, which are predominant over the mafic-mineral rich rock (McCrank 2016a).

This observation alone indicates that the predominant mineralogy consists of quartz and the feldspars. An approximation of the relevant abundances is plagioclase > potassic feldspar > quartz > biotite > hornblende > garnet > clinopyroxene > orthopyroxene. The ternary plots illustrated the predominance of the feldspars vs the quartz and the mafic minerals. The QAP ternary plots following illustrate the predominance of plagioclase feldspar vs the potassic feldspar (McCrank 2016a).

The metamorphic grade due to regional metamorphism in the Precambrian is upper amphiboloite to granulite though there is evidence of retrograde metamorphism in all boreholes (McCrank 2016a).

Information on petrology and lithogeochemistry of bedrock at the NPD site is inferred from examination of cores recovered from recent and historical on-site diamond drilling, from recent and historical mapping of outcrops in the vicinity of the site and from petrographic and lithogeochemical analyses of NPD site outcrop and borehole core samples and of similar rock types found at the CRL site.

As demonstrated by Geofirma (2019), the bedrock mineralogy of the NPDWF and CRL sites are sufficiently equivalent to infer the mineralogy and lithogeochemistry at the NPD site (Table 8.5-1). The mapped biotite and hornblende gneiss bedrock units are lithologically similar and, according to the Streckeisen (1976) (quartz – alkali (K) feldspar – plagioclase feldspar – feldspathoid) double ternary classification system, are likely quartz-monzonite to quartz-monzodiorite rocks with plagioclase feldspar dominant over K-feldspar and mafic minerals, and quartz present at less than 20%.

Table 8.5-1 Summary of Inferred Major Mineralogy and Lithogeochemistry of Bedrock at NPD Site from CRL Work (Geosynthesis TSD)

Lumbers (1976) Map Unit and Rock Type	Major Mineralogy from Petrographic Thin-Section Analyses (%)	Lithogeochemistry as Major Oxides (weight %)	
1a - Biotite Gneiss	Plagioclase: 25-40% K-Feldspar: 15-30% Quartz: 15-30% Biotite: 10-20% Hornblende: 5-10% Garnet: 0-5%	SiO_2: 45-55% Al_2O_3: 15-18% Fe_2O_3: 3-8% MnO: 0.04-0.12% MgO: 0.7-2.7% CaO: 1.9-4.0%	Na_2O: 2.6-3.7% K_2O: 2.6-5.7% TiO_2: 0.4-0.9% P_2O_5: 0.1-0.2%
5b - Hornblende Gneiss	Plagioclase: 50-60% K-Feldspar: 5-20% Quartz: 10-20% Biotite: 10-15% Hornblende: 10-15% Garnet: 0-2%	SiO_2: 55-60% Al_2O_3: 17-19% Fe_2O_3: 1.1-2.3% MnO: 0.11-0.19% MgO: 1.1-1.5% CaO: 4.6-5.1%	Na_2O: 3.8-4.2% K_2O: 3.6-5.0% TiO_2: 0.7-1.2% P_2O_5: 0.2-0.4%

A recent investigation was undertaken to characterize the mineralogy at the NPDWF site. Table 8.5-2 summarizes the field identification and laboratory mineralogical and petrographic characterization of 20 rock samples.

The lithologies listed in Table 8.5-2 are entirely consistent with the summary rock description of migmatitic biotite gneiss provided in earlier OGS preliminary mapping by Lumbers (1976) as well as current bedrock outcrop mapping described in the Geosynthesis TSD.

Economic geology in the area of the NPD site is assessed based on review of Ontario Ministry of Northern Development and Mines (2018), Ontario Ministry of Natural Resources (2006e) and Ontario Geological Survey (2014) databases of mines, mining claims, mineral resources and pits and quarries. Figure 8.5-12 shows the location of all mineral occurrences, mining claims, mines and pits and quarries in the area surrounding the NPD site. There is one active mining claim, for gneiss and granite building stone, located 12 km west of the NPDWF site at Mackey, Ontario. Figure 8.5-12 also shows a past-producing silica sand and feldspar mine located north of Mackey on the Ottawa River, also about 12 km west of the NPDWF site. There are also two discretionary mineral occurrences for anorthosite and graphite located 13 km southwest and 28 km southeast, respectively of the NPDWF site.

Figure 8.5-8 shows that several pits and/or quarries are located in the immediate vicinity with two former aggregate pits located on the NPD site. Several pits and quarries, all identified as aggregate sites, are located southeast, south and southwest of the NPDWF site.

Table 8.5-2 Summary of 2019 Field and Laboratory Identification of Mineralogy and Petrology at NPD Site (Geosynthesis TSD)

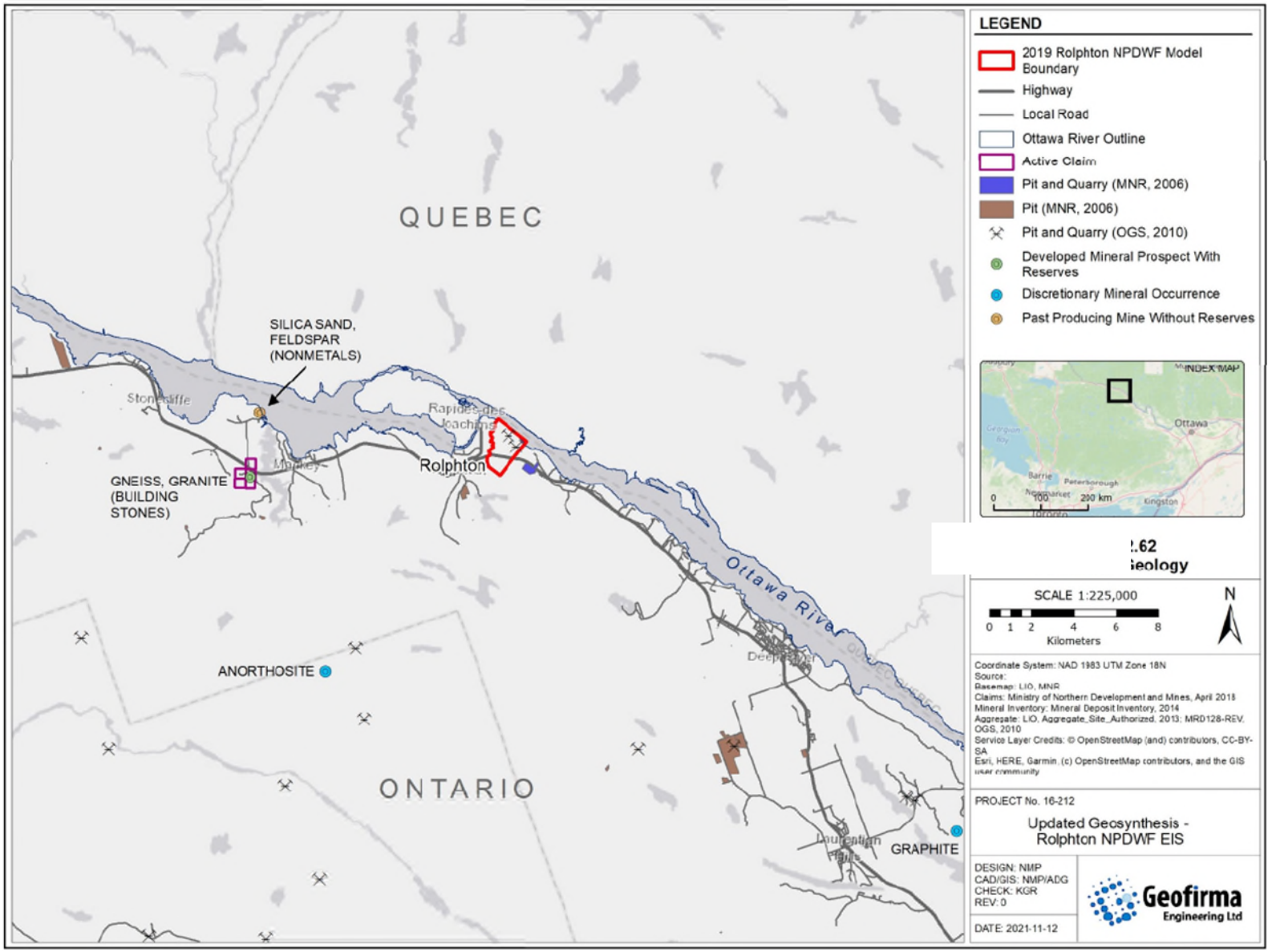
Sample ID	Field Rock Description	Qualitative XRD Mineralogy	QEMSCAN Modal Mineralogy (%)	SGS Rock Name
Bedrock Outcrop				
18-NPD-01-A01	Biotite granitic gneiss	Plag>Qtz>Kspar.Mica~Magh	Plag(63.2), Biot(18.6), Qtz(8.8), Kspar(4.1)	Quartz Diorite
18-NPD-06-A01	Biotite garnet augen gneiss with quartzo-feldspathic banding	Qtz>Plag>Mica>Kspar~Magh	Plag(38.4), Qtz(22.1), Biot(17.7), Garnet(16.8)	Garnet Gneiss
18-NPD-08-A01	Biotite granitic gneiss	Qtz~Plag.>Kspar>Mica~Pyrx	Plag(36.9), Qtz(35.2), Kspar(22.4), Biot(6.3)	Granitic Gneiss
18-NPD-09.4-B01	Gabbroic gneiss	Plag>Qtz>Pyrx~Mica~Magh~Kspar	Plag(57.4), Qtz(17.8), Kspar(7.8), Amph(6.5), Biot(6.3)	Clinopyroxene/Amphibole-bearing Gneiss
18-NPD-12-A01	Hornblende granitic augen gneiss	Qtz~Epdt>Kspar>Pyrr	Epdt(45.2), Kspar(28.3), Qtz(12.9), Amph(0.8)	Granodiorite
18-NPD-13.2-A01	Biotite hornblende granitic augen gneiss	Qtz~Plag>>Kspar~Mica~Magh	Plag(49.4), Qtz(26.7), Kspar(15.3), Biot(12.2)	Granite
Borehole Core				
BH18-05-27.85	Hornblende gneiss	Plag>Qtz>Amph~Mica~Kspar	Plag(76.3), Biot(12.2), Amph(5.4), Qtz(2.6)	Monzonite
BH18-05-31.66	Hornblende Kspar gneiss	Qtz>Kspar~Plag	Plag(35.1), Kspar(31.5), Qtz(30.4), Biot(0.2)	Granite
BH18-05-49.31	Granitic gneiss	Qtz~Plag>>Mica~Kspar~Magh	Plag(59.7), Biot(14.1), Kspar(12.3), Qtz(12.0)	Felsic Gneiss/ Quartz Monzodiorite
BH18-05-68.90	Granitic gneiss	Plag>Qtz~Kspar>Mica~Ept	Plag(49.3), Qtz(24.2), Kspar(17.2), Biot(7.5)	Granodiorite
BH18-06-14.75	Hornblende gneiss	Plag>Qtz>Mica~Magh~Amph	Plag(79.4), Biot(5.9), Amph(5.5), Qtz(3.1)	Amphibole-bearing Monzonite
BH18-06-27.26	Hornblende gneiss	Plag>Mica>Kspar~Amph~Qtz	Plag(41.8), Biot(15.4), Amph(11.1), Qtz(7.8)	Amphibole Diorite/Gneiss
BH18-06-49.31	Granitic gneiss	Qtz>Kspar~Plag>Mica~Pyrx	Kspar(42.3), Qtz(30.1), Plag(20.4), Biot(2.3)	Granite

Sample ID	Field Rock Description	Qualitative XRD Mineralogy	QEMSCAN Modal Mineralogy (%)	SGS Rock Name
BH18-07-11.41	Hornblende gneiss	Qtz~Kspar>Plag>Pyrx	Plag(28.2), Biot (21.8), Kspar(13.0), Clays(11.5), Chlorites(10.1), Qtz(9.1)	Chlorite Gneiss
BH18-07-15.02	Pegmatite	Plag~Qtz>>Kspar~Mica	Qtz(45.1), Kspar(33.2), Plag(9.6), Biot(7.5)	Granite
BH18-07-39.13	Granitic gneiss	Plag~Qtz>>Kspar	Plag(69.8), Qtz(11.9), Kspar(5.0), Chlorites(3.9), Amph(2.5)	Altered Quartz Diorite
BH18-07-50.08	Hornblende gneiss	Plag~Qtz>Amph>Kspar~Mica	Plag(47.9), Amph(18.0), Biot(16.1), Qtz(11.8), Kspar(1.0)	Amphibole-Biotite Gneiss
BH18-08-13.01	Hornblende gneiss	Amph~Plag>Mica~Qtz	Plag(55.4), Amph(24.9), Qtz(10.5), Biot(4.0), Kspar(1.1)	Amphibole Gneiss
BH18-08-40.59	Dioritic gneiss	Plag>Amph~Qtz~Mica>Kspar	Plag(39.3), Amph(31.5), Biot(15.2), Qtz(6.7), Kspar(1.8)	Amphibole-Biotite Gneiss
BH18-08-54.62	Hornblende gneiss	Plag>Amph~Qtz~Mica>Kspar	Plag(42.5), Amph(29.0), Qtz(11.7), Biot(11.0), Chlorites (0.2), Epdt(0.2)	Amphibolite

Notes

Plag=plagioclase, Qtz=quartz, Kspar=potassic(K)feldspar, Biot=biotite, Amph=amphibole, Pyrx=pyroxene, Magh=maghemite, Epdt=epidote, Pyrr=pyrrhotite

Figure 8.5-12 Economic Geology (Geosynthesis TSD)



Geotechnical and geophysical hazards such as earthquakes are discussed in Section 8.12 and 9.14, below.

8.5.3 Soil Quality

8.5.3.1 Site/Local Study Area

Radiological

CNL conducted a systematic characterization of the NPD site in 2016 and 2017, for the purposes of documenting environmental liabilities, consisting of Phase I and Phase II Environmental Site Assessments (ESAs).

The Phase I ESA (ORAU 2017) was conducted based on CSA Standard Z678-01 (then R2012; now R2022) and nuclear industry site characterization guidance (Multi-Agency Radiation Survey and Site Investigation Manual, referred to as “MARSSIM”). The Phase II ESA (Golder 2017b; McVeigh 2018b) was conducted in accordance with O. Reg 153/04, CSA Standard Z769 (R2013) for Phase II ESA, as well as CSA Standard N292.5-11, which provides guidelines for the exemption or clearance from regulatory control of materials that contain, or potentially contain, nuclear substances. The Phase II ESA work was conducted based on the requirements of the Characterization Plan (ORAU 2016) that was developed from the Phase I ESA identified gaps. The ESAs for the NPD site have been documented in the following reports:

a) Historical Site Assessment (HSA) for the Nuclear Power Demonstration Waste Management Facility, Rolphton, Ontario (ORAU 2017).
   - Phase I ESA.

b) Phase Two Environmental Assessment Nuclear Power Demonstration Site, Canadian Nuclear Laboratories (Golder 2017b).
   - Summarizes the Phase II ESA results for Conventional Contaminants of Concern (CCOCs).

c) NPDWF Balance of Site Characterisation Report (McVeigh 2018b).
   - Summarizes the Phase II ESA results for Radiological Contaminants of Concern (ROCs).

The soil sampling undertaken as part of the Balance of Site Characterization at the NPD Site investigated radiological soil quality, defining areas as: Class 1, Class 2, Class 3, or Background Reference Areas (BRA). Individual characterization units (CU) are shown in Figure 8.5-13 for the NPD site.

Figure 8.5-13 Characterization Site Plan

The analysis results for this soil sampling campaign are summarized in Table 8.5-3 below. A set of rigorous statistical analyses were undertaken for these results by McVeigh (2018b). First, the BRA was deemed be non-impacted, and thus is appropriate for comparison with the results of other classification areas. Second, it was generally found that concentrations of radiological contaminants in Class 1, Class 2, and Class 3 CUs were not significantly elevated above the BRA. However the soil sampling, coupled with gamma radiation surface scans within the Class 1 CUs, identified four areas of discrete contamination associated with the facility. No radiological contamination was located in areas that will not be affected by decommissioning activities.

Subsurface soil sampling was undertaken in Class 1 CU, and at Landfill #1 (Class 2). The results of all sub-surface soil sampling analysis indicated no elevated radionuclide activity.

Table 8.5-3 Average Radionuclide Concentrations in Soil in Various Characterization Units at the NPD Site (McVeigh 2018b)

Radionuclide	Unit	DCGL[a]	BRA	Class 3	Class 2	Class 1
Am-241	Bq/g	0.1	0.00256	0.00272	0.00284	0.00306
Co-60	Bq/g	0.1	0.00026	0.00026	0.00021	0.00028
Cs-137	Bq/g	0.1	0.03085	0.00381	0.00777	0.02317
Eu-152	Bq/g	0.1	0.00126	0.00238	0.00246	0.00152
U-235	Bq/g	1	0.00259	0.00296	0.00241	0.00355
U-238	Bq/g	1	0.02138	0.02223	0.02099	0.01722
H-3	Bq/g	100	0.05544	0.03058	0.01880	0.02749
C-14	Bq/g	1	0.01751	0.01620	0.01952	0.02073
Sr-90	Bq/g	1	0.03000	0.01413	0.02719	0.03160
Tc-99[b]	Bq/g	1	<0.2000	<0.1000	<0.1000	<0.2000

Notes

a. Unconditional Clearance Levels, Schedule 1, SOR2000-207 Nuclear Substances and Radiation Device Regulations.
b. Concentration level reported for Tc-99 represents the method minimum detection limit achieved.

Ambient tritium concentrations in soil samples (measured in free tritiated water (HTO)) are collected near the NPDWF. Surface soil samples are collected and analyzed annually in September or October. Because the same locations are sampled each year, the same type of soil is therefore sampled; however, the composition can vary between samples. Changes in soil composition do not affect the HTO measurements (as HTO is measured in soil moisture) but could contribute to variations in organically bound tritium (OBT) measurements. Vegetation sampling is discussed in Section 8.5.4 below.

Table 8.5-4 presents the tabulated data for the concentrations of tritium measured in the surface soil in the Site and Local Study Areas. Figure 8.5-14 presents the historical trends of tritium levels for each of the sampling locations (Wills 2013). Table 8.5-4 shows a generally decreasing trend in soil tritium concentrations both over time and with distance of the sampling location from the facility. Any ‘spikes’ in readings, such as (e.g., NPD- NE in 2012) are not significant compared to the radiological benchmark for non-human biota, which is on the order of MBq/L, and the drinking water standard (7,000 Bq/L).

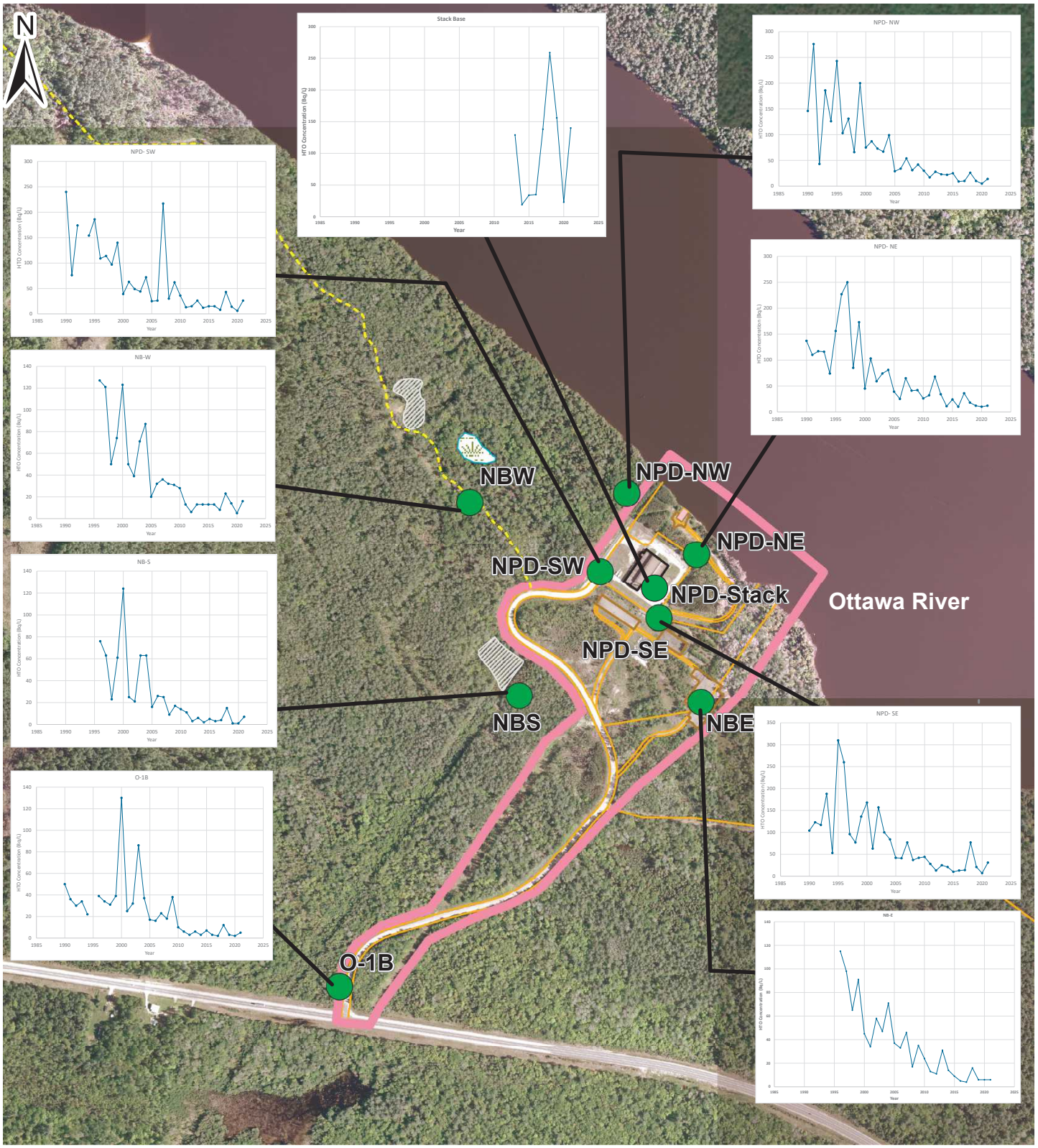
Part of the fence that surrounds the NPDWF was moved in 1994, so that the NPD-NE and NPD-NW sampling stations are now outside the fence. In order to maintain continuity in the data sets, sampling was repeated at these locations rather than moving the sampling points to the new fence corners. Three new sampling stations were established in 1996 on the west, south, and east sides of the possible new site property perimeter (locations NBW, NBS, and NBE, respectively) (Wills 2013).

Table 8.5-4 Concentrations of Tritium (HTO) in Surface Soil near NPD (in Bq/L)

Year	NB-E	NB-S	NB-W	NPD- NE	NPD- NW	NPD- SE	NPD- SW	O-1B	Reference
1988	NA	NA	NA	NA	NA	NA	NA	36	(Wills 2013)
1990	NA	NA	NA	137	146	104	240	50	(Wills 2013)
1991	NA	NA	NA	110	276	123	76	36	(Wills 2013)
1992	NA	NA	NA	117	43	117	174	30	(Wills 2013)
1993	NA	NA	NA	116	186	188	N/A	34	(Wills 2013)
1994	NA	NA	NA	74	126	53	154	22	(Wills 2013)
1995	NA	NA	NA	156	243	310	186	NA	(Wills 2013)
1996	115	76	127	227	103	260	109	39	(Wills 2013)
1997	98	63	121	250	131	96	114	34	(Wills 2013)
1998	65	23	50	85	66	77	97	31	(Wills 2013)
1999	91	61	74	173	200	136	140	39	(Wills 2013)
2000	45	124	123	45	75	168	39	130	(Wills 2013)
2001	34	25	50	103	87	63	63	25	(Wills 2013)
2002	58	21	39	59	73	157	49	32	(Wills 2013)
2003	47	63	71	74	67	100	44	86	(Wills 2013)
2004	71	63	87	81	99	84	72	37	(Wills 2013)
2005	37	16	20	39	29	42	25	17	(Wills 2013)
2006	33	26	32	25	34	41	26	16	(Wills 2013)
2007	46	25	36	65	54	77	217	23	(Wills 2013)
2008	17	9	32	41	31	37	30	18	(Verney 2011)
2009	35	17	31	42	42	42	62	38	(Verney 2011)
2010	24	14	28	26	30	44	36	10	(Primeau 2016)
2011	13	11	13	32	17	28	13	6	(Primeau 2016)
2012	11	<3	6	68	28	13	15	<3	(Primeau 2016)
2013	31	6	13	34	23	25	26	6	(Primeau 2016)
2014	14	<2	13	11	22	21	12	<3	(Primeau 2016)
2015	9	5	13	24	25	10	15	7	(Primeau 2016)
2016	5	3	13	10	9	13	15	3	(Luiz 2019)
2017	4	4	8	36	10	14	8	2	(Luiz 2019)
2018	16	15	23	18	26	77	43	12	(Luiz 2019)
2019	6	1	14	12	10	21	14	3	(CNL 2021a)
2020	6	1	5	10	5	7	6	2	(CNL 2021a)
2021	6	7	16	12	14	31	26	5	(CNL 2021a)

Note:

NA Not available (i.e., not monitored)



Legend

- Guardhouse
- Pumphouse
- Parking
- Wetland
- Road
- Trail
- Site Study Area
- Landfill
- NPDWF

0 70 140 280 Meters

Baseline Soil Quality near the NPDWF

ARCADIS

Date: June, 2023

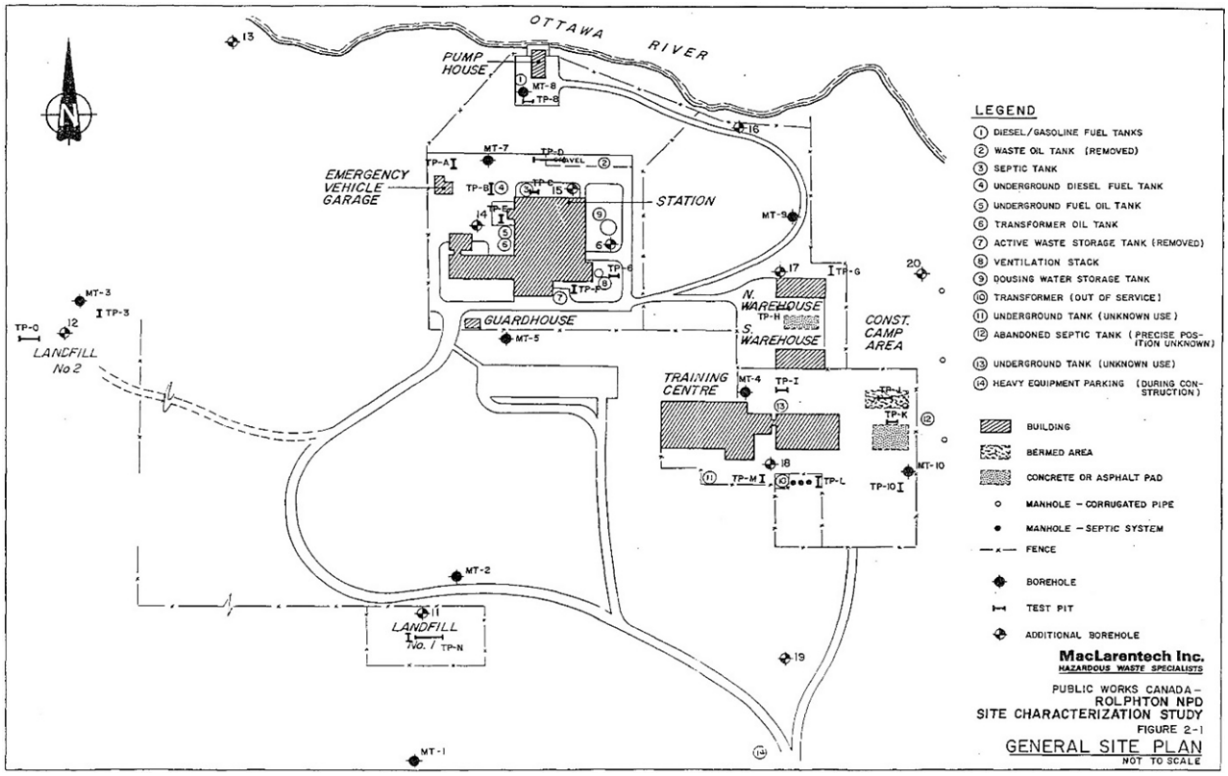
351240-000

Reference: ESRI ArcGIS Online Base Layer and NPD Closure Project Description

Non-Radiological

In 1992, the investigation and removal of an underground diesel fuel tank on the northwest corner of the Main Building indicated fuel oil migration from the legacy tank. The affected area was remediated and regular monitoring continued for several years following the clean-up until 2008. A review of the monitoring results of the soil samples indicates that little or no organic or inorganic contamination remains at levels of concern in the boreholes drilled on-site (ORAU 2017). Borehole locations are shown in Figure 8.5-15. Borehole depths ranged from 0 to 9.1 m. Low pH readings encountered in the surface samples recovered at Boreholes MT-1 and MT-3 are considered to be due to natural leaching and the presence of conifer needles. Neutral conditions (pH 7), within the applicable guidelines were identified in samples taken at greater depths.

Figure 8.5-15 Borehole Locations (from Maclarentech 1990)



Testing for the chlorinated organic compounds in soil samples recovered from selected boreholes indicated that no PCBs were present. Analyses for volatile organics showed the presence of dichloromethane at trace levels in each sample. These results are indicative of a laboratory artifact since this compound is used as a cleaning solvent for instrumentation and containers (MacLarentech 1990).

Selected soil samples recovered from the test pits on-site were also analyzed for heavy metals and organic compounds. Each of these test pits were excavated at locations at which some level of identifiable contamination was anticipated because of the presence of storage tanks, landfill sites and industrial

activities. Test pit samples indicated trace levels of organic and inorganic contamination, with three test pits exhibiting exceedances.

In 2016, CNL collected shallow (0.15 mBGS) soil samples at 96 locations throughout the NPD exclusion zone (which is the area of the NPD site, except for the fenced area of the NPDWF, extending to the river, roads, and landfills). These samples were submitted for analysis of metals in order to establish background reference conditions in the sediment. A statistical summary, including the average, maximum, minimum and 90th percentile of the soil data collected for each metal analysed is presented below in Table 8.5-5. With the exception of in chromium, selenium and vanadium, the background concentrations of analyzed metals met the CCME (1999b) Soil Quality Guidelines. All these exceedances were seen in a single sample, indicating that this sample may actually be an outlier but was retained for completeness of the data set.

Table 8.5-5 Summary of Metal Analysis in Soil (Golder 2017a)

Metals		CCME Residential/ Parkland Soil Quality Guidelines	MOECC Site Condition Standards - Table 1 (soil)	Average	Max	Min	90th percentile
Antimony	ug/g	20	1.3	0.21	0.32	0.20	0.25
Arsenic	ug/g	12	18	1.4	4.2	1.0	1.9
Barium	ug/g	500	220	54	**410**	12	77
Beryllium	ug/g	4	2.5	0.25	1.1	0.20	0.30
Boron	ug/g	--	36	5.0	5.0	5.0	5.0
Cadmium	ug/g	10	1.2	0.15	0.70	0.10	0.23
Chromium	ug/g	64	70	17	**70**	3.1	24
Cobalt	ug/g	50	21	5.0	**31.0**	0.43	8.4
Copper	ug/g	63	92	9.9	50	1.1	27
Hexavalent Chromium	ug/g	0.4	0.66	0.20	0.20	0.20	0.20
Lead	ug/g	140	120	18	42	1.3	30
Mercury	ug/g	6.6	0.27	0.05	0.13	0.05	0.05
Molybdenum	ug/g	10	2	0.78	**6.7**	0.5	0.82
Nickel	ug/g	45	82	8.5	45	1.0	13.2
Selenium	ug/g	1	1.5	0.54	**1.6**	0.50	0.50
Silver	ug/g	20	0.5	0.22	0.47	0.20	0.21
Sodium	ug/g	--	--	98	370	50	150
Thallium	ug/g	1	1	0.08	0.26	0.05	0.12
Uranium	ug/g	23	2.5	0.39	**3.1**	0.09	0.54
Vanadium	ug/g	130	86	41	**210**	7.4	52
Zinc	ug/g	200	290	36	150	5.0	68

Notes:

Exceedance of MOECC Table 1 Full Depth Background Site Condition Standards.

Exceedance of CCME Soil Quality Guidelines for the Protection of Environmental and Human Health.

In spring 2017, as part of the Phase II ESA (Golder 2017b), another soil sampling campaign was undertaken in the Class 1 area (Class 1 area is shown in Figure 8.5-13). Soil samples were collected at 0.15 m intervals to a depth of 0.3 m. Select soil samples were submitted for chemical analysis of metals, PHCs, PCBs, and PAHs. Two of the seven soil samples analyzed for PHCs, BTEX, and PAHs exceeded CCME (1999b) Soil Quality Guidelines for the PAH phenanthrene. One sample, in the northwest of the area, also exceeded both MOECC Table 2 and/or CCME Soil Quality Guidelines for six other PAHs. No PHC or BTEX exceedances were identified in the Class 1 area. Undertaking the in-situ disposal approach will include placing an engineered barrier over the facility footprint, which would extend over the areas of contamination near the NPDWF and isolate these areas from the environment as part of a risk mitigation measure.

A summary of the results of these analyses are presented in Table 8.5-6 below. The soil sampling locations, including observed exceedances, are included in Figure 8.5-16 (Golder 2017b)

Table 8.5-6 Summary of Analysis in Soil (Golder 2017b)

Parameter	Unit	CCME Soil R/P - Coarse Surface 10-5 (1)	REG153 (11) T2-R/P/I SOIL COARSE (2)	Average	Max	Min	90th percentile
Metals							
Aluminum	µg/g	--	--	10738	14000	7000	14000
Antimony	mg/kg	20 (8)	7.5	0.27	0.77	<0.20	0.49
Arsenic	mg/kg	12 (9)	18	2.4	**15.0**	1.0	3.2
Barium	mg/kg	500 (10)	390	88	180	60	115
Beryllium	mg/kg	4 (8)	4	0.35	0.47	0.20	0.45
Bismuth	µg/g	--	--	<1	<1	<1	<1
Boron	µg/g	--	120	5.2	8.4	<5.0	<5.0
Cadmium	mg/kg	10 (11)	1.2	0.17	1.0	<0.10	0.2
Calcium	µg/g	--	--	4175	24000	1800	4050
Chromium	mg/kg	64 (9)	160	24	38	13	32
Cobalt	mg/kg	50 (8)	22	8	10	6	9
Copper	mg/kg	63 (9)	140	33	49	18	46
Hexavalent Chromium	mg/kg	0.4 (12)	8	<0.2	<0.2	<0.2	<0.2
Iron	µg/g	--	--	21375	30000	13000	24500
Lead	mg/kg	140 (9)	120	25	73	5	47
Magnesium	µg/g	--	--	6200	8100	4700	7200
Manganese	µg/g	--	--	279	520	190	340
Mercury	mg/kg	6.6 (9)	0.27	0.06	0.17	<0.05	<0.05
Molybdenum	mg/kg	10 (8)	6.9	0.7	1.8	<0.5	1.1
Nickel	mg/kg	50 (13)	100	17	37	8	24
Potassium	µg/g	--	--	2668	4600	990	3750
Selenium	mg/kg	1 (9)	2.4	<0.5	<0.5	<0.5	<0.5
Silver	mg/kg	20 (8)	20	<0.2	0.20	<0.2	<0.2
Sodium	µg/g	--	-- (14)	152	310	<50	285
Strontium	µg/g	--	--	14	62	5.9	18
Thallium	mg/kg	1 (15)	1	0.17	0.27	0.080	0.23
Tin	mg/kg	50 (8)	--	4	23	<1	9
Uranium	mg/kg	23	23	0.85	2.3	0.44	1.0

Parameter	Unit	CCME Soil R/P - Coarse Surface 10-5 (1)	REG153 (11) T2-R/P/I SOIL COARSE (2)	Average	Max	Min	90th percentile
Vanadium	mg/kg	130 (16)	86	43	87	29	48
Zinc	mg/kg	200 (13)	340	84	**320**	41	115
PHCs and PCBs							
Benzene	mg/kg	0.03 (19)	0.21	<0.010	<0.02	<0.006	<0.02
Ethylbenzene	mg/kg	0.082 (19)	1.1	<0.01	<0.02	<0.01	<0.02
m,p-Xylenes	µg/g	--	--	0.03	0.04–	0.02	0.04
o-Xylene	µg/g	--	--	0.02	0.044	0.02	0.02
Petroleum Hydrocarbons - F1 (C6-C10)	µg/g	30 (20)	55 (21)	32	**660** (23)	<10	<11
Petroleum Hydrocarbons - F1 (C6-C10)-BTEX	µg/g	--	55 (21)	32	660	<10	<11
Petroleum Hydrocarbons - F2 (C10-C16)	µg/g	150	98	31	**640**	<10	11
Petroleum Hydrocarbons - F3 (C16-C34)	µg/g	300	300	418	**11000**	<50	60
Petroleum Hydrocarbons - F4 (C34-C50)	µg/g	2800	2800	1691	**47000**	<50	248
Petroleum Hydrocarbons - F4 Gravimetric	µg/g	--	2800	1500	1500	--	--
Toluene	mg/kg	0.37 (22)	2.3	<0.02	<0.04	<0.02	<0.02
Xylenes, Total	mg/kg	11 (22)	3.1	0.03	0.09	<0.02	0.04
PAHs							
1- & 2-Methylnaphthalene	µg/g	--	--	0.020	0.071	<0.007	0.071
1-Methylnaphthalene	µg/g	--	0.99 (24)	0.012	0.050	<0.005	0.050
2-Methylnaphthalene	µg/g	--	0.99 (24)	0.013	0.050	<0.005	0.050
Acenaphthene	µg/g	0.28	7.9	0.015	0.064	<0.005	0.050
Acenaphthylene	µg/g	320	0.15	0.014	0.065	<0.005	0.050
Anthracene	µg/g	2.5	0.67	0.023	0.260	<0.005	0.050
Benzo [b,j] fluoranthene	µg/g	--	--	0.070	0.960	<0.005	0.142
Benzo[a]anthracene	µg/g	1 (8)	0.5	0.059	0.850	<0.005	0.088
Benzo[a]pyrene	µg/g	0.6 (16)	0.3	0.051	0.670	<0.005	0.099
Benzo[g,h,i]perylene	µg/g	--	6.6	0.037	0.420	<0.005	0.066
Benzo[k]fluoranthene	µg/g	1 (8)	0.78	0.032	0.370	<0.005	0.052
Chrysene	µg/g	6.2	7	0.052	0.700	<0.005	0.088
Dibenzo[a,h]anthracene	µg/g	1 (8)	0.1	0.018	0.120	<0.005	0.050
Fluoranthene	µg/g	15.4	0.69	0.126	2.100	<0.005	0.180
Fluorene	µg/g	0.25	62	0.018	0.150	<0.005	0.050
Indeno[1,2,3-cd]pyrene	µg/g	1 (8)	0.38	0.041	0.490	<0.005	0.075
Naphthalene	µg/g	0.013 (12)	0.6	0.013	0.068	<0.005	0.050
Phenanthrene	µg/g	0.046 (8)	6.2	0.076	1.300	<0.005	0.074
Pyrene	µg/g	10 (8)	78	0.094	1.500	<0.005	0.150

Notes:

See the source document for the complete data set and additional context (Golder 2017b).

Please note that in certain cases, detection limits were adjusted, e.g., due to sample requiring dilution, or high moisture content of soil.

In two instances, data acceptance criteria were not met for duplicates, likely due to sample heterogeneity. < Indicates parameter not detected above laboratory method detection limit.

-- Chemical not analyzed or criteria not defined.

Value Parameter is greater than CCME Soil R/P - Coarse Surface 10-5.

Value Parameter is greater than REG153 (11) T2-R/P/I SOIL COARSE.

(1) CCME Soil R/P - Coarse Surface 10-5.

(2) O.Reg 153 (2011) Table 2 Standards for residential/parkland/institutional property use for coarse textured soil in full depth generic site condition in a potable groundwater condition.

(8) Interim remediation criteria.

(9) Data are sufficient and adequate to calculate an SQGHH and an SQGE. Therefore, the soil quality guideline is the lower of the two and represents a fully integrated de novo guideline for this land use, derived in accordance with the soil protocol (CCME 1996; 2006). The corresponding interim soil quality criterion (CCME 1991) is superseded by the soil quality guideline.

(10) Data are insufficient/inadequate to calculate an SQGHH, a provisional SQGHH, an SQGE, or a provisional SQGE. Therefore, the interim soil quality criterion (CCME 1991) is retained as the soil quality guideline for this land use.

(11) The soil-plant-human pathway was not considered in the guideline derivation. If produce gardens are present or planned, a site-specific objective must be derived to take into account the bioaccumulation potential (e.g. adopt the agricultural guideline as objective). The off-site migration check should be recalculated accordingly.

(12) Data are sufficient and adequate to calculate only a provisional SQGE, which is less than the existing interim soil quality criterion (CCME 1991). Therefore, the provisional soil quality guideline supersedes the interim soil quality criterion for this land use.

(13) Data are sufficient and adequate to calculate only an SQGE, which is less than the interim soil quality criterion (CCME 1991) for this land use. Therefore, the SQGE becomes the soil quality guideline, which supersedes the interim soil quality criterion for this land use.

(14) Not Applicable.

(15) Data are sufficient and adequate to calculate a provisional SQGHH and an SQGE. The provisional SQGHH is less than the SQGE and thus becomes the soil quality guideline for this land use.

(16) Data are sufficient and adequate to calculate an SQGHH and a provisional SQGE. Both are less than corresponding interim soil quality criterion (CCME 1991). Therefore, the soil quality guideline supersedes the interim soil quality criterion for this land use.

(19) This guideline value may be less than the common limit of detection in some jurisdictions. Contact jurisdictions for guidance. Data are sufficient and adequate to calculate an SQGHH and SQGE. Therefore, the soil quality guideline is the lower of the two and represents a fully integrated de novo guideline for this land use, derived in accordance with the soil protocol (CCME 1996; 2006). The corresponding interim soil quality criterion (CCME 1991) is retained as the soil quality guideline for this land use.

(20) Assumes contamination near residence.

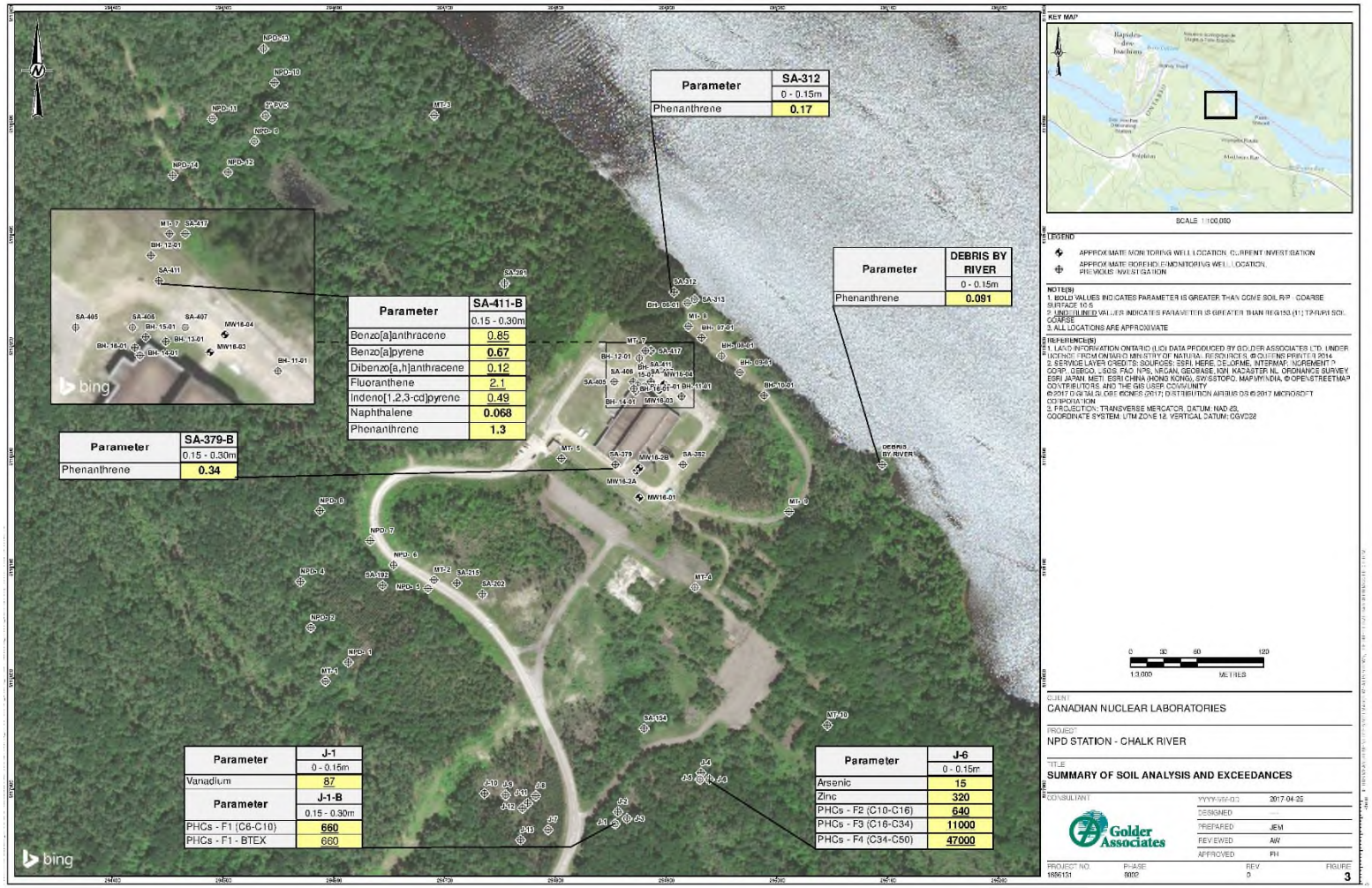
(21) F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

(22) Data are sufficient and adequate to calculate an SQGHH and SQGE. Therefore, the soil quality guideline is the lower of the two and represents a fully integrated de novo guideline for this land use.

(23) Positive result was mainly contributed by single peak.

(24) The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2-methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

Figure 8.5-16 Soil Sampling Locations with Observed Exceedances (from Golder 2017b)



Based on the results of the Phase II ESA (Golder 2017b), a few discrete areas of non-radiological contamination were identified (note the results of Golder 2017b supercede the results of the earlier MaclarenTech 1990 study):

- PAH impacts in two soil samples in close proximity to the main building. This is within an area which will become part of proposed waste disposal facility and covered with an engineered barrier.
- Along the shoreline of the Ottawa River a pile of debris was found during the Phase II ESA work. The majority of debris was cleared in Spring 2018 to the extent practical. The soil around the debris was found to have a phenanthrene concentration of 0.091 ug/g which was noted as an exceedance in Golder 2017b. However, the exceedance was identified based on a CCME Soil Quality Guideline for the Protection of Freshwater Life of 0.046 ug/g. (CCME 1999b). This same guidance states that “if impact to surface water is not a concern, it is recommended to revert to the 1997 provisional SQGE for naphthalene and the 1991 Interim Soil Quality Criteria for phenanthrene". These interim Soil Quality Guidelines show a benchmark value for phenanthrene of 43 ug/g for Soil and food ingestion (for Agricultural and Residential/Parkland use). Similarly, guidance from the Ontario Ministry of the Environment show standard values for phenanthrene in soil as 0.19 µg/g (Agricultural or other property use) and 0.69 µg/g (Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use).

  Since the area in question has phenanthrene values less than CCME Interim Soil Quality Criteria and Provincial soil standards, it does not require soil remediation.
- At two sites used historically for unauthorized dumping and vehicle maintenance, exceedances of metals (arsenic, copper, vanadium and zinc) and hydrocarbons were found. These two sites are located in close proximity of each other, in a forested area approximately 300 m south of the Main Building. The sites were likely used during the construction of NPD. The impacted soil was relocated next to the main building in 2018 spring (i.e., an area which will become part of proposed waste disposal facility and covered with an engineered barrier).

Section 2.2.1 Sediment Screening Criteria, Guidance on Contaminated Sediments, and *Federal Contaminated Site Risk Assessment in Canada: Supplemental Guidance on Human Health Risk Assessment of Contaminated Sediments: Direct Contact Pathway (2017)*, states the following:

For the purpose of screening COPCs at federal sites, the relevant CCME (1999b) Canadian Soil Quality Guidelines for human health would generally be considered the most appropriate screening values. It is noted that the most onerous soil quality guideline values, i.e., those associated with Residential/Parkland, are either larger or the same as the values as criteria used in this EIS.

8.5.3.2 Regional Study Area

Radiological

Soil and vegetation sampling locations off-site of NPD are shown in Figure 8.5-17 and the results of the sampling are shown in Table 8.5-7. As with the Site and Local Study Area locations, the off-site locations

were sampled once a year in September or October. In 1996, the sampling of these sites was discontinued when a reduced scale of off-site sampling was established (Wills 2013).

Figure 8.5-17 Off-site Soil and Vegetation Sampling Locations (Source: Wills 2013)

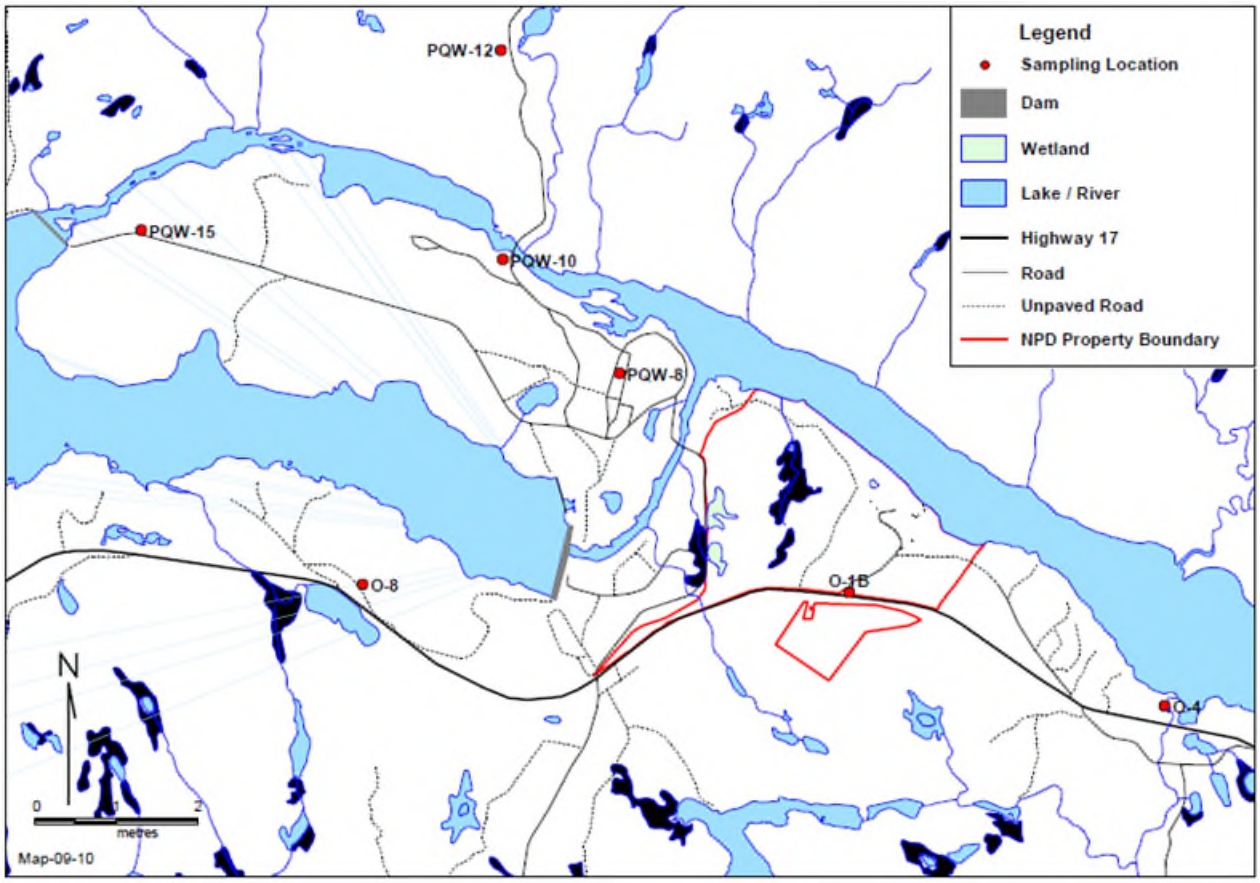


Table 8.5-7 Concentrations of Tritium (HTO) in Surface Soil in the Regional Study Area (in Bq/L) (Source: Wills 2013)

Year	O-4	O-8	PQW-10	PQW-12	PQW-15	PQW- 8
1988	33	19	70	42	30	105
1990	20	13	44	16	25	65
1991	29	12	36	21	32	73
1992	16	15	18	19	30	35
1993	17	20	28	27	18	48
1994	125	17	42	27	25	40
1995	45	20	NA	21	15	26

Note:

NA: Not applicable (i.e., not monitored)

Non-Radiological

Information on chemical levels in the soil in the Regional Study Area is not available.

8.5.4 Vegetation Quality

In addition to measuring tritium in the soil (i.e., as HTO), the ambient tritium concentrations in vegetation samples are also measured, in the form of both HTO and OBT. The vegetation samples are collected at the same time and locations as the soil samples. Tritium is measured in the free water in vegetation.

8.5.4.1 Site/Local Study Area

Radiological

The locations of the vegetation samples are identical to those of the soil samples. Tabulated results for HTO in vegetation are presented in Table 8.5-8. Tabulated results for OBT in vegetation are shown in Table 8.5-9. Figure 8.5-18 shows a map with the historical HTO and OBT trends in vegetation for each of the sampling locations.

Table 8.5-8 Concentrations of HTO in Vegetation Samples on NPD Site (in Bq/L)

Sample Location & and Usual Species Collected									
Year	NB-E	NB-S	NB-W	NPD- NE	NPD- NW	NPD- SE	NPD- SW	O-1B	Reference
	Poplar	White Pine	White Birch	Grasses	Grasses	Grasses	Grasses	White Pine	
1988	NA	NA	NA	NA	NA	NA	NA	215	(Wills 2013)
1989	NA	NA	NA	NA	NA	NA	NA	44	(Wills 2013)
1990	NA	NA	NA	416	110	1380	266	29	(Wills 2013)
1991	NA	NA	NA	784	309	961	577	70	(Wills 2013)
1992	NA	NA	NA	363	321	2288	896	35	(Wills 2013)
1993	NA	NA	NA	436	115	1779	NA	39	(Wills 2013)
1994	NA	NA	NA	328	361	245	1009	49	(Wills 2013)
1995	NA	NA	NA	548	174	796	252	N/A	(Wills 2013)
1996	160	665	423	200	54	1117	656	16	(Wills 2013)
1997	256	381	181	1066	207	779	181	54	(Wills 2013)
1998	237	13	25	69	27	628	70	5	(Wills 2013)
1999	63	73	79	444	167	581	191	36	(Wills 2013)
2000	88	198	161	56	54	215	260	74	(Wills 2013)
2001	52	32	99	456	49	52	188	30	(Wills 2013)
2002	274	14	27	260	194	260	37	25	(Wills 2013)
2003	41	21	30	94	26	183	41	25	(Wills 2013)

Sample Location & and Usual Species Collected									
Year	NB-E	NB-S	NB-W	NPD- NE	NPD- NW	NPD- SE	NPD- SW	O-1B	Reference
	Poplar	White Pine	White Birch	Grasses	Grasses	Grasses	Grasses	White Pine	
2004	78	109	194	119	106	288	380	77	(Wills 2013)
2005	28	63	76	61	86	87	77	38	(Wills 2013)
2006	23	18	25	27	29	155	55	11	(Wills 2013)
2007	47	50	177	64	63	215	397	55	(Wills 2013)
2008	123	9	20	352	89	83	31	11	(Verney 2011)
2009	30	21	41	79	47	141	27	21	(Verney 2011)
2010	41	12	22	36	25	91	36	10	(Primeau 2016)
2011	28	39	61	41	33	88	80	35	(Primeau 2016)
2012	123	73	220	93	107	151	429	129	(Primeau 2016)
2013	20	9	14	103	39	29	20	7	(Primeau 2016)
2014	15	4	8	111	13	132	12	<2	(Primeau 2016)
2015	223	<3	7	39	12	35	22	<2	(Primeau 2016)
2016	21	21	44	37	42	46	76	18	(Luiz 2019)
2017	40	2	9	32	18	34	11	3	(Luiz 2019)
2018	41	44	58	38	28	97	73	48	(Luiz 2019)
2019	7	6	22	10	8	98	47	3	(CNL 2021a)
2020	10	2	8	19	30	19	35	4	(CNL 2021a)
2021	3	4	31	18	10	40	42	6	(CNL 2021a)

Note:

NA – Not applicable (i.e., not monitored).

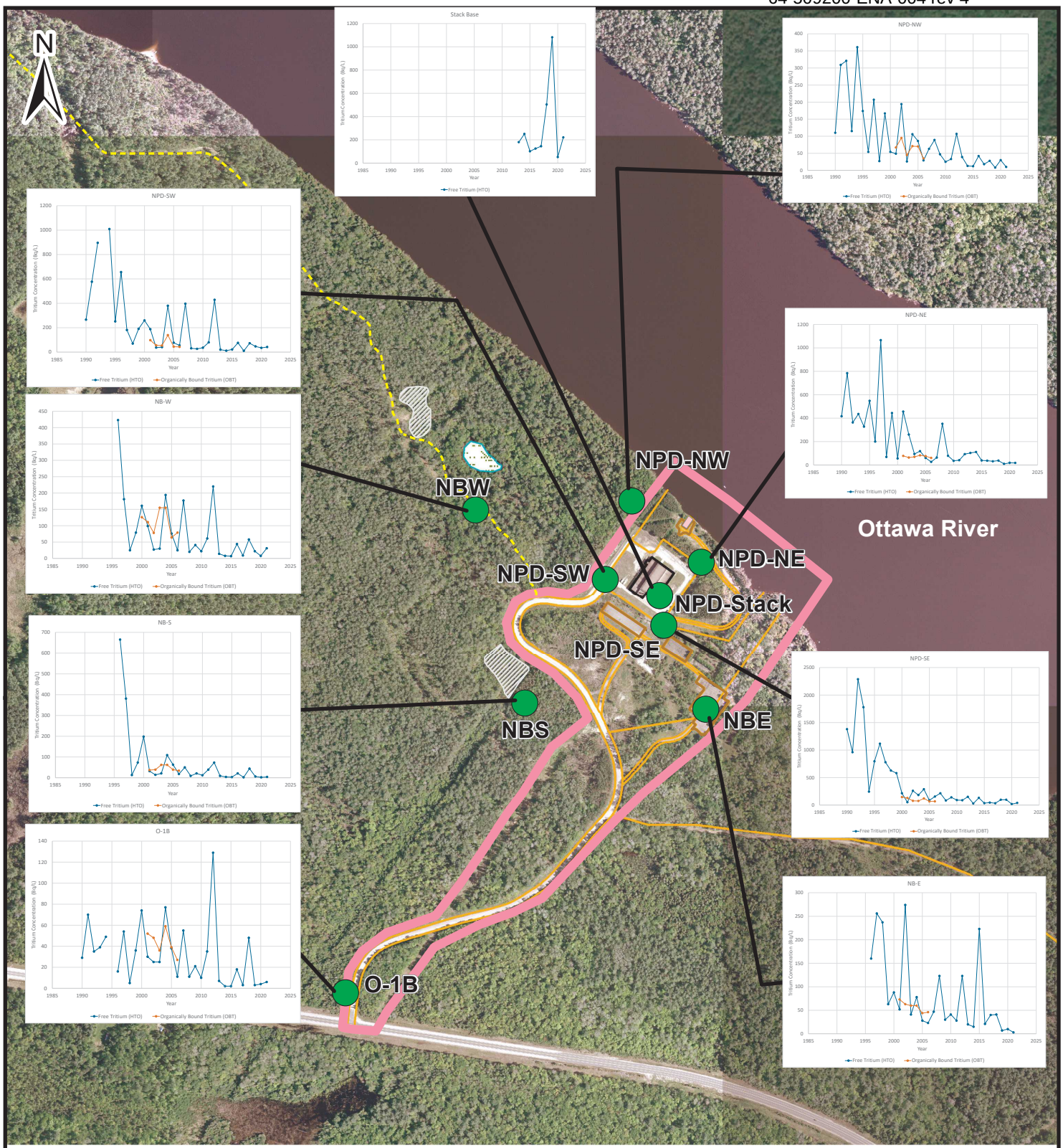
Table 8.5-9 Concentrations of OBT in Vegetation Samples on NPD Site (in Bq/L) (Source: Wills 2013)

Year	NB-E	NB-S	NB-W	NPD-NE	NPD-NW	NPD-SE	NPD-SW	O-1B
2000	NA	NA	126	NA	NA	146	NA	NA
2001	73	37	111	78	67	129	98	52
2002	63	39	78	64	95	77	56	48
2003	60	62	155	70	45	75	54	36
2004	60	62	155	83	71	121	139	59
2005	44	39	64	76	70	67	45	39
2006	46	34	79	61	35	68	43	27

Note:

NA – Not applicable (i.e., not monitored).

Figure 8.5-18 Baseline Vegetation Quality near NPDWF



Legend

- Guardhouse
- Pumphouse
- Parking
- Wetland
- Road
- Trail
- Site Study Area
- Landfill
- NPDWF

0 75 150 300 Meters

Baseline Vegetation Quality near the NPDWF

ARCADIS

Date: **February, 2023**

351240-000

Reference: ESRI ArcGIS Online Base Layer and NPD Closure Project Description

Non-Radiological

Information on chemical levels in vegetation in Site or Local Study Areas is not available.

8.5.4.2 Regional Study Area

Radiological

The locations of the vegetation samples collected in the Regional Study Area are identical to those of the soil samples and can be seen in Figure 8.5-17 above. Tabulated results for HTO in vegetation are presented in Table 8.5-10. It is noted that the sampling of these sites was discontinued in 1996 (with the exception of 2000 and 2001) when a reduced scale of off-site sampling was established (Wills 2013).

Table 8.5-10 Concentrations of Tritium (HTO) in Vegetation Samples in the Regional Study Area (in Bq/L) (Source: Wills 2013)

Year	Sample Location and Usual Species Collected					
	O-4	O-8	PQW-10	PQW-12	PQW-15	PQW- 8
	White Pine	White Pine	White Pine	White Pine	White Pine	White Pine
1988	68	182	253	NA	51	NA
1989	32	13	65	16	21	79
1990	40	9	34	18	16	41
1991	86	26	67	56	44	90
1992	51	20	41	21	23	53
1993	31	14	34	14	21	29
1994	51	22*	60	72	63**	58
1995	28	9	N/A	16	20	21
1996	NA	NA	NA	NA	NA	NA
1997	NA	NA	NA	NA	NA	NA
1998	NA	NA	NA	NA	NA	NA
1999	NA	NA	NA	NA	NA	NA
2000	41	41	41	41	41	41
2001	66	NA	NA	NA	NA	NA
2002	NA	NA	NA	NA	NA	NA
2003	NA	NA	NA	NA	NA	NA
2004	NA	NA	NA	NA	NA	NA
2005	NA	NA	NA	NA	NA	NA
2006	NA	NA	NA	NA	NA	NA
2007	NA	NA	NA	NA	NA	NA

Notes:

NA – Not applicable (i.e., no samples collected).
* Poplar
** Maple

Non-Radiological

Information on chemical levels in vegetation in the Regional Study Area is not available.

8.5.5 Hydrogeology

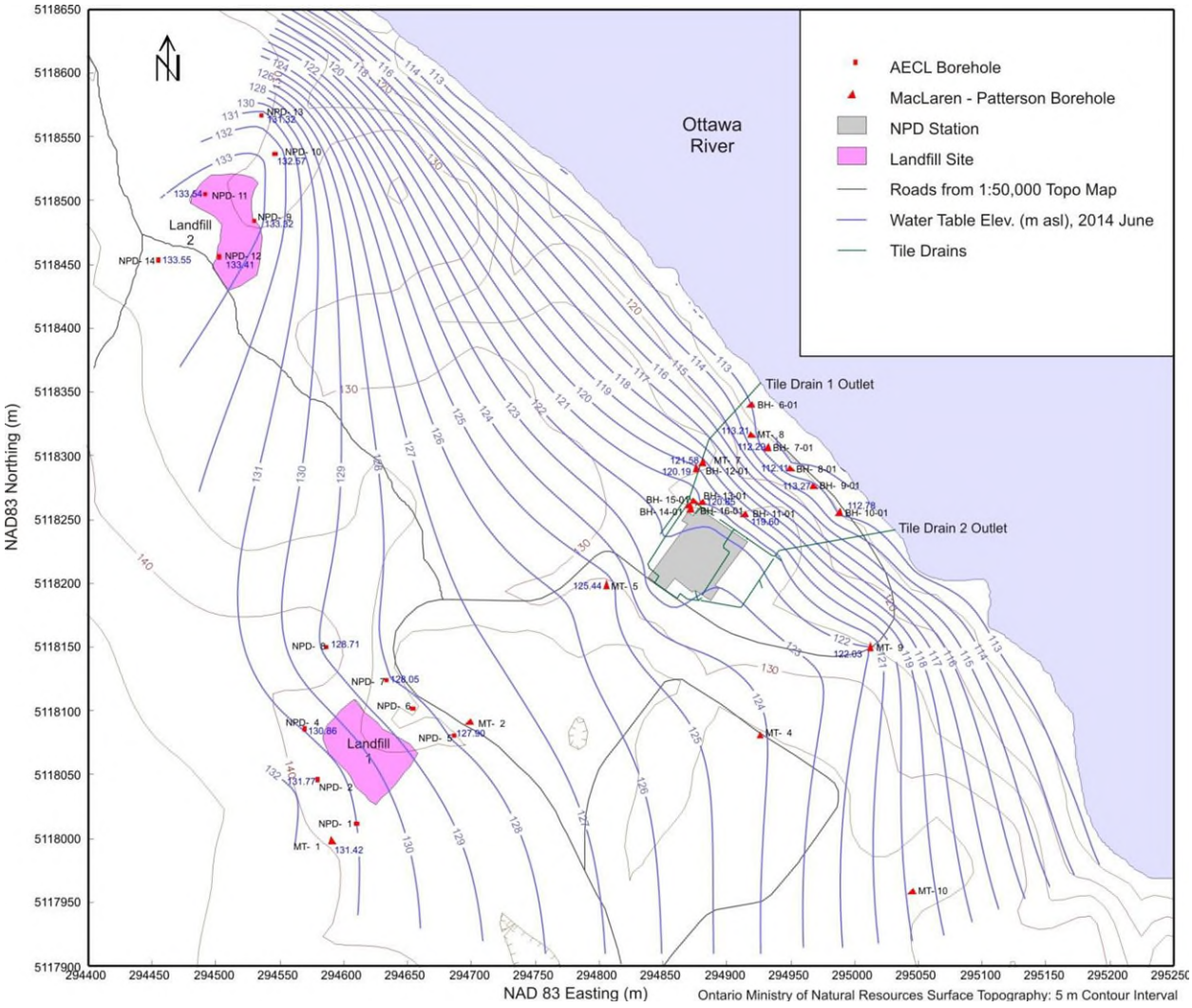
8.5.5.1 Site/Local Study Area

Site data indicate that the average water table position is near the top of the bedrock, with overlying sands and gravels being largely unsaturated. Natural groundwater flow will be over the surface of the bedrock. Flow directions are expected to reflect topography, with recharge upgradient of the NPDWF and discharge to the river. However, the NPDWF, including tile drains and high permeability construction backfill, are expected to collect and control groundwater flow. Groundwater modelling was performed in order to characterize the flow around the facility. Groundwater drains towards the fill surrounding the NPDWF main building, as expected. The overall flow direction is towards the Ottawa River (Groundwater Modelling TSD). Figure 8.5-19 shows the water table elevation contours measured around the NPD site.

As discussed in Sections 8.3.2 and 8.3.4, there is a network of sub-surface drains with the purpose of collecting and removing groundwater from around and under the reactor building structures, to reduce groundwater infiltration into the underground structures. The system consists of three separate collector pipes with feeders, one covering the west and south sides, one on the east side and one draining the pressure relief duct as shown earlier in Figure 8.3-7 (Athauda-Arachchige 2015).

The NPDWF is excavated into the bedrock. A tile drain system, trenched into the surface of the bedrock, surrounds the building and drains into the Ottawa River. The predominant hydrological materials at the NPD site are: bedrock, sand, till, boulder till and the two types of fill used around NPDWF and associated trench excavation, concrete, high permeability fill, as well as materials within the NPDDF– concrete walls and floors, and a grout fill. Located within the same geologic region, with similar hydrogeologic materials, data from the CRL site is a reasonable approximation for the NPD site, where available. Material properties are summarized in Table 8.5-11.

Figure 8.5-19 Water Table Elevation Contours around the NPDWF and Landfills for June 2014 (Source: Athauda-Arachchige 2015)



Shallow Bedrock Characteristics

Site-specific shallow bedrock characterization synthesized in the Geosynthesis TSD (which incorporates 2019 geoscientific field characterization) recommends a bedrock hydraulic conductivity of 7.3×10^{-8} m/s near the facility, and 3.6×10^{-7} m/s near the river. Both bedrock units are assumed to have a porosity of 0.005 (Raven Beck Environmental Ltd. 1994), a specific storage value of 1.2×10^{-6} m^{-1} (Geosynthesis TSD) and two-phase flow parameters estimated based on values used in flow modelling at the Chalk River Laboratories (Acsion 2014 and Calder and Walsh 2016).

Characteristics

MacLarentech (1990) describes the overburden at the NPD site to be predominantly sand, divided into four classifications of sand with various amounts of gravel, boulders and trace amounts of silt. The best estimate for hydraulic conductivity of the sand and gravel was $3.5x10^{-4}$ m/s with an anisotropy ratio of 10 (Geosynthesis TSD). A porosity of 0.4 is assumed the same as CRL. Two-phase flow parameters were estimated based on sand samples with similar hydraulic conductivities in the Rosetta model database (USDA 1990).

Till Characteristics

Site-specific till characterization synthesized in the Geosynthesis TSD recommends a till conductivity of $3.3x10^{-8}$ m/s upgradient of the facility, and a range between $2x10^{-5}$ and $2x10^{-4}$ m/s near the facility. Till porosity is 0.3 (Raven Beck Environmental Ltd. 1994). Two-phase flow parameters for till were estimated based on samples with similar hydraulic conductivities in the Rosetta model database (USDA 1990).

Boulder Till Characteristics

The Geosynthesis TSD identified a boulder till at the site, in the vicinity of the facility, and recommends a hydraulic conductivity for this unit of $1.7x10^{-5}$ m/s. Porosity is assumed to be the same as the till Geosynthesis TSD. Two-phase flow parameters were also assumed to be the same as the till.

Fill Characteristics

The fill above the bedrock used at the NPD site was described by MacLarentech (1990) as a bouldery sand, similar to the sand overburden found at the site, but with a more consistent size of gravel and boulders and the presence of debris such as rock and construction rubble. The best estimate for hydraulic conductivity of the sand and gravel fill hydrostratigraphic unit was $1.3x10^{-4}$ m/s. Lacking other information, the sand and gravel fill is assumed to be isotropic with porosity of 0.3 and specific storage of $1.0x10^{-5}$ m^{-1} (Raven 2019). Two phase flow properties were assumed similar to the sand overburden, with the alpha parameter scaled by permeability and porosity using the Leverett J-function (Leverett 1941).

Building Materials

The fill surrounding the building below bedrock is concrete. This concrete fill is assumed to have a moderate conductivity of $1.0x10^{-10}$ m/s. The concrete porosity of 0.125 is consistent with the value used in the PostSA TSD.

Concrete wall and floor material properties are based on those used in the resaturation modelling (Sgro 2023). The concrete conductivity calibrated by this model, $3.0x10^{-11}$ m/s, takes into consideration the membrane waterproofing or asphalt emulsion damp-proofing on the exterior of the concrete walls and floors (Groundwater Modelling TSD).

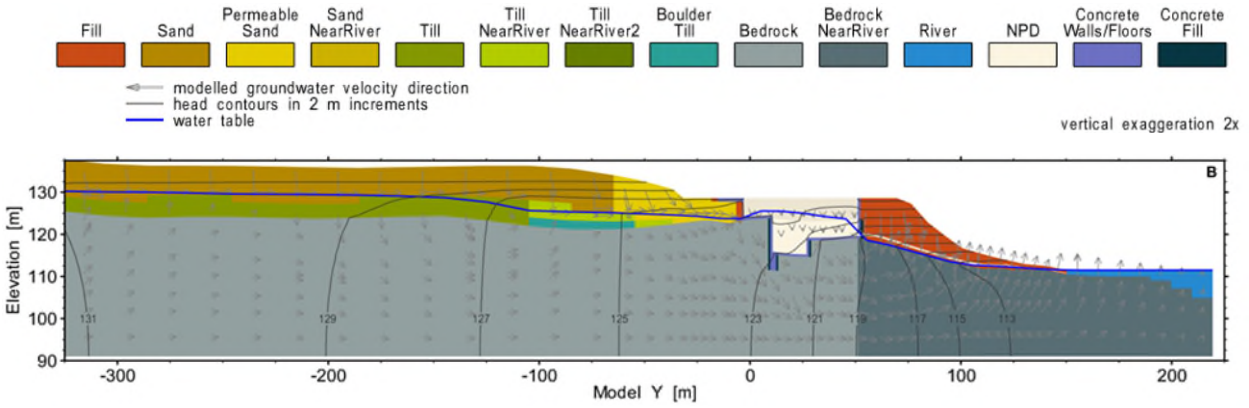
Numeric grid elements within the building were assumed to be a low permeability grout. Grout conductivity was modelled as $6.3x10^{-11}$ m/s, based on measured grout conductivity with a safety factor of 10 (PostSA TSD). The porosity of the grout was calculated as a volumetric average of grout and 10% high permeability

materials. Two-phase flow properties of the grout are based on a grout with similar composition (Taylor and Phifer 2012, Phifer *et al., 2*006).

Table 8.5-11 NPD Material Property Estimates (Groundwater Modelling TSD)

	Hydraulic Conductivity (m/s)	Anisotropy Ratio (K_h/K_v) (-)	Porosity (-)	Specific Storage (1/m)	Residual Water Saturation (-)	Shape Parameter (-)	Alpha (1/m)
Sand	$5x10^{-5}$	10	0.4	10^{-5}	0.05	2.0	3.5
Till	$3x10^{-8}$	1	0.3	10^{-5}	0.05	1.7	0.66
Till Near River	$7x10^{-5}$	1	0.3	10^{-5}	0.05	1.7	0.66
Boulder Till	$2x10^{-5}$	1	0.3	10^{-5}	0.05	1.7	0.66
Fill	$1x10^{-4}$	1	0.3	10^{-5}	0.05	2.0	10
Bedrock	$7x10^{-8}$	1	0.005	$1.2x10^{-6}$	0.28	2.0	0.22
Bedrock Near River	$4x10^{-7}$	1	0.005	$1.2x10^{-6}$	0.28	2.0	0.22
Concrete Fill	$1x10^{-10}$	1	0.125	10^{-6}	0.2	1.4	0.01
Concrete Wall	$3x10^{-11}$	1	0.125	10^{-6}	0.2	1.4	0.01
Grout	$6x10^{-11}$	1	0.4	10^{-6}	0.2	1.4	0.10
River	0.1	1	1	10^{-9}	-	-	-

Figure 8.5-20 Cross Section Through NPDWF (Source: Groundwater Modelling TSD)



As shown in Figure 8.5-20 above, most of the NPDWF containment area is located below grade, well into the bedrock. The facility's design means that for portions of the facility below the water table, any leakage occurs into the facility, and that there can be no releases to the local groundwater flow system. Groundwater seepage into the facility is directed to the lowest point at the WAS and is less than 10 m^3/y in the last 5 years. Prior to 2018, this sump was periodically pumped to the Ottawa River after sampling and analysis (Vaidya 2020). Figure 8.5-20 shows groundwater head contours, linear groundwater velocity direction and the water table through a cross-section intersecting the NPDWF. Groundwater flow directions in saturated overburden and bedrock hydrostratigraphic units are inferred from groundwater table elevation

contours as shown in Figure 8.5-19. For homogeneous isotropic hydrostratigraphic units, groundwater flow directions will be normal to contours of water level elevation.

Horizontal Darcy velocities (specific discharges) and linear groundwater velocities for sand and gravel fill unit, fluvial sand and gravel unit, silt to cobble glacial till unit, boulder glacial till unit and shallow bedrock hydrostratigraphic units are calculated from Darcy's Law and modifications to Darcy's Law using horizontal hydraulic gradients and hydraulic conductivities and porosities. Average horizontal hydraulic gradients between Landfill 1 and the Ottawa River are calculated as (130-111 m)/425 m = 0.045 m/m and are applicable to all hydrostratigraphic units except the silty sand glacial till located near and southwest of Landfill 1. For this unit average horizontal hydraulic gradients between MW18-01 and Landfill 1 are calculated as 150-130 m/270 m = 0.074 m/m. Table 8.5-12 summarizes the results of these calculations using best estimate values of hydraulic conductivity and porosity (Geosynthesis TSD).

Table 8.5-12 Summary of Estimates of Darcy Velocity and Linear Groundwater Velocity in Hydrostratigraphic Units (Geosynthesis TSD)

Hydrostratigraphic Unit	Hydraulic Conductivity (m/s)	Porosity (-)	Darcy Velocity ($m^3/s/m^2$)	Linear Groundwater Velocity (m/day)
Fill	$1x10^{-4}$	0.3	$5.8x10^{-6}$	1.7
Sand	$3.5x10^{-4}$	0.4	$1.6x10^{-5}$	3.4
Till	$3x10^{-8}$0.3		$2.4x10^{-9}$	0.00070
Boulder Till	$2x10^{-5}$	0.3	$7.9x10^{-7}$	0.23
Shallow Bedrock - NPDWF	$7x10^{-8}$	0.005	$3.3x10^{-9}$	0.057
Shallow Bedrock – Ottawa River	$4x10^{-7}$	0.005	$1.6x10^{-8}$	0.28

Descriptive Hydrogeological Framework

The information from the Geosynthesis TSD on conceptual groundwater flow systems in the Canadian Shield, hydrogeological investigations of the NPD site, hydrostratigraphic units, hydrogeochemistry and groundwater quality, local groundwater flow systems, potable water supplies, and hydrogeological modeling was used to interpret and develop a descriptive hydrogeological framework for the NPDWF site and surrounding area. The descriptive hydrogeological framework of the NPDWF site includes the following key elements and information (Geosynthesis TSD).

Groundwater flow systems in the sediments and bedrock at the NPD site can be broadly categorized into: regional, intermediate and local systems.

Regional groundwater flow systems in such Shield terrain exist in deep bedrock and will be bounded by major topographic highs and lows and influenced by geological conditions, including presence of major structural features such as faults, dykes and shear zones. Regional topographic highs exist beyond the NPD property to the southwest and likely extend to the highlands of Algonquin Park. Regional groundwater flow will occur within the deep bedrock (>150 m deep) on the NPD site with direct discharge to the Ottawa River via upward flow along the geological structure associated with the Mattawa Fault below the Ottawa River.

Local groundwater flow systems, and, to a lesser degree, intermediate groundwater flow systems at the NPD site are influenced by recharge rates, topography and geology. Local groundwater flow systems within the permeable sand and gravel overburden are expected to be the dominant groundwater system at the NPDWF site. These local groundwater flow systems will likely be recharged near Highway 17 and without the tile drain would discharge along the ground slope extending northeast to the Ottawa River and directly to the Ottawa River. Local flow also occurs within shallow bedrock likely to depths of about 30 to 50 m, however, these flow rates are typically a small percentage of flow rates in the overlying sandy deposits.

Intermediate groundwater flow systems will exist between the regional and local groundwater flow systems described above. Intermediate groundwater flow systems will likely exist at the NPD site between topographic highs located southwest of Highway 17 near Tee Lake with discharge to the Mattawa Fault and the Ottawa River. These intermediate flow systems will likely extend to depths of about 50 to 150 m based on available groundwater chemistry data and the elevation changes between bedrock near Tee Lake and the Ottawa River (~ 100 m).

The available geological and hydrogeological data for the NPD site, supplemented by similar regional information from the CRL property and surrounding area, indicate that the hydrogeology of the NPDWF site is conveniently described with reference to five hydrostratigraphic units. The five hydrostratigraphic units at the NPDWF site are:

- sand and gravel fill unit,
- fluvial sand and gravel unit,
- silt to cobble glacial till unit,
- boulder glacial till unit, and
- shallow bedrock unit.

These units are described below.

Sand and Gravel Fill Unit

The sand and gravel fill hydrostratigraphic unit including reworked fluvial deposits and excavated bedrock is the youngest hydrostratigraphic unit. It is present near the NPD buildings and in the area northeast of the buildings that were subject to excavation for construction of water intake and discharge lines and tile drainage lines between the buildings and the Ottawa River. Fill thickness at the NPD site is variable ranging from about 2 m near the Ottawa River to about 5-6 m near the NPD building.

Based on final 2023 groundwater model calibration, the best estimate for hydraulic conductivity of the sand and gravel fill hydrostratigraphic unit is 1.0×10^{-3} m/s increased from an initial pre-modeling estimate of 1.0×10^{-4} m/s. Lacking other information, the sand and gravel fill unit is assumed to be isotropic with porosity of 0.3 and specific storage of 1.0×10^{-5} m^{-1}.

Fluvial Sand and Gravel Fill Unit

The fluvial sand and gravel hydrostratigraphic unit is the most widespread overburden unit at the NPD site and is the youngest hydrostratigraphic unit consisting of native material. It includes sand with various amounts of gravel, boulders and trace amounts of silt. The thickness of this hydrostratigraphic unit averages 5 m to 10 m at the NPD site. It extends southwest from NPDWF toward Highway 17 (to about BH18-02), northwest to at least Landfill 2 (NPD-14) but is limited to the southeast of NPDWF by the bedrock high at BH18-06. Based on on-site hydraulic conductivity measurements, the fluvial sand and gravel unit is heterogeneous, with a wide range of conductivity (2.0×10^{-7} to 1.0×10^{-3} m/s).

The 2023 final groundwater model calibration (Groundwater Modelling TSD) shows that the best estimates for horizontal hydraulic conductivity of the fluvial sand and gravel hydrostratigraphic unit are between 1.8×10^{-5} and 1.0×10^{-3} m/s with an anisotropy ratio (K_h/K_v) of 9.96 reflecting the presence of lower hydraulic conductivity silt layers. The range of hydraulic conductivity in the 2023 groundwater flow model reflects the three regions of sand used for model calibration. Fluvial sand and gravel unit porosity is 0.4 and specific storage is 1.0×10^{-5} m^{-1}.

Silt to Cobble Glacial Till Unit

The silt to cobble glacial till hydrostratigraphic unit is the most widespread overburden hydrostratigraphic unit at the NPD site. It is found at ground surface near Highway 17 and at depth below the fluvial sand and gravel hydrostratigraphic unit northeast of Highway 17 on the NPD site. The upper metre or so of the silt to cobble glacial till unit has been locally subject to fluvial erosion by wave action resulting in a texture and likely hydraulic conductivity similar to the overlying fluvial sand and gravel unit. The thickness of the silt to cobble glacial till unit ranges from 0 to 2 m near NPDWF up to 5 to 10 m northwest and southeast of NPDWF. Available hydraulic testing suggest two sets of K values are necessary to represent silt to cobble glacial till. Testing completed at NPD-5 and MW18-01 to MW18-04 indicate geometric mean K of 3.3×10^{-8} m/s that is considered representative of a silty sand member located southwest of MW18-03 and MW18-04. Further details on the characterization of this unit are available in the Geosynthesis TSD. A K value range of 2.0×10^{-5} to 2.0×10^{-4} m/s is used as the best estimates of hydraulic conductivity for the sand to cobble till member in the vicinity of NPDWF from site characterization recognizing the potential for presence of metre thick layers with elevated K that are likely glacial-fluvial washed beach deposits.

The 2023 final groundwater model calibration (Groundwater Modelling TSD) indicates a K range of 7.8×10^{-9} to 3.6×10^{-5} m/s for the silt to cobble glacial till hydrostratigraphic unit with higher values near the NPDWF and the Ottawa River. All till K estimates are assumed to be isotropic. Silt to cobble glacial till porosity is 0.3 and specific storage is 1.0×10^{-5} m^{-1}.

Boulder Glacial Till Unit

The boulder glacial till hydrostratigraphic unit is the oldest overburden unit at the NPD site and locally directly overlies competent bedrock in areas of bedrock depression. It consists of metre-size boulders with granular matrix material and underlies silt to cobble glacial till and fluvial sand and gravel where the silt to cobble till is absent. It is found northwest and southwest of the NPDWF based on intersections with BH18-03, BH18-05, BH18-09 and BH18-10 with thicknesses of 2 to 5 m. Hydraulic testing data suggest

the best estimate of hydraulic conductivity for the boulder till as 1.7 $x10^{-5}$ m/s, recognizing the potential for inclusion of sub-metre thick higher K gravel and cobble layers with K up to 1.7 $x10^{-3}$ m/s.

The 2032 final groundwater model calibration (Groundwater Modelling TSD) indicates hydraulic conductivity of 3.9 $x10^{-5}$ m/s for the boulder glacial till hydrostratigraphic unit, essentially the same as the best estimate from site characterization. The boulder till is assumed to be isotropic with respect to K. Boulder glacial till porosity is 0.3 and specific storage gravel is 1.0 $x10^{-5}$ m^{-1}.

Shallow Bedrock Unit

The shallow bedrock hydrostratigraphic unit at bedrock depths of 0 to 50 m is the only bedrock unit considered for the NPDWF site based on the relatively shallow excavations completed for construction of the NPD (about 18 m into rock) and the assumption that essentially all of the local groundwater flow in bedrock will occur in the upper 50 m of bedrock. Continuous profiles of straddle-packer hydraulic testing completed in the four shallow bedrock boreholes BH18-05 to BH18-08, indicate an overall geometric mean horizontal K is 1.7 $x10^{-7}$ m/s based on a range of measurements of 2.8 $x10^{-9}$ to 6.6 $x10^{-6}$ m/s. As the hydraulic conductivity of intact bedrock is several orders of magnitude lower than the lowest K value measured from straddle-packer testing, all of the reported K values are attributed to the presence of fractures, either as individual discontinuities or as part small fracture zones. Given the ubiquitous occurrence of small-scale fractures and fracture zones, the bedrock in groundwater flow models is represented as an equivalent porous media (EPM) with spatially-variable, isotropic representation of the rock mass K.

The majority of intervals with elevated hydraulic conductivity (i.e., >~ 1.0 $x10^{-6}$ m/s) correlate with specific subhorizontal and subvertical open fractures and metre- and sub-metre-scale fracture zones. The best initial estimates of hydraulic conductivity in shallow bedrock at the NPD site are 7.3 $x10^{-8}$ m/s near BH18-05, BH18-06 and the NPDWF, and 3.6 $x10^{-7}$ m/s near BH18-07, BH18-08 and below the Ottawa River. Based on the frequency and orientation of borehole and outcrop fractures the shallow bedrock K is isotropic. The spatial variability of K correlates with observed increases in fracture frequency and decreases in RQD with proximity to the Ottawa River. These spatial trends most likely reflect attendant fracturing related to the regional Mattawa Fault that defines the course of the Ottawa River.

The 2023 final groundwater model calibration (Groundwater Modelling TSD) indicates hydraulic conductivities of 5.0 $x10^{-8}$ and 1.7 $x10^{-7}$ m/s for the shallow bedrock hydrostratigraphic unit near and away from the Ottawa River, respectively. These model K values are essentially the same as the best estimates from site characterization. Best estimate of specific storage of 1.2 $x10^{-6}$ m^{-1} is recommended for shallow bedrock at the NPD site based on 2019 hydraulic testing. Best estimate of porosity, for the moderately fractured and fair to good rock quality shallow bedrock is 0.005.

Hydrogeochemistry

Overburden Groundwater

Shallow overburden groundwater is dilute (total dissolved solids of 100 to 200 mg/L), Ca-HCO_3 type with NaCl/SO_4 as subordinate major ions. The NaCl signature likely reflects road salting of upgradient Highway 17 and NPD site roads. The shallow overburden groundwater is moderately oxidizing as evident

by low iron concentrations (about 10 to 100 µg/L) and for Landfill 2 Eh of 200 to 530 mV. Deeper overburden groundwater from depths of 12 to 20 mBGS is less dilute (total dissolved solids [TDS] of 210 and 545 mg/L), Na-HCO_3 type with Ca-Cl/SO_4 as subordinate major ions. The elevated TDS and NaCl/SO_4 signature relative to shallow overburden groundwater analyses likely reflects road salting of upgradient Highway 17 and NPD site roads (NaCl), deeper sampling intervals and influence of shallow bedrock groundwater (SO_4). Compared to shallow overburden groundwater, deeper overburden groundwater is slightly less oxidizing as evident by slightly higher iron concentrations (81.5 and 168 µg/L) and Eh of 343 and 332 mV. Tritium, gross alpha activity and gross beta activity are generally low in overburden groundwater. Only gross alpha activity at MW19-09 in deep overburden groundwater (1.1 Bq/L) slightly exceeded Health Canada drinking water guidelines or screening levels (0.5 Bq/L).

Shallow Bedrock Groundwater

Shallow bedrock groundwater in proximity to the NPDWF is dilute (total dissolved solids of ~200 to 925 mg/L), predominantly Na-HCO_3 type with Ca-Cl/SO_4 as subordinate major ions. Locally near MW18-06-P4, MW18-06-P6 and MW18-07-P7 the shallow bedrock groundwater is Na-SO_4 type with Ca-Cl/HCO_3 as subordinate major ions. Near MW18-07-P1 and MW18-07-P2 the shallow bedrock groundwater is Ca-HCO_3 type with Na/Mg-Cl/SO_4 as subordinate major ions. Compared to inferences from CRL data, the 2019 shallow bedrock groundwater at NPD is slightly more oxidizing as evident by lower iron concentrations (<5 to 35 µg/L) and Eh of 321 to 412 mV. Relatively elevated tritium concentrations (650 to 1350 Bq/L) are reported near MW18-05 and MW18-06 upgradient of the NPDWF. Downgradient of the NPDWF at MW18-07 and MW18-08 tritium concentrations are lower at <100 to 190 Bq/L. Gross alpha and gross beta activity in shallow bedrock range from 0.11 to 3.6 Bq/L and <0.10 to 3.7 Bq/L, respectively. The cause of the elevated tritium concentrations in shallow bedrock upgradient of the NPDWF is not known.

The relatively wide range of shallow bedrock groundwater chemistries suggests that some CMT monitoring intervals are influenced by residual drilling water used for bedrock coring which was mostly Ottawa River water. Given the very dilute chemistry in Ottawa River water the reported 2019 chemistry of many of the shallow bedrock monitoring intervals may be underestimated.

Tile Drain Water

The major ion and trace element chemistry and radiological chemistry of the tile drain water as reported from sampling in 1990, 2014, and 2019 are very similar to shallow overburden groundwater at the NPDWF site. This similarity and plotting of major ion chemistry of tile drain water and other water types at the NPD site on Piper diagrams shows that groundwater from the area of Landfill 1 and the reactor area are the most likely sources of water to the tile drains. This is entirely reasonable as these two groundwater types are in close proximity to the tile drains or are clearly upgradient of the tile drains. Piper diagrams also show that upper and lower shallow bedrock groundwater and Ottawa River water are not sources of water to the tile drains.

Groundwater Flow

Groundwater flows in the saturated sand and gravel fill, fluvial sand and gravel and glacial till hydrostratigraphic units are predominantly from southwest to northeast across the NPD site toward the tile drains and the Ottawa River. Groundwater flow via the sand and gravel backfill of the pumping intake and

discharge line bedrock excavations is also a potentially important flow pathway for the NPD site under high water table conditions. For shallow bedrock, the predominant groundwater flow direction assuming a lack of major structural features such shear zones and faults is also from southwest to northeast toward the Ottawa River.

Recharge of the local groundwater system at the NPDWF site occurs primarily in the highland area northeast and southwest of Highway 17 where glacial till is exposed at surface. Some recharge also occurs on the upslope areas of the site between Highway 17 and Landfill 1 and near Landfill 2 where permeable alluvial (fluvial sand and gravel) deposits are exposed at surface. Groundwater discharge areas as springs and wetlands were historically noted on the overburden ground slopes northwest of NPDWF and between the area of the NPDWF and the Ottawa River prior to NPD construction. These springs are no longer observed at the site due groundwater collection by the tile drains and extensive re-contouring of bedrock and overburden during and following construction of NPD.

A large portion of groundwater southwest and west of the NPD building, at least as far as Landfill 1 and likely upgradient of Landfill 1 and toward Landfill 2 discharges to the tile drain system that was trenched into the surface of the bedrock, surrounds the NPD reactor building and drains into the Ottawa River. Groundwater flow in the underlying shallow bedrock discharges upward to the overlying overburden in the area upgradient of the NPDWF, but mostly discharges to the Ottawa River either directly or via the Mattawa Fault that defines the course of the Ottawa River.

Linear groundwater velocities calculated from Darcy's Law for the sand and gravel fill unit and fluvial sand and gravel unit are comparable at about 1.7 to 3.4 m/day, whereas linear groundwater velocities in the sand, gravel and cobble member of silt to cobble glacial till unit and boulder glacial till unit are lower to comparable at 0.23 to 2.6 m/day. The lowest calculated linear groundwater velocities are within the silty sand member of the silt to coble glacial till unit at 0.00070 m/day. For shallow bedrock the calculated velocities are for homogeneous fractured bedrock without major structural features such as shear zones and faults range from 0.057 to 0.28 m/day.

Groundwater interactions with surface water at NPD site occur via direct discharge and via groundwater flow. The tile drain systems installed in shallow bedrock around the NPD building collect and directly discharge overburden groundwater to the Ottawa River. Groundwater in overburden and in shallow bedrock also discharges to the adjacent Ottawa River via groundwater flow. For overburden groundwater, the discharge is likely directly to the Ottawa River via the sand and gravel fill and fluvial sand and gravel hydrostratigraphic units. The volume of overburden groundwater discharged via groundwater flow is likely to be much less than that from the tile drains due to upgradient interception of overburden groundwater by the tile drains. For shallow bedrock, the discharge pathway is most likely via upward flow in the steeply dipping Mattawa Fault that underlies the Ottawa River. The shallow bedrock groundwater discharge to the Ottawa River is a small percentage of that discharged directly via the tile drains.

8.5.5.2 Regional Study Area

Due to the amount and variability of hydrogeological data at CRL, this information can be used in order to characterize the Regional Study Area. At CRL, flow systems are recharged on topographic highs created by bedrock ridges, flow laterally within overburden and shallow bedrock and discharge to local wetlands, bogs, streams and lakes. The vast majority of infiltration that recharges the groundwater flows within the permeable sandy overburden. Flow also occurs within shallow bedrock, likely to depths of 50 m, but these flow rates are a small percentage of flow rates in the overlying sands (CNL 2019b).

Depth to water table on CRL property is controlled primarily by the hydraulic conductivity of the overburden and topography of ground surface. In terrestrial upland areas with permeable sandy overburden, the water table is relatively deep (often greater than 5 m). In flat lying areas underlain by less permeable overburden or bedrock, the water table is typically found within a few metres of the ground surface (Raven Beck Environmental Ltd. 1994).

Linear average flow velocities in sand aquifers range from 0.027 to 1.1 m/day, with the differences controlled by both hydraulic conductivity and hydraulic gradient. Average values of 0.027 to 0.27 m/day are likely in shallow bedrock based on average estimates of hydraulic conductivity and porosity (Davison *et al*., 1995). Actual groundwater velocities can differ greatly from these values because of orders of magnitude range in bedrock hydraulic conductivities and porosities.

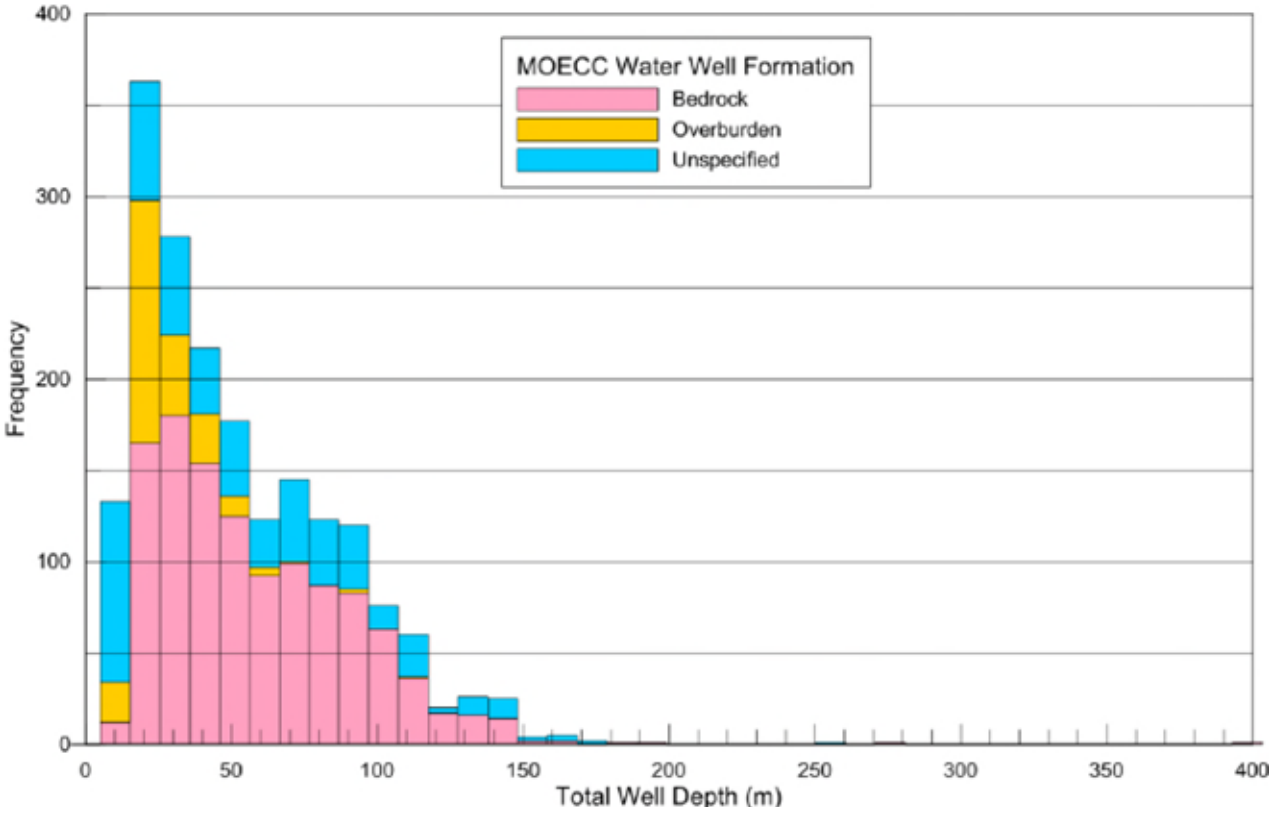
The MOECC database of water supply wells (MOECC 2018b) was queried for the region between Rolphton and Pembroke (Killey 2018). The number and depth of the water supply wells, and the formation from which they draw water, are shown in Table 8.5-13. The basic summary statistics for well depths for the unspecified wells are quite similar to the entire dataset, so it's reasonable to assume that the unspecified wells follow a similar distribution between bedrock and overburden.

Table 8.5-13 Numbers of Bedrock, Overburden and Unspecified Wells, and Well Depths (Killey 2018, from MOECC 2018b)

Source Unit	Number of Wells	Depth (m)			
		Average	Median	Min	Max
Bedrock	1151	53.9	45.7	5.5	395.9
Overburden	246	21.7	18.3	1.2	111.6
Unspecified	505	48.5	38.1	1.8	253.0
All Wells	1902	48.3	38.4	1.2	395.9

The database also provides the total depths of the wells. Figure 8.5-21 is a frequency plot of well depths for wells completed in bedrock, in overburden, and for wells where the formation supplying water is unspecified. Information on wells obtained in 2017 from the community survey undertaken by CNL (Moore 2017). However, the well information response in the survey was extremely limited relative to the MOECC database (Killey 2018).

Figure 8.5-21 Total Depth Frequencies for Wells Completed in Overburden, Bedrock, and in Unspecified formations (Killey 2018)



Although it is evident from the MOECC database that there are some shallow water supply wells, if statistical data are used to calculate potential exposures, median well depth (38 m) would be a reasonable selection for residential and farming groups.

It is noted that this MOECC database contains records submitted to the province by licensed water well drilling companies. It is possible that some homes, and more likely some cottages that are used seasonally (and that may have limited or no road access), draw their water supply from hand-driven well points or from hand-dug wells installed by the owner, rather than by a contracted well driller. Such unrecorded installations will be shallow, and almost certainly restricted to overburden. One might reasonably speculate that wells installed by the property owner will be between 5 and 10 m deep. The rates of water production from such manually installed wells will frequently be small, so the numbers of permanent homes using such water sources will also be limited.

8.5.6 Groundwater Quality

8.5.6.1 Site/Local Study Area

In the Site and Local Study Areas, groundwater is not currently used as a potable water source. Adjacent to the site (south of Highway 17), there are dwellings that may have wells that are used as a potable water source. Since these wells would be upgradient of the site, they are unaffected by activities occurring at the NPD site.

Radiological

In 2014, a groundwater sampling campaign was conducted at NPD using existing monitoring wells (Killey 2014). These wells are situated around landfills #1 and #2, as well as the facility, as shown in Figure 8.5-19. Analyses was conducted for tritium, alpha and beta activity concentrations. All samples except one were below or within one standard deviation of the detection limit, and all were well below the Health Canada screening criteria for drinking water (Killey 2014). The full Killey (2014) Report is provided in the Supplementary Documentation TSD.

More recently, groundwater sampling was undertaken as part of the Balance of Site Characterization at the NPD Site (McVeigh 2018b). This sampling investigated radiological groundwater quality in five areas (illustrated in Figure 8.5-22):

- Background Reference Wells (BRW) – NPD-1, NPD-2, NPD-4, NPD-14
- Landfill #1 –NPD-5, NPD-7, NPD-8
- Landfill #2 – 2” PVC, NPD-9, NPD-10, NPD-11, NPD-12, NPD-13
- NPD Adjacent – MT-8, MT-9, BH-06-01, BH-07-01, BH-09-01, BH-10-01
- Ottawa River Shoreline – MT-5, BH-12-01, BH-13-01, BH-14-01, BH-16-01

The BRW locations are sited upgradient of all potentially impacted areas, and the results of sampling at this location were used to represent the background condition. A 99% coverage upper tolerance limit (UTL) at 90% confidence was calculated for the BRW, and was used as a reasonable upper limit of what would be likely to observe in background. Samples that exceed this BRW UTL are shown in grey in Table 8.5-14 below. It is noted that the MACs are not exceeded for any radionuclides.

Table 8.5-14 Average Radionuclide Concentrations in Groundwater in Various Classification Areas at the NPD Site (McVeigh 2018b)

Radionuclide	Unit	BRW	BRW 99% UTL 90%	Landfill #1	Landfill #2	Ottawa River Shoreline	NPD Adjacent	MAC
Am-241	Bq/L	0.058	0.062	0.040	0.032	0.041	0.032	0.2 [a]
Co-60	Bq/L	0.352	0.841	0.242	0.226	0.134	0.520	2 [a]
Cs-137	Bq/L	0.010	0.143	0.019	0.022	0.015	0.026	10 [a,b, e]
Eu-152	Bq/L	0.019	0.019	0.027	0.001	0.053	0.055	100 [c]
U-235	Bq/L	0.115	0.115	0.090	0.046	0.109	0.234	4 [a]
U-238	Bq/L	0.159	0.234	0.129	0.218	0.123	0.130	4 [a]
H-3	Bq/L	7.645	16.700	9.347	16.283	65.600	63.740	7000 [a,b,e]
C-14	Bq/L	0.038	0.038	0.038	0.069	0.072	0.035	200 [a]
Sr-90	Bq/L	0.0001	0.0001	0.004	0.010	0.009	0.004	5 [a,b,e]
Tc-99[b]	Bq/L	0.100	N/A	0.100	0.100	0.100	0.100	200 [a]
Cl-36	Bq/L	0.200	0.300	0.460	1.200	1.100	0.600	100 [c]
Ni-63	Bq/L	0.486	1.510	0.467	0.325	0.204	0.488	1000[c]

Notes:

a. Ontario Reg 169/03 Schedule 3 Radiological Standards (O.Reg 169/03).

b. Health Canada, Guidelines for Canadian Drinking Water Quality, MACs (HC 2017).

c. World Health Organisation (WHO), Guidance Levels for Radionuclides in Drinking Water (WHO 2006).

d. Table cells are shaded grey the 95% UTL is exceeded.

e. Quebec Chapter Q-2, r. 40; Drinking Water Quality.

N/A – not applicable (all Tc-099 results for groundwater were reported as < MDL, therefore a statistical comparison was not possible).

Non-Radiological

In June of 2014, a study of the groundwater in the area was conducted and a report on the groundwater quality was prepared (Killey 2014).

Table 8.5-15 shows what parameters were sampled from each well. The analytical results for all samples at all wells are presented in Killey (2014). The locations of the sampling points are shown in Figure 8.5-19. Table 8.5-16 below shows any measurements that exceeded Canadian standards. Canadian Drinking Water Standards were used in Killey (2014) for this comparison where applicable. Ontario Ministry of the Environment Soil and Groundwater Standards (MOE 2011) were applied for those contaminants that did not have limits in Killey (2014).

Table 8.5-15 NPD Groundwater Contamination Sampling Matrix (Source: Killey 2014)

Location	Sampled?	GPS Location & Elev.	Wellhead Params	Radiological	Anions & DOC	TKN	Alkalinity	Major Cations	Trace Metals	Volatiles (ATGs 16-18)	Phenolics (ATG 20)	PCBs (Total)	PAHs (ATG-19)	Petroleum Components (F1-F4)
NPD-1	NF													
NPD-2	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
NPD-3	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
NPD-4	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
NPD-5	NF													
NPD-6	NF													
NPD-7	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
NPD-8	Yes	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	
NPD-9	Yes	Y	Y	Y	Y		Y	Y	Y			Y		
NPD-10	Yes	Y		Y	Y		Y	Y	Y			Y		
NPD-11	Yes	Y	Y	Y	Y		Y	Y	Y			Y		
NPD-12	Yes	Y	Y	Y	Y		Y	Y	Y			Y		
NPD-13	Yes	Y	Y	Y	Y		Y	Y	Y			Y		
NPD-14	Yes	Y	Y	Y	Y		Y	Y	Y			Y		
MT-1	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MT-2	NF													
MT-3	NF													
MT-4	NF													
MT-5	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MT-7	Dry													
MT-8	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MT-9	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MT-10	NF													
BH-06-01	Dry													
BH-07-01	Partial	Y	Y	Y	Insufficient Water									
BH-08-01	Dry													
BH-09-01	Yes	Y	Y	Y							Y		Y	Y
BH-10-01	Dry													
BH-11-01	Dry													
BH-12-01	Yes	Y	Y	Y							Y		Y	Y
BH-13-01	Yes	Y	Y	Y							Y		Y	Y
BH-14-01	Dry													
BH-15-01	Dry													
BH-16-01	Dry													
NPD Tile Drain 1	Yes		Y	Y	Y		Y	Y	Y	Y				

Notes:

Y – parameter sampled
NF – Not found

Table 8.5-16 Groundwater Contaminants Exceeding Health Canada Drinking Water Standards (Source: Killey 2014)

Well ID	Contaminant	Amount Present	Guideline Limit
NPD-10	Manganese	52 µg/L	50 µg/L
MT-8	Manganese	280 µg/L	50 µg/L

As seen in Table 8.5-16 manganese levels measured in groundwater in the Site Study area are in exceedance of the Health Canada Drinking Water Standards. Killey (2014) concludes that these anomalous values are likely not due to contamination, and that no groundwater issues were noted for NPD. Manganese is a naturally occurring metal and is abundant. Wells in background areas of the Chalk River Laboratories Site (unaffected by site operations) have natural manganese concentrations up to 800 ug/L.

The Killey (2014) study also identified detectable levels of extractable petroleum hydrocarbons (EPH) and total petroleum hydrocarbons (TPH), downgradient of a prior diesel fuel leak. However, the levels are lower than detection limits of prior analyses, and the nature of the hydrocarbons indicate that the material is either very old, or had consisted of non-volatile hydrocarbons (Killey 2014).

In August 2012, groundwater was sampled from several boreholes on the NPD site (and surface water from two locations in the Ottawa River) and analyzed for petroleum hydrocarbons (PHCs). The test results of that sampling program found that at the available monitoring locations, PHCs could not be detected in most samples. Where PHCs were detected, no exceedances of MOE (2011) standards were identified (Paterson Group 2012).

In Spring 2017, a groundwater sampling campaign was undertaken at 24 monitoring wells that had previously been installed on the NPD site. In addition to field measurement of general chemistry parameters, these samples were submitted for analysis of PHCs and Semi-VOCs. A statistical summary, including the average, maximum, minimum and 90th percentile of the soil data collected for each metal analysed is presented below in Table 8.5-17. The PAHs were detected only in one monitoring well (BH-14-01) out of 24 monitoring wells sampled. Analytical results for benzo[a]pyrene from monitoring well BH-14-01 exceeded MOECC Table 2 Standards, Health Canada Canadian Drinking Water Quality Guidelines as well as Quebec surface water quality criteria protective of drinking water (MELCC 2020). The detected concentrations of several other carcinogenic PAHs including benzo (a) anthracene, benzo (b) fluoranthene, benzo (k) fluoranthene, chrysene, dibenzo (a, h) anthracene, and indeno (1,2,3-cd) pyrene from BH-14-01 monitoring well also exceeded the Province of Quebec surface water quality criteria for individual compounds and total carcinogenic PAHs. However, it is considered likely that this was due to disturbed sediment in the groundwater sample as a result of low groundwater yield in the well, which was pumped dry four times during the sample collection process. The groundwater analysis well locations and exceedances are shown in Figure 8.5-22 below.

Table 8.5-17 Summary of Groundwater Analyses (Golder 2017b)

Parameter	Unit	CDWQG - Health Based (1)	REG153 (11) T2-GW COARSE (2)	Average	Max	Min	90th percentile
General Chemistry (field)							
Conductivity	ms/cm	--	-- (3)	0.148	0.890	0.023	0.237
Dissolved Oxygen	mg/l	--	--	9.91	46.83	0.60	23.07
Oxidation-Reduction Potential	mV	--	--	190	276	-24	250
pH	-	--	--	6.49	8.58	5.60	7.47
Temperature	deg c	--	--	10.01	16.68	6.44	11.71
Turbidity	NTU	--	--	121	1000	0.9	298
PHCs							
Benzene	mg/l	0.005	0.005	<0.00020	<0.00020	<0.00020	<0.00020
Ethylbenzene	mg/l	0.14	0.0024	<0.00020	<0.00020	<0.00020	<0.00020
m,p-Xylenes	µg/l	--	--	<0.40	<0.40	<0.40	<0.40
o-Xylene	µg/l	--	--	<0.20	<0.20	<0.20	<0.20
Semi-VOCs							
1-Methylnaphthalene	µg/l	--	3.2 (4)	<0.010	<0.010	<0.010	<0.010
2-Methylnaphthalene	µg/l	--	3.2 (4)	<0.010	<0.010	<0.010	<0.010
Acenaphthene	µg/l	--	4.1	<0.010	<0.010	<0.010	<0.010
Acenaphthylene	µg/l	--	1	<0.010	<0.010	<0.010	<0.010
Anthracene	µg/l	--	2.4	<0.010	<0.010	<0.010	<0.010
Benzo [b,j] fluoranthene	µg/l	--	--	0.01333	0.10000	<0.010	<0.010
Benzo[a]anthracene	µg/l	--	1	0.01333	0.10000	<0.010	<0.010
Benzo[a]pyrene	mg/l	0.00004	0.00001	0.00001	**0.00008**	<0.00001	<0.00001
Benzo[g,h,i]perylene	µg/l	--	0.2	0.01093	0.03500	<0.010	<0.010
Benzo[k]fluoranthene	µg/l	--	0.1	0.01111	0.04000	<0.010	<0.010
Chrysene	µg/l	--	0.1	0.01241	0.07500	<0.010	<0.010
Dibenzo[a,h]anthracene	µg/l	--	0.2	<0.010	<0.010	<0.010	<0.010
Fluoranthene	µg/l	--	0.41	0.01630	0.18000	<0.010	<0.010
Fluorene	µg/l	--	120	<0.010	<0.010	<0.010	<0.010

Parameter	Unit	CDWQG - Health Based (1)	REG153 (11) T2-GW COARSE (2)	Average	Max	Min	90th percentile
Indeno[1,2,3-cd]pyrene	µg/l	--	0.2	0.01056	0.02500	<0.010	<0.010
Naphthalene	µg/l	--	11	<0.010	<0.010	<0.010	<0.010
Phenanthrene	µg/l	--	1	0.01148	0.05000	<0.010	<0.010
Pyrene	µg/l	--	4.1	0.01481	0.14000	<0.010	<0.010

Notes:

See the source document for the complete data set and additional context (Golder 2017b).

< Indicates parameter not detected above laboratory method detection limit.

-- Chemical not analyzed or criteria not defined.

Value Parameter is greater than Canadian Drinking Water Quality Guidelines (CDWQG) - Health Based.

Value Parameter is greater than REG153 (11) T2-GW COARSE.

(1) CDWQG - HEALTH BASED.

(2) O.Reg. 153 (2011) Table 2 Standards for all types of property use for groundwater in coarse textured soil in full depth generic site condition in a potable ground water condition.

(3) Not Applicable.

(4) The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2-methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

Figure 8.5-22 Summary of Groundwater Analysis and Exceedances (from Golder 2017b)

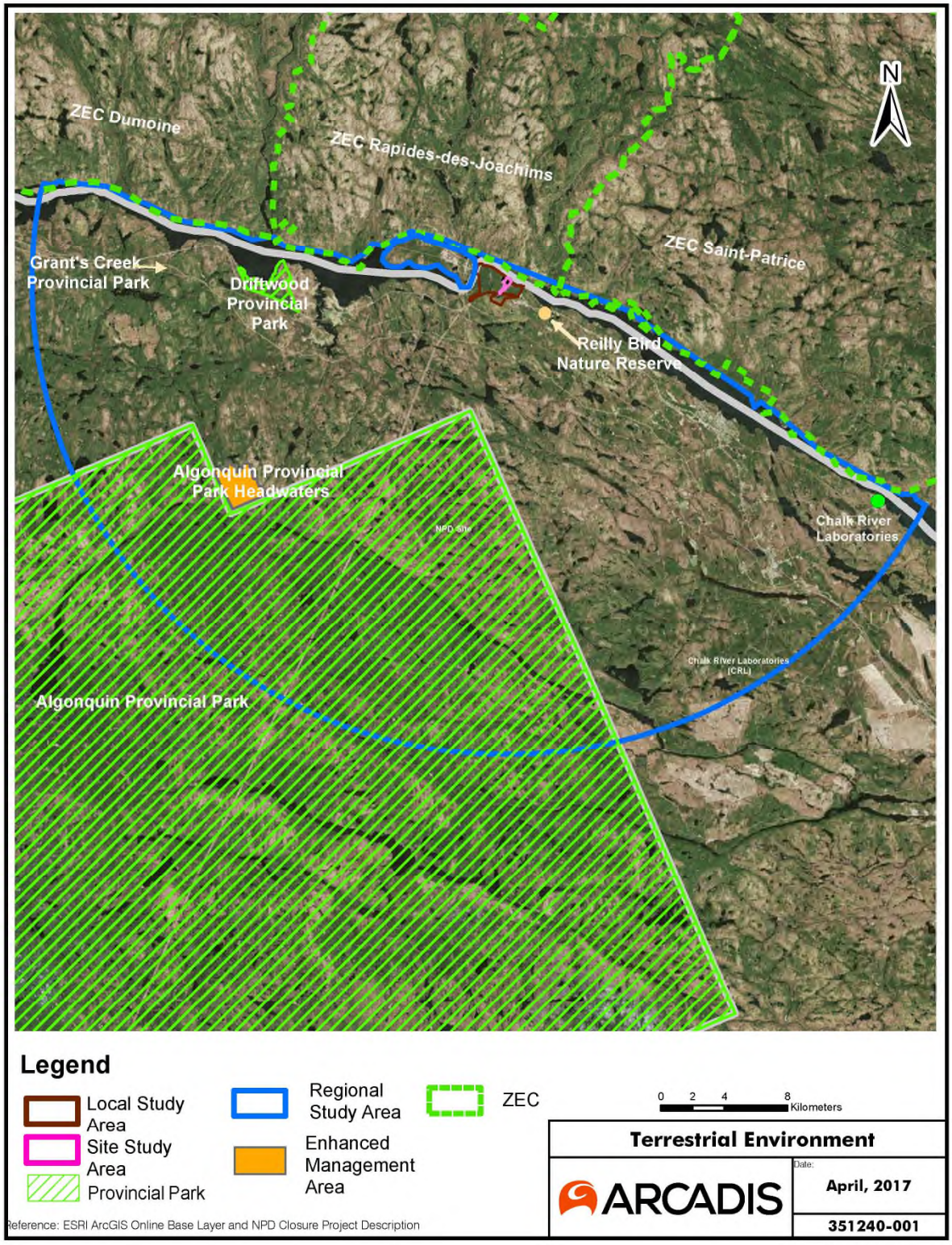
8.6 Terrestrial Environment

8.6.1 Spatial Boundaries

The Site and Local Study Areas for the terrestrial environment consist of the lands delineated in the general Site and Local Study Areas, shown in Figure 5.2-1 and Figure 5.2-2 respectively. The Site Study Area consists primarily of areas previously disturbed by human activity and contains various cultural vegetation communities. This area provides very little suitable habitat to support resident terrestrial species. ORAU (2017) describes the area as “primarily forested with several trails, unpaved roads and paved roads traversing the area”.

The Regional Study Area, illustrated in Figure 8.6-1 below, extends beyond the Local Study Area, even though the effects of the project on the terrestrial environment are not expected to go beyond the NPD site. The Regional Study Area was established to capture areas where other projects may take place (e.g., the Des Joachims Generating Station at Rolphton, Ontario and the CRL site), in order to assess any cumulative effects from projects at those sites. Much of the information used to characterize the existing terrestrial environment in the Site and Local Study Areas has been obtained at or near the CRL site. These regional data are included in the baseline characterization below.

Figure 8.6-1 Terrestrial Environment Regional Study Area



8.6.2 Forest/Vegetation Communities

8.6.2.1 Site/Local Study Area

Forest on the NPD Property

According to Wills (2013), the Site/Local Study Area supports diverse mixed upland areas with some wetland areas scattered throughout. It is mainly wooded with the exception of open wetland areas. Wooded uplands generally range from 40-80 years old. Wetland areas on the NPD site are mainly found on the western half of the property. Human disturbance, including logging of white pine in the 1800s and 1900s, and forest fires, has also influenced the current vegetation cover (Wills 2013).

An ELC study was undertaken in 2016 (ELC TSD). The ELC study describes vegetation communities qualitatively based on dominant plant species for tree, shrub, and ground cover as well as canopy conditions, relative age, soil wetness and disturbance. The NPD site is mainly wooded with the exception of open wetland areas.

Three common vegetation community classes present in the Site/Local Study Area are as follows:

- Forested Upland Communities: Forests within the Site/Local Study Area are largely coniferous. The canopy is dominated by a mix of white pine, red pine, and jack pine. The sub-canopy is variable dependent on local factors, with predominant species being red maple, black spruce, white birch, balsam fir, white spruce, eastern hemlock, and sugar maple.
- Wetland Communities: Both meadow marshes and shallow marshes are present on the site. Dominant plant species include broadleaf cattail, sedges, and forbs such as goldenrod, meadow rue, and jewelweed. Where trees are present speckled alder, willow, black spruce, and white pine are dominant. Shallow aquatic sites occur on the western half of the Site/Local Study Area and south of Highway 17, and vary between submergent, floating, and emergent plant species.
- Cultural Communities: Cultural meadows are unforested areas that are heavily influenced by human activities. These include roadsides, utility corridors, and abandoned or reclaimed land from decommissioned structures (e.g. foundations and parking lots). Cultural plantations of white pine, red pine, and white spruce are planted along the main road into the built-up area.

A survey of milkweed in the disturbed areas and along the accessible roadways on the NPD property was conducted in 2019. Locations of milkweed in these areas were mapped (see Figure 8.6-2 and Table 8.6-1 below).

Figure 8.6-2 Milkweed at NPD (in disturbed areas and along roadways)

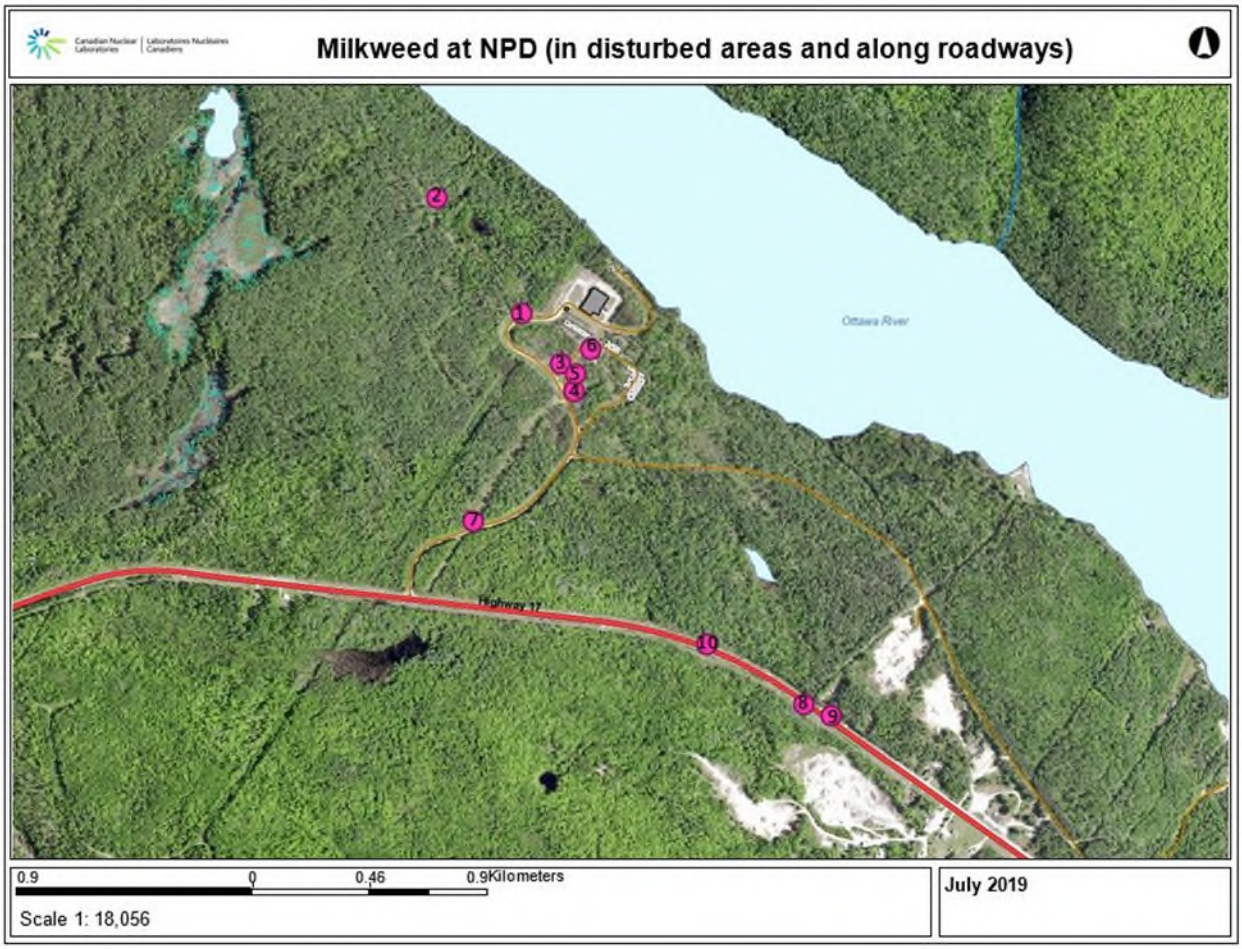


Table 8.6-1 Milkweed at NPD

Map Location	Number of milkweed plants	Remark
1	5	Small patch, approximately 1m in diameter
2	50	5x5m patch, high density
3	70	25x25m area, low density
4	35	10m transect, dense
5	10	1m patch
6	>100	Low density patch.
7	44	20m patch, low density
8	25	Along highway 17
9	>100	Along highway 17, 100 m transect
10	5	Along highway 17

With respect to baseline contaminant levels in vegetation, CNL collects measurements of tritium contamination in terrestrial vegetation; these data are presented in Section 8.5.4 above. In addition, the EcoRA uses pathways analysis such as soil-plant transfer factors and air deposition estimates, to model the transport of contaminants in non-human biota and through the food chain.

8.6.2.2 Regional Study Area

The vegetation community classes present at the CRL site are described in (CNL 2019b) and are used here in order to contribute to the understanding of some of the vegetation within the Regional Study Area. On the CRL property, both open and wooded wetlands comprise a significant portion, and several areas have been identified as potential Provincially Significant Wetlands. Differing from the NPD site, the forests at CRL are largely deciduous or mixed forest dominated by red maple, trembling and large-toothed aspens, and white pine. In addition, CRL also has rock barrens and open sand dunes along the Ottawa River shoreline, as well as sand barrens, which are considered significant for supporting vegetation communities.

Lady's Slipper (*Cypripedium acaule*)

8.6.3 Vegetation Species

According to Wills (2013), predominant tree species in the Site, Local, and Regional Study Areas include:

- Forest Uplands:
  - White pine;
  - Red maple;
  - Poplar;
  - Red pine;
  - Birch.
- Natural coniferous forest (prevalent on downward slopes approaching the river):
  - Pine;
  - Cedar.
- Cultural Communities (planted along the main road into the built-up area):
  - White pine;
  - Red pine;
  - White spruce.

A total of 525 vascular plant species have been recorded on the CRL property. The CRL property is less than 30 km from the NPD site and has been used to represent the plant species within the Regional Study Area. Approximately 87% of these species are native, and 13% are non-native. Native species are indicative of undisturbed ecosystems and are generally valued, and non-native species may be less valued. Non-native species are often associated with disturbed communities (CNL 2019b).

No nationally or provincially endangered or threatened species of vascular plants have been identified or recorded on the NPD site. No formal survey has been conducted for such species nor would it be a component of a formal EA. Morin and Carr (2015) indicate that American ginseng and butternut trees, both endangered, could be present on the NPD site. The butternut tree has been observed on the CRL site (CNL 2019b). A list of vegetation species observed at the NPD site during the 2016 ELC study (documented ELC TSD) is presented in Table 8.6-2. A total of 103 vascular plant species were recorded. 21% of these species are non-native. SAR designations (i.e., *SARA*, SARO, COSEWIC) are listed for species in the table below. Although *SARA* was originally legislated in 2002, the species list is updated frequently based on recommendations from COSEWIC.

Table 8.6-2 Vegetation Species Observed at the NPD site. *SARA* and SARO Queries Conducted in January 2023

Species		Status*	
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO - Ontario
American Vetch	*Vicia americana*	Not Listed	Not Listed
Balsam Fir	*Abies balsamea*	Not Listed	Not Listed
Bebb's Willow	*Salix bebbiana*	Not Listed	Not Listed
Bird's foot Trefoil	*Lotus corniculatus*	Not Listed	Not Listed
Black Raspberry	*Rubus occidentalis*	Not Listed	Not Listed
Black Spruce	*Picea mariana*	Not Listed	Not Listed
Black-eyed Susan	*Rudbeckia hirta var. pulcherrima*	Not Listed	Not Listed
Bladder Campion	*Silene vulgaris*	Not Listed	Not Listed
Blue Bead-lily	*Clintonia borealis*	Not Listed	Not Listed
Blue Vervein	*Verbena hastata*	Not Listed	Not Listed
Bracken Fern	*Pteridium aquilinum*	Not Listed	Not Listed
Broad-leaved Cattail	*Typha latifolia*	Not Listed	Not Listed
Broad-leaved Meadow Sweet	*Spiraea latifolia*	Not Listed	Not Listed
Bull Thistle	*Cirsium vulgare*	Not Listed	Not Listed
Canada Goldenrod	*Solidago canadensis*	Not Listed	Not Listed
Canada Mayflower	*Maianthemum canadense*	Not Listed	Not Listed
Canada Thistle	*Cirsium canadensis*	Not Listed	Not Listed
Christmas Fern	*Polystichum acrostichoides*	Not Listed	Not Listed
Common Blackberry	*Rubus allegheniensis*	Not Listed	Not Listed
Common Blue-eyed Grass	*Sisyrinchium montanum*	Not Listed	Not Listed
Common Boneset	*Eupatorium perfoliatum*	Not Listed	Not Listed
Common Burreed	*Sparganium emersum*	Not Listed	Not Listed

Species		Status*	
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO - Ontario
Common Dandelion	*Taraxacum officinale*	Not Listed	Not Listed
Common Elderberry	*Sambucus canadensis*	Not Listed	Not Listed
Common Evening Primrose	*Oenothera biennis*	Not Listed	Not Listed
Common Milkweed	*Asclepias syriaca*	Not Listed	Not Listed
Common Mullein	*Verbascum thapsus*	Not Listed	Not Listed
Common Plantain	*Plantago major*	Not Listed	Not Listed
Common Viper's Bugloss	*Echium vulgare*	Not Listed	Not Listed
Common Yarrow	*Achillea millefolium*	Not Listed	Not Listed
Cow Vetch	*Vicia gracca*	Not Listed	Not Listed
Curled Dock	*Rumex crispus*	Not Listed	Not Listed
Eastern Hemlock	*Tsuga canadensis*	Not Listed	Not Listed
Eastern Teaberry	*Gaultheria procumbens*	Not Listed	Not Listed
Eastern White Cedar	*Tsuga occidentalis*	Not Listed	Not Listed
Eastern White Pine	*Pinus strobus*	Not Listed	Not Listed
English Plantain	*Plantago lanceolata*	Not Listed	Not Listed
False Salomon's Seal	*Maianthemum racemosum*	Not Listed	Not Listed
Fireweed	*Chamerion angustifolium*	Not Listed	Not Listed
Flowering Raspberry	*Rubus odoratus*	Not Listed	Not Listed
Fowl Manna Grass	*Glyceria striata*	Not Listed	Not Listed
Foxtail Barley	*Hordeum jubatum*	Not Listed	Not Listed
Fragrant White Water Lily	*Nymphaea odorata*	Not Listed	Not Listed
Fringed Sedge	*Carex crinite*	Not Listed	Not Listed
Grass spp.	*Poa spp.*	Not Listed	Not Listed
Green Ash	*Fraxinus pennsylvanica*	Not Listed	Not Listed
Hairy Goldenrod	*Solidago hispida*	Not Listed	Not Listed
Hairy Salomon's Seal	*Polygonatum pubescens*	Not Listed	Not Listed
Heal-All	*Prunella vulgaris*	Not Listed	Not Listed
Hemlock Water-parsnip	*Sium suave*	Not Listed	Not Listed
Honeysuckle sp.	*Lonicera sp.*	Not Listed	Not Listed
Indian Pipe	*Monotropa uniflora*	Not Listed	Not Listed
Jack Pine	*Pinus banksiana*	Not Listed	Not Listed
Lady Slipper	*Cypripedium acaule*	Not Listed	Not Listed
Lamb's Quarters	*Chenopodium album*	Not Listed	Not Listed
Largetooth Aspen	*Populus grandidentata*	Not Listed	Not Listed
Low Sweet Blueberry	*Vaccinium angustifolium*	Not Listed	Not Listed
Marsh St. John's-Wort	*Triadenum fraseri*	Not Listed	Not Listed
Meadow Horsetail	*Equisetum pratense*	Not Listed	Not Listed
Meadow Rue	*Thalictrum pubescens*	Not Listed	Not Listed
Nannyberry	*Viburnum lentago*	Not Listed	Not Listed
Orchard grass	*Dactylis glomerata*	Not Listed	Not Listed
Oxeye Daisy	*Leucanthemum vulgare*	Not Listed	Not Listed

Species		Status*	
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO - Ontario
Philadelphia Fleabane	*Erigeron philadelphicus*	Not Listed	Not Listed
Pussy Willow	*Salix discolor*	Not Listed	Not Listed
Queen Ann's Lace	*Daucus carota*	Not Listed	Not Listed
Ragweed	*Ambrosia artemisiifolia*	Not Listed	Not Listed
Red Clover	*Trifolium pratense*	Not Listed	Not Listed
Red Maple	*Acer rubrum*	Not Listed	Not Listed
Red Oak	*Quercus rubra*	Not Listed	Not Listed
Red Pine	*Pinus resinosa*	Not Listed	Not Listed
Sedge	*Carex* spp.	Not Listed	Not Listed
Sensitive Fern	*Onoclea sensibilis*	Not Listed	Not Listed
Shining Willow	*Salix lucida*	Not Listed	Not Listed
Silver Maple	Acer saccharinum	Not Listed	Not Listed
Slender Willow	*Salix petiolaris*	Not Listed	Not Listed
Smooth Blackberry	*Rubus canadensis*	Not Listed	Not Listed
Speckled Alder	*Alnus incana*	Not Listed	Not Listed
Spotted Jewelweed	*Impatiens capensis*	Not Listed	Not Listed
Spotted Joe-Pye Weed	*Eupatorium maculatum*	Not Listed	Not Listed
Spreading Dogbane	*Apocynum androsaemifolium*	Not Listed	Not Listed
St. John's Wort	*Hypericum perforatum*	Not Listed	Not Listed
Staghorn Sumac	*Rhus typhina*	Not Listed	Not Listed
Sugar Maple	*Acer saccharum ssp. saccharum*	Not Listed	Not Listed
Swamp Milkweed	*Asclepias incarnata*	Not Listed	Not Listed
Sweet Fern	*Comptonia peregrina*	Not Listed	Not Listed
Tamarack	*Larix laricina*	Not Listed	Not Listed
Tartarian Honeysuckle	*Lonicera tatarica*	Not Listed	Not Listed
Timothy	*Phleum pratense*	Not Listed	Not Listed
Trembling Aspen	*Populus tremuloides*	Not Listed	Not Listed
Water Milfoil	*Myriophyllum* spp.	Not Listed	Not Listed
Watershield	*Brasenia schreberi*	Not Listed	Not Listed
White Ash	*Fraxinus americana*	Not Listed	Not Listed
White Birch	*Betula papyrifera*	Not Listed	Not Listed
White Clover	*Trifolium repens*	Not Listed	Not Listed
White Meadow Sweet	*Spiraea alba*	Not Listed	Not Listed
White Spruce	*Picea glauca*	Not Listed	Not Listed
White Sweet-clover	*Melilotus alba*	Not Listed	Not Listed
Wild Sarsaparilla	*Aralia nudicaulis*	Not Listed	Not Listed
Willow	*Salix spp.*	Not Listed	Not Listed
Wool-Grass	*Scirpus cyperinus*	Not Listed	Not Listed
Yellow Pond Lily (Bullhead Lily)	*Nuphar variegata*	Not Listed	Not Listed
Yellow Sweet-clover	*Melilotus officinalis*	Not Listed	Not Listed

8.6.4 Wildlife Species

Wildlife species found in the Site, Local and Regional Study Areas (as described in Section 8.6.1) are typical of a boreal region in Ontario (Wills 2013).

The following subsections list the reptile, amphibian, insect, bird and mammal species that are included in the SAR Table for the NPD site (Morin and Carr 2015), as well as species found in the Regional Study Area as reported by Haxton and Chubbuck (2002) and the Quebec-Labrador Foundation (2005). Within this section, discussion of species present is focused on SARs sighted in the Site and Local Study Areas.

8.6.4.1 Amphibians and Reptiles

Table 8.6-3 lists the amphibian and reptile species present and potentially present in the Site, Local and Regional Study Areas, based on the SARs identified in the NPD Biodiversity Report (Morin and Carr 2015), the Ontario Reptile and Amphibian Atlas (2005), and the species identified in the MNRF Ottawa River review (Haxton and Chubbuck 2002). In total, 25 species of amphibians and reptiles have been reported in this reach of the Ottawa River (Haxton and Chubbuck 2002, Morin and Carr 2015, ON 2005). SAR designations (i.e., *SARA*, SARO, COSEWIC) are listed for species in the table below. Although *SARA* was originally legislated in 2002, the species list is updated frequently based on recommendations from COSEWIC.

Eastern Milksnake (*Lampropeltis Triangulum*)

In 2015, a juvenile eastern milksnake, a species of concern (*SARA* 2002), was observed within the NPDWF (Morin and Carr 2015). In 2019, a milksnake was observed in a parking area near the guardhouse. Eastern milksnakes are habitat generalists, and have been recorded in open as well as forested habitats. It is suggested that milksnakes preferentially use open and edge habitats, though their distribution is highly correlated with heavily forested areas (COSEWIC 2014). Individuals are known to enter buildings from August to October.

Garter snakes, painted turtles, and eastern milksnakes are occasionally observed at the NPD site.

Table 8.6-3 Amphibian and Reptile Species Present or Potentially Present in the Site, Local, and Regional Study Areas. *SARA* and SARO Queries Conducted in January 2023

Species		Status*		Reference
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO - Ontario	
AMPHIBIANS				
American toad	*Anaxyrus americanus*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Bullfrog	*Lithobates catesbeianus*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Gray treefrog	*Hyla versicolor*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Green frog	*Lithobates clamitans melanota*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Mink frog	*Lithobates septentrionalis*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Northern leopard frog	*Lithobates pipiens*	Not Listed (NAR)	Not Listed	(Haxton and Chubbuck 2002)
Eastern red-backed salamander	*Plethodon cinereus*	Not Listed	Not Listed	(ON 2016a)
Spring peeper	*Pseudacris crucifer*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Spotted salamander	*Ambystoma maculatum*	Not Listed	Not Listed	(ON 2016a)
Western chorus frog	*Pseudacris tristeriata*	THR	Not Listed	(Morin and Carr 2015)
Wood frog	*Lithobates sylvaticus*	Not Listed	Not Listed	(ON 2016a)
REPTILES				
Blanding's turtle (GLStL population)	*Emydoidea blandingii*	END	THR	(Morin and Carr 2015)
Eastern garter snake	*Thamnophis sitalis sirtalis*	Not Listed	Not Listed	(ON 2016a)
Eastern musk turtle (stinkpot)	*Sternotherus odoratus*	SC	SC	(Morin and Carr 2015)
Eastern hog-nosed snake	*Heterodon platirhinos*	THR	THR	(Morin and Carr 2015)
Eastern milksnake	*Lampropeltis triangulum*	SC	Not Listed	(Morin and Carr 2015)
Eastern ribbonsnake (GLStL population)	*Thamnophis sauritus*	SC	SC	(Morin and Carr 2015)
Eastern spiny softshell	*Apalone spinifera*	END	END	(Morin and Carr 2015)
Midland painted turtle	*Chrysemys picta marginata*	SC	Not Listed	(Haxton and Chubbuck 2002)
Northern map turtle	*Graptemys geographica*	SC	Not Listed	(Morin and Carr 2015)
Northern redbelly snake	*Storeria occipitomaculata*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Northern ringneck snake	*Diadophus punctatus*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Northern water snake	*Nerodia sipedon*	Not Listed (NAR)	Not Listed	(Haxton and Chubbuck 2002)
Snapping turtle	*Chelydra serpentine*	SC	SC	(Morin and Carr 2015)
Wood turtle	*Glyptemys insculpta*	THR	END	(Morin and Carr 2015)

Notes:

* Status: **NAR**: Not at Risk; **END**: Endangered; **THR**: Threatened; **SC**: Special Concern.

Birds

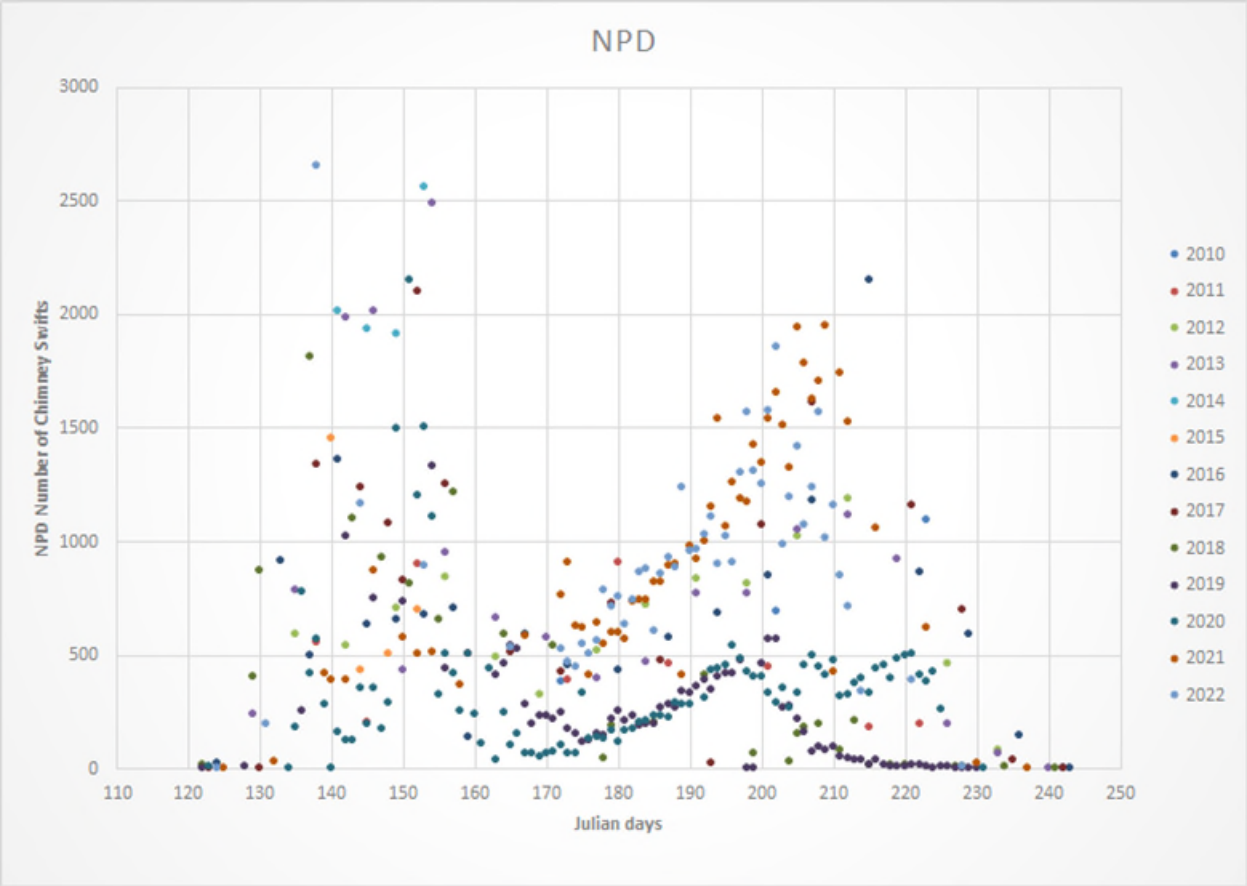
Table 8.6-4 provides a list of bird species present or potentially present in the Site, Local and Regional Study Areas, based on reference documents. The list was cross checked against the *SARA* and SARO registries. Although *SARA* was originally legislated in 2002, the species list is updated frequently based on recommendations from COSEWIC.

The Ottawa River serves as a major stopover along the Atlantic flyway, particularly for migratory waterfowl (Quebec-Labrador Foundation 2005). There are 34 species of water birds and 11 raptors known to breed in the stretch of the Ottawa River that includes the NPD site.

The following discussion of SARs is focused on those which have been observed on the NPD site.

In both Ontario and Canada, the chimney swift is a threatened species (*SARA* 2002). From 1970-2017 chimney swifts have experienced a population decline of nearly 90% (ECCC 2022). The NPD ventilation stack currently provides habitat for one of the largest known chimney swift roosts in Ontario (BSC 2019, Morin and Carr 2015). Chimney swifts occupy the ventilation stack from May to the end of August, with numbers reaching over 2500 individuals during the spring migration. In 2010, CNL initiated counts of the chimney swift population roosting in the ventilation stack. These counts were recorded manually on a weekly basis until June 2019, when a video camera was installed at NPD to record the top of the stack, enabling chimney swift counts to be undertaken on a daily basis during the breeding period (June 21 to July 31). The results of chimney swift counting at NPD are shown in Figure 8.6-3, which shows the highly variable nature of the chimney swift population over the years.

Figure 8.6-3 NPD Ventilation Stack Chimney Swift Count (2010-2022)



As part of the decommissioning of the NPD site, initial plans were to remove the ventilation stack. Alternative habitat designs were considered, however due to the risk of rejection of the alternative habitat, leaving the ventilation stack in place was determined to be the preferred option. The ventilation stack has been deemed structurally sound, and it can be isolated from the facility during decommissioning activities and retained as a roosting location (WP 2016).

In the past, a bald eagle's nest had been observed on the site. It was located roughly 875 m northwest of the facility, and 475 m northwest of landfill #2. This nest is no longer present, the tree was blown down in a storm in 2021.

Grouse (partridge), wild turkey, hummingbird, and goose are occasionally observed at the NPD site. Common nighthawks and eastern wood-pewees have also been observed on the site.

Table 8.6-4 Bird Species Present or Potentially Present in the Site, Local, and Regional Study Areas. *SARA* and SARO Queries Conducted in September 2023

Species		Status*		Reference
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO - Ontario	
Alder flycatcher	*Empidonax alnorum*	Not Listed	Not Listed	(BSC *et al*., 2006)
American bittern	*Botaurus lentiginosus*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
American black duck	*Anas rubripes*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
American crow	*Corvus brachyrhynchos*	Not Listed	Not Listed	(BSC *et al*., 2006)
American goldfinch	*Spinus tristis*	Not Listed	Not Listed	(BSC *et al*., 2006)
American kestrel	*Falco sparverius*	Not Listed	Not Listed	(Morin and Carr 2015)
American redstart	*Setophaga ruticilla*	Not Listed	Not Listed	(BSC *et al*., 2006)
American robin	*Turdus migratorius*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
American woodcock	*Scolopax minor*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Bald eagle	*Haliaeetus*	Not at Risk	Not Listed	(Morin and Carr 2015)
Baltimore Oriole	*Icterus galbula*	Not Listed	Not Listed	(BSC *et al*., 2006)
Bank swallow	*Riparia riparia*	THR	THR	(Morin and Carr 2015)
Barn swallow	*Hirundo rustica*	THR (SC)	SC	(Morin and Carr 2015)
Bay-breasted warbler	*Setophaga castanea*	Not Listed	Not Listed	(Morin 2013)
Belted kingfisher	*Megaceryle alcyon*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Black-and-white warbler	*Mniotilta varia*	Not Listed	Not Listed	(BSC *et al*., 2006)
Black-backed woodpecker	*Picoides arcticus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Black-capped chickadee	*Poecile atricapillus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Black-billed cuckoo	*Coccyzus erythropthalmus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Blackburnian warbler	*Setophaga fusca*	Not Listed	Not Listed	(Morin 2013)
Black tern	*Chlidonias niger*	No status (NAR)	SC	(Morin and Carr 2015)
Black-throated blue warbler	*Setophaga caerulescens*	Not Listed	Not Listed	(Morin 2013)
Black-throated green warbler	*Setophaga virens*	Not Listed	Not Listed	(Morin 2013)
Blue-headed vireo	*Vireo solitarius*	Not Listed	Not Listed	(BSC *et al*., 2006)
Blue jay	*Cyanocitta cristata*	Not Listed	Not Listed	(BSC *et al*., 2006)
Blue-winged teal	*Anas discors*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)

Species		Status*		Reference
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO - Ontario	
Bobolink	*Dolichonyx oryzivorus*	THR (SC)	THR	(Morin and Carr 2015)
Broad-winged hawk	*Buteo platypterus*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Brown Creeper	*Certhia americana*	Not Listed	Not Listed	(BSC *et al*., 2006)
Brown thrasher	*Toxostoma rufum*	Not Listed	Not Listed	(Morin 2013)
Canada goose	*Branta canadensis*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Canada warbler	*Cardellina canadensis*	THR (SC)	SC	(Morin and Carr 2015)
Cape May Warbler	*Setophaga tigrina*	Not Listed	Not Listed	(BSC *et al*., 2006)
Cedar waxwing	*Bombycilla cedrorum*	Not Listed	Not Listed	(BSC *et al*., 2006)
Cerulean warbler	*Setophaga cerulea*	END	THR	(Morin and Carr 2015)
Chestnut-sided warbler	*Setophaga pensylvanica*	Not Listed	Not Listed	(Morin 2013)
Chimney swift	*Chaetura pelagica*	THR	THR	(Morin and Carr 2015)
Chipping sparrow	*Spizella passerina*	Not Listed	Not Listed	(BSC *et al*., 2006)
Clay-colored sparrow	*Spizella pallida*	Not Listed	Not Listed	(Morin 2013)
Cliff swallow	*Petrochelidon pyrrhonota*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Common goldeneye	*Bucephala clangula*	Not Listed	Not Listed	(Morin 2013)
Common grackle	*Quiscalus quiscula*	Not Listed	Not Listed	(BSC *et al*., 2006)
Common loon	*Gavia immer*	Not Listed (NAR)	Not Listed	(Haxton and Chubbuck 2002)
Common merganser	*Mergus merganser*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Common nighthawk	*Chordeiles minor*	THR (SC)	SC	(Morin and Carr 2015)
Common raven	*Corvus corax*	Not Listed	Not Listed	(BSC *et al*., 2006)
Common tern	*Sterna hirundo*	Not Listed (NAR)	Not Listed	(Haxton and Chubbuck 2002)
Common yellowthroat	*Geothlypis trichas*	Not Listed	Not Listed	(Morin 2013)
Cooper's hawk	*Accipiter cooperii*	Not Listed (NAR)	Not Listed	(Haxton and Chubbuck 2002)
Dark-eyed junco	*Junco hyemalis*	Not Listed	Not Listed	(BSC *et al*., 2006)
Downy woodpecker	*Picoides pubescens*	Not Listed	Not Listed	(BSC *et al*., 2006)
Eastern bluebird	*Sialia sialis*	Not Listed (NAR)	Not Listed	(Morin 2013)
Eastern kingbird	*Tyrannus tyrannus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Eastern meadowlark	*Sturnella magna*	THR	THR	(Morin and Carr 2015)
Eastern phoebe	*Sayornis phoebe*	Not Listed	Not Listed	(BSC *et al*., 2006)
Eastern Towhee	*Pipilo erythrophthalmus*	Not Listed	Not Listed	(BSC *et al*., 2006)

Species		Status*		Reference
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO - Ontario	
Eastern whip-poor-will	*Antrostomus vociferus*	THR (SC)	THR	(Morin and Carr 2015)
Eastern wood pewee	*Contopus virens*	SC	SC	(Morin and Carr 2015)
European starling	*Sturmus vulgaris*	Not Listed	Not Listed	(BSC *et al*., 2006)
Evening grosbeak	*Coccothraustes vespertinus*	SC	SC	(BSC *et al*., 2006)
Field sparrow	*Spizella pusilla*	Not Listed	Not Listed	(Morin 2013)
Golden-crowned kinglet	*Regulus satrapa*	Not Listed	Not Listed	(BSC *et al*., 2006)
Golden-winged warbler	*Vermivora chrysoptera*	THR	SC	(Morin and Carr 2015)
Grasshopper sparrow	*Ammodramus savannarum pratensis*	SC	SC	(Morin and Carr 2015)
Gray catbird	*Dumetella carolinensis*	Not Listed	Not Listed	(BSC *et al*., 2006)
Great blue heron	*Ardea herodias*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Great crested flycatcher	*Myiarchus crinitus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Great gray owl	*Strix nebulosa*	Not Listed (NAR)	Not Listed	(Morin 2013)
Green heron	*Butorides virescens*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Green-winged Teal	*Anas crecca*	Not Listed	Not Listed	(BSC *et al*., 2006)
Hairy woodpecker	*Leuconotopicus villosus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Hermit thrush	*Catharus guttatus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Herring gull	*Larus argentatus*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Hooded merganser	*Lophodytes cucullatus*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
House Wren	*Troglodytes aedon*	Not Listed	Not Listed	(BSC *et al*., 2006)
Indigo bunting	*Passerina cyanea*	Not Listed	Not Listed	(BSC *et al*., 2006)
Killdeer	*Charadrius vociferous*	Not Listed	Not Listed	(BSC *et al*., 2006)
Kirtland's warbler	*Setophaga kirtlandii*	END	END	(Morin and Carr 2015)
Least bittern	*Ixobrychus exilis*	THR	THR	(Morin and Carr 2015)
Least flycatcher	*Empidonax minimus*	Not Listed	Not Listed	(Morin 2013)
Loggerhead shrike Eastern subspecies	*Lanius ludovicianus spp*	END	END	(Morin and Carr 2015)
Lesser scaup	*Aythya affinis*	Not Listed	Not Listed	(Morin 2013)
Lincoln's Sparrow	*Melospiza lincolnii*	Not Listed	Not Listed	(BSC *et al*., 2006)
Magnolia warbler	*Steophaga magnolia*	Not Listed	Not Listed	(Morin 2013)
Mallard	*Anas platyrhynchos*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)

Species		Status*		Reference
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO - Ontario	
Marsh wren	*Cistothorus palustris*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Merlin	*Falco columbarius*	Not Listed (NAR)	Not Listed	(Haxton and Chubbuck 2002)
Mourning dove	*Zenaida macroura*	Not Listed	Not Listed	(BSC *et al*., 2006)
Mourning warbler	*Geothlypis philadelphia*	Not Listed	Not Listed	(Morin 2013)
Nashville warbler	*Orethlypis ruficapilla*	Not Listed	Not Listed	(Morin 2013)
Northern flicker	*Colaptes auratus*	Not Listed	Not Listed	(Morin 2013)
Northern goshawk	*Accipiter gentilis*	Not Listed (NAR)	Not Listed	(Morin 2013)
Northern harrier	*Circus cyaneus*	Not Listed (NAR)	Not Listed	(Haxton and Chubbuck 2002)
Northern mockingbird	*Mimus polyglottos*	Not Listed	Not Listed	(Morin 2013)
Northern Parula	*Setophaga americana*	Not Listed	Not Listed	(BSC *et al*., 2006)
Northern pintail	*Anas acuta*	Not Listed	Not Listed	(Morin 2013)
Northern rough-winged swallow	*Stelgidopteryx serripennis*	Not Listed	Not Listed	(Morin 2013)
Northern saw-whet owl	*Aegolius acadicus*	Not Listed	Not Listed	(Morin 2013)
Northern waterthrush	*Parkesia*	Not Listed	Not Listed	(BSC *et al*., 2006)
Olive-sided flycatcher	*Contopus cooperi*	SC	SC	(Morin and Carr 2015)
Osprey	*Pandion haliaetus*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Ovenbird	*Seiurus aurocapilla*	Not Listed	Not Listed	(BSC *et al*., 2006)
Peregrine falcon	*Falco peregrinus anatum/tundrius*	Not Listed (NAR)	SC	(Morin and Carr 2015)
Pied-billed grebe	*Podilymbus podiceps*	Not Listed	Not Listed	(Morin 2013)
Pileated woodpecker	*Dryocopus pileatus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Pine Grosbeak	*Pinicola enucleator*	Not Listed	Not Listed	(BSC *et al*., 2006)
Pine Siskin	*Carduelis pinus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Pine warbler	*Setophaga pinus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Purple martin	*Progne subis*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Purple finch	*Haemorhous purpureus*	Not Listed	Not Listed	(Morin 2013)
Red-breasted nuthatch	*Sitta canadensis*	Not Listed	Not Listed	(BSC *et al*., 2006)
Red crossbill	*Loxia curvirostra*	Not Listed	Not Listed	(Morin 2013)
Red-eyed vireo	*Vireo olivaceus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Red-headed woodpecker	*Melanerpes erythrocephalus*	END	END	(Morin and Carr 2015)

Species		Status*		Reference
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO - Ontario	
Red-shouldered hawk	*Buteo lineatus*	Not Listed (NAR)	Not Listed	(Morin and Carr 2015)
Red-tailed hawk	*Buteo jamaicensis*	Not Listed (NAR)	Not Listed	(Haxton and Chubbuck 2002)
Red-winged blackbird	*Agelaius phoeniceus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Ring-billed gull	*Larus delawarensis*	Not Listed	Not Listed	(Haxton and Chubbuck
Ring-necked duck	*Aythya collaris*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Rock pigeon	*Columba livia*	Not Listed	Not Listed	(BSC *et al*., 2006)
Rose-breasted grosbeak	*Pheuticus ludovicianus*	Not Listed	Not Listed	(Morin 2013)
Ruby-crowned kinglet	*Regulus calendula*	Not Listed	Not Listed	(BSC *et al*., 2006)
Ruby-throated hummingbird	*Archilochus colubris*	Not Listed	Not Listed	(BSC *et al*., 2006)
Ruffed grouse	*Bonasa umbellus*	Not Listed	Not Listed	(Morin 2013)
Rusty blackbird	*Euphagus carolinus*	SC	SC	(Morin and Carr 2015)
Savannah sparrow	*Passerculus sandwichensis*	Not Listed	Not Listed	(Morin 2013)
Scarlet Tanager	*Piranga olivacea*	Not Listed	Not Listed	(BSC *et al*., 2006)
Sedge wren	*Cistothorus platensis*	Not Listed (NAR)	Not Listed	(Haxton and Chubbuck 2002)
Short-eared owl	*Asio flammeus*	SC (THR)	THR	(Morin and Carr 2015)
Song sparrow	*Melospiza melodia*	Not Listed	Not Listed	(BSC *et al*., 2006)
Sora	*Porzana carolina*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Spotted sandpiper	*Actitus macularius*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Swainson's thrush	*Catharus ustulatus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Swamp sparrow	*Melospiza georgiana*	Not listed	Not Listed	(Morin 2013)
Tennessee Warbler	*Leiothlypis peregrina*	Not Listed	Not Listed	(BSC *et al*., 2006)
Tree swallow	*Tachycineta bicolor*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Turkey vulture	*Cathartes aura*	Not Listed	Not Listed	(BSC *et al*., 2006)
Upland sandpiper	*Bartramia longicauda*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Veery	*Catharus fuscescens*	Not Listed	Not Listed	(Morin 2013)
Vesper Sparrow	*Pooecetes gramineus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Virginia rail	*Rallus limicola*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)

Species		Status*		Reference
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO - Ontario	
Warbling Vireo	*Vireo gilvus*	Not Listed	Not Listed	(BSC *et al*., 2006)
White-breasted nuthatch	*Sitta carolinensis*	Not Listed	Not Listed	(BSC *et al*., 2006)
White-throated sparrow	*Zonotrichia albicollis*	Not Listed	Not Listed	(Morin 2013)
Willow flycatcher	*Empidonax trailii*	Not Listed	Not Listed	(Morin 2013)
Wilson's Snipe	*Gallinago delicata*	Not Listed	Not Listed	(BSC *et al*., 2006)
Wilson's Warbler	*Cardellina pusilla*	Not Listed	Not Listed	(BSC *et al*., 2006)
Winter wren	*Troglodytes hiemalis*	Not Listed	Not Listed	(BSC *et al*., 2006)
Wood duck	*Aix sponsa*	Not Listed	Not Listed	(Haxton and Chubbuck 2002)
Wood thrush	*Hylocichia mustelina*	THR	SC	(Morin and Carr 2015)
Yellow-bellied sapsucker	*Sphyrapicus varius*	Not Listed	Not Listed	(Morin 2013)
Yellow-billed Cuckoo	*Coccyzus americanus*	Not Listed	Not Listed	(BSC *et al*., 2006)
Yellow-rumped warbler	*Setophaga coronata*	Not Listed	Not Listed	(BSC *et al*., 2006)
Yellow warbler	*Setophaga petechia*	Not Listed	Not Listed	(BSC *et al*., 2006)

Notes:

* Status: **NAR**: Not at Risk; **END**: Endangered; **THR**: Threatened; **SC**: Special Concern.

8.6.4.2 Mammals

Table 8.6-5 provides a list of mammal species present or potentially present in the Site, Local, and Regional Study Areas, based on reference documents. The list was cross checked against the *SARA* and SARO registries. Although *SARA* was originally legislated in 2002, the species list is updated frequently based on recommendations from COSEWIC.

The following list of mammalian species is derived from the SARs listed in the NPD Biodiversity Report (Morin and Carr 2015), as well as a list of mammals that are found in the Ottawa River drainage basin (Quebec-Labrador Foundation 2005). It therefore may include species that are found beyond the Regional Study Area of NPD.

Eastern Wolf (*Canis lupus lycaon*)

Table 8.6-5 Mammal Species Present or Potentially Present in the Site, Local, and Regional Study Areas. *SARA* and SARO Queries Conducted in January 2023

Species		Status*		References
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO - Ontario	
Beaver	*Castor canadensis*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Big brown bat	*Eptesicus fuscus*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Black bear	*Ursus americanus*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Coyote	*Canis latrans*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Deer mouse	*Peromyscus maniculatus*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Eastern chipmunk	*Tamias striatus*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Eastern cottontail	*Sylvilagus floridanus*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Eastern cougar	*Felis concolor couguar*	Not Listed	END	(Morin and Carr 2015)
Eastern small-footed myotis	*Myotis leibii*	Not Listed	END	(Morin and Carr 2015)
Eastern wolf	*Canis lupus lycaon*	THR	THR	(Morin and Carr 2015)
Eastern gray squirrel	*Sciurus carolinensis*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Ermine	*Mustela erminea*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Hoary bat	*Lasiurus cinereus*	Not Listed (END)	Not Listed	(Quebec-Labrador Foundation 2005)
Little brown myotis	*Myotis lucifugus*	END	END	(Morin and Carr 2015)
Lynx	*Lynx canadensis*	NAR	Not Listed	(Quebec-Labrador Foundation 2005)
Marten	*Martes americana*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Meadow vole	*Microtus pennsylvanicus*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Mink	*Neovison vison*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Moose	*Alces alces*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Muskrat	*Ondatra zibethicus*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Northern flying squirrel	*Glaucomys sabrinus*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Northern myotis	*Myotis septentrionalis*	END	END	(Morin and Carr 2015)

Species		Status*		References
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO - Ontario	
Northern water shrew	*Sorex palustris*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Raccoon	*Procyon lotor*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Porcupine	*Erethizon dorsatum*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Red squirrel	*Sciurus vulgaris*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Red fox	*Vulpes vulpes*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Short-tailed shrew	*Blarina brevicauda*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Silver-haired bat	*Lasionycteris noctivagans*	Not Listed (END)	Not Listed	Observed in 2019, Unpublished
Snowshoe hare	*Lepus americanus*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Southern flying squirrel	*Glaucomys volans*	Not Listed (Non-active)	Not Listed	(Quebec-Labrador Foundation 2005)
Tri-colored bat	*Perimyotis subflavus*	END	END	(Morin and Carr 2015)
Striped skunk	*Mephitis mephitis*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
White-footed mouse	*Peromyscus leucopus*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
White-tailed deer	*Odocoileus virginianus*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)
Woodchuck	*Marmota monax*	Not Listed	Not Listed	(Quebec-Labrador Foundation 2005)

Notes:

* Status: **NAR**: Not at Risk; **END**: Endangered; **THR**: Threatened; **SC**: Special Concern.

Moose, bear, hare, groundhog, rabbit, deer, fox, coyote, beaver, and eastern wolf are occasionally observed at the NPD site.

In the summer of 2015, a passive acoustic bat survey was conducted outside in the proximity of the NPDWF to collect baseline data as part of Environmental Protection (EnvP) routine biodiversity monitoring program (Murrant 2016). The acoustic survey detected two SAR bats, the little brown myotis (*Myotis lucifugus*) and the northern myotis (*Myotis septentrionalis*). A visual and thermal imaging survey was also conducted inside the NPDWF in the summer of 2015. During the thermal imaging survey, no bats or evidence of bat activity (e.g., guano etc.) was found, except for one bat hibernating inside a pipe which led down to the location of the former pump house adjacent to the Ottawa River (Figure 8.6-4). Due to the length and inaccessibility of the pipe, it could not be determined what type of bat was present or if there were any more

bats hibernating further down the pipe. A follow-up survey conducted in May 2018 using a passive recorder confirmed that this bat was a big brown bat (*Eptesicus fuscus*), which is not a SAR (Morin 2020).

The following description of bat surveys from November 2017 to January 2020 is summarized from Morin (2020).

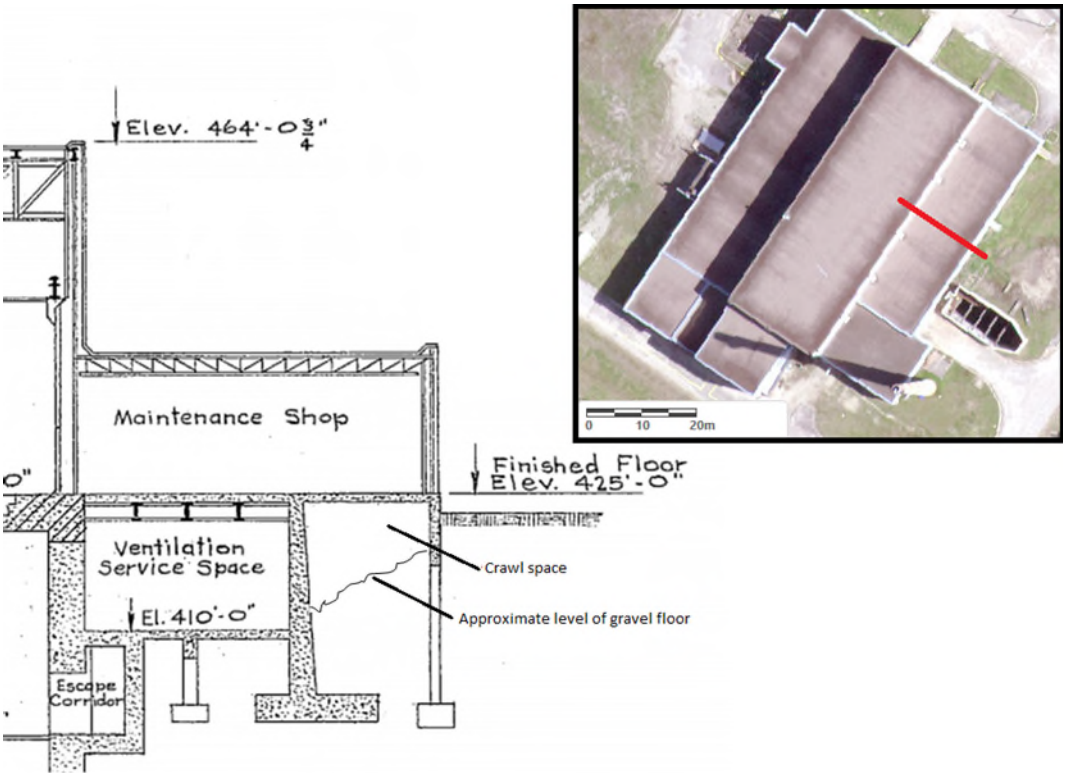
In November of 2017, a follow-up visual search was undertaken using a flashlight and thermal camera inside the non-nuclear side of the facility. No bats were seen during this survey.

In February and March 2018, the nuclear side of the facility was searched. Passive recorders were placed in a crawl space beneath the maintenance shop (Figure 8.6-4, Figure 8.6-5 and Figure 8.6-6) to identify eight bats that were seen hibernating in this area. The bats were identified as big brown bats. Follow-up entries in April and May 2018 also detected big brown bats through passive recorders. An entry point where large piping penetrated the external wall of the facility was sealed in an attempt to exclude bats from entering the crawl space for hibernation in the winter.

Figure 8.6-4 Aerial View of the NPDWF Showing Areas of Noted Bat Activity

Figure 8.6-5 Photo Taken Inside the Crawl Space

Figure 8.6-6 Cross-section through Crawl Space



Notes:

Red line in the inset photo is approximate location of cross section.
The maintenance shop floor is standard concrete supported on one side by a pillar/cross beam arrangement, and on the other side by the main building foundation.

Monitoring continued in March 2019 using passive recorders to assess whether all entry points identified were successfully sealed. Calls recorded on the passive recorders matched the big brown bat patterns despite showing distortion from the echo of the calls in the crawl space. Nevertheless, recordings showed that bats were still able to access the NPDWF for the hibernation period and that entry points were still available.

Bat calls decreased during the months of April and May 2019, indicating that bats had left the NPDWF after hibernation as expected, but calls significantly increased during the month of June 2019, suggesting that other bats entered the crawl space for the roosting period (summer months).

Crawl space entries were made in July, August, and September of 2019 and no bats were detected visually. It was suspected that the roosting bats were using a different area of the crawl space not accessible to staff. Passive recorders were deployed in the inaccessible area of the crawl space and bat calls were recorded and analyzed. Due to distortion, the calls were difficult to identify. The acoustic files were sent to subject matter experts at Trent University and the bats calls were identified as belonging to big brown bats.

In July 2019, exit surveys were conducted at NPD in order to try to visually detect bats exiting the building at sunset. The equipment used in this survey were an ultrasound converter, thermal camera and several EchoTouch Meters which provide real-time bat call analysis. Two bats were seen flying in the pressure relief pit identified by the EchoTouch Meter as little brown myotis. The pressure relief pit (shown on Figure 8.6-4) is an area that protrudes from the eastern side of the facility and is open to the outside from the top, with concrete walls forming the sides. Both exit surveys confirm that no significant number of bats exited the NPDWF from suspected entry/exit points.

In 2019 September, lighting was installed throughout the crawl space to deter bats from entering the facility during the winter months. To determine the efficacy of the lighting as a deterrent, the crawl space was accessed in December 2019 and January 2020 to determine if bats were present.

In the December 2019 entry, four bats were seen hibernating within the crawl space, which means that the lighting did not work as a deterrent. Pictures of the four individuals were taken and sent to the Trent University subject matter expert for identification. Three out of the four bats could not be identified without measurement of the forearms and a picture of the tragus (feature of the ear). One bat showed distinct characteristics of a tri-colored bat (*Perimyotis subflavus*) (a SAR) with a rounded body shape and corresponding facial traits.

In the January 2020 entry, thermal images were collected and provided accurate measures of the temperature of the bats and the matrix they were clinging to. Four individuals were located at this time and pictures of the body, face, and tragus were taken. Measurements of the body length of the bat as well as the forearms were also taken with a caliper without touching the bats. The information was relayed to Trent University for identification. Based on the forearm measurements, two individuals would qualify as little brown myotis and the other two as big brown bat (Figure 8.6-7). None of the four individuals had a body shape corresponding to a tri-colored bat. The individual visually identified as a tri-colored bat during the December 2019 entry may have moved to another location within the space.

These surveys provided sufficient information to conclude that a small number of bats are using the NPDWF in the crawl space during the summer months as a roosting area and during the winter months as an overwintering site. Two SAR bats have been identified: little brown myotis and tri-colored bat.

Two exit surveys were undertaken in the July of 2020. These surveys consisted of evening monitoring around the exterior of the NPD facility using equipment (thermal cameras, Echo Meter Touch detectors and heterodyne bat detectors) to enable bat species detection identification. The exit surveys in 2020 identified a small number of bats (big brown bats) in the steam relief pit. No bats were observed exiting other parts of the facility.

In 2021, CNL completed work to seal the crawl space under a permit (SARA-OR-21-0588) issued by ECCC. This work involved the installation of a one-way door was successful at evicting the bats from the crawl space and preventing re-entry. This was confirmed through weekly inspections (visual and photographic searches and audio recordings) following the exclusion work. These activities are documented in a letter from CNL to ECCC (CNL 2021c).

The success of the exclusion work was also confirmed via crawl space inspections (completed in winter 2021/22) and exit surveys (completed during the summers of 2021 and 2022), and no bats were seen or detected. Therefore, the crawl space has not been accessible to bats since 2021, and is no longer consider habitat or residence. Crawl space inspections are conducted annually, most recently in February 2024.

Through the exclusion work and follow-up surveys, CNL is confident that the NPDWF is no longer being used by bats.

Figure 8.6-7 Big Brown Bat Hibernating in the Crawl Space (photo taken Dec 2019)

8.6.4.3 Insects

In addition to the wildlife species listed above, some characterization of the insects within the Regional Study Area has been carried out. Table 8.6-6 lists the insect SARs that were identified in the NPD Biodiversity Report (Morin and Carr 2015). Although *SARA* was originally legislated in 2002, the species list is updated frequently based on recommendations from COSEWIC. It is not a comprehensive list of all of the insects that are present or potentially present at the NPD site.

Monarch Butterfly (*Danaus plexippus)*

Monarch butterflies have been observed on the site, including chrysalis observed on milkweed plants, primarily in cleared areas such as former parking lots and building foundations. Several varieties of wildflowers are available as nectar sources on the site, including goldenrods (*Solidago* spp.), asters (*Aster* spp.) and milkweeds (*Asclepias* spp.). (Morin and Carr 2015)

Table 8.6-6 Insect Species at Risk Present or Potentially Present in the Site, Local, and Regional Study Areas. *SARA* and SARO Queries Conducted in February 2020

Species		Status*		Reference
Common Name	Scientific Name	*SARA*, 2002 (COSEWIC if different)	SARO - Ontario	
INSECTS				
Monarch butterfly	*Danaus plexippus*	END	SC	(Morin and Carr 2015)
Northern barrens tiger beetle	*Cicidela patruela*	END	END	(Morin and Carr 2015)
Rusty patched bumble bee	*Bombus affinis*	END	END	(Morin and Carr 2015)
* Status: **END**: Endangered; **SC**: Special Concern.				

8.6.5 Regional Provincial Parks and Protected Areas

8.6.5.1 Site/Local Study Area

Within the Site or Local Study Areas, there are no federal or provincially-protected conservation areas, parks, nature reserves, bird sanctuaries or wildlife management areas. There are also no known wildlife corridors within the Site or Local Study Areas. The existing structures and fences on the site are not considered barriers to the overall movement of wildlife across the site, as they are located in already disturbed areas, surrounded by more accessible spaces.

8.6.5.2 Regional Study Area

There are seven provincial parks and protected areas located within the Regional Study Area, which is shown in Figure 3.1-2 above:

- Ottawa River Provincial Park (Waterway Class) – situated discontinuously along the southern shore of the Ottawa River upstream of NPD, the park contains numerous recreational and scenic values (MNRF 2006a).
- Driftwood Provincial Park (Recreation Class) – situated roughly 15 km upstream of NPD, the park contains glacial remnants such as sand, gravel, diabase dike, ice-push ridge, and well-pronounced esker (MNRF 2006b).
- Grant's Creek Provincial Park (Waterway Class) – Grant Creek Provincial Park connects Algonquin Park and the Ottawa River roughly 20 km upstream of NPD. This waterway contains an Algonquin Park canoe route and Grant's Creek Marsh, a provincially significant wetland (MNRF 2009).
- Algonquin Provincial Park (Natural Environment Class) – situated southwest of NPD, it is a large, biologically diverse park which protects a variety of natural, cultural and recreational features and values (MNRF 2006c).
- Algonquin Provincial Park Headwaters – Pembroke Enhanced Management Area (Natural Heritage Class) is located roughly 22 km southeast just outside of Algonquin Provincial Park. This area serves to protect the headwaters of Algonquin Park watercourses by placing conditions on resource development (MNRF 2006d).
- There are a number of fish sanctuaries in Algonquin Provincial Park within the Regional Study Area. These fish sanctuaries prohibit fishing from December 1 until the fourth Saturday of April annually (MNRF 2016b).
- Reilly Bird Nature Reserve – a 27.5-hectare reserve located 3 km downstream of NPD on Meilleurs Bay, an inlet of the Ottawa River. The reserve protects almost half of the shoreline of the bay, which provides habitat for turtles and spawning fish (ON 2016b).
- Bald Eagle Ecological Reserve (french: Réserve écologique de l'Aigle-à-Tête-Blanche) - located on the banks of the Ottawa River on the Quebec side across and upstream of the NPD site. This reserve is in place to protect the wintering area used by the bald eagle. It occupies an area of 261 hectares.
- James-Little Ecological Reserve - located on the banks of the Ottawa River on the Quebec side, approximately three kilometers downstream of the NPD site. The James-Little ecological reserve occupies an area of 211 hectares. The reserve is in place to protect the sugar maple and yellow birch ecosystem.
- Biological refuge - located on the banks of the Ottawa River on the Quebec side, approximately four kilometers downstream of the NPD site. This biological refuge is 100 hectares in size, and is a small forest area removed from forest management activities in which habitats and species are permanently protected.

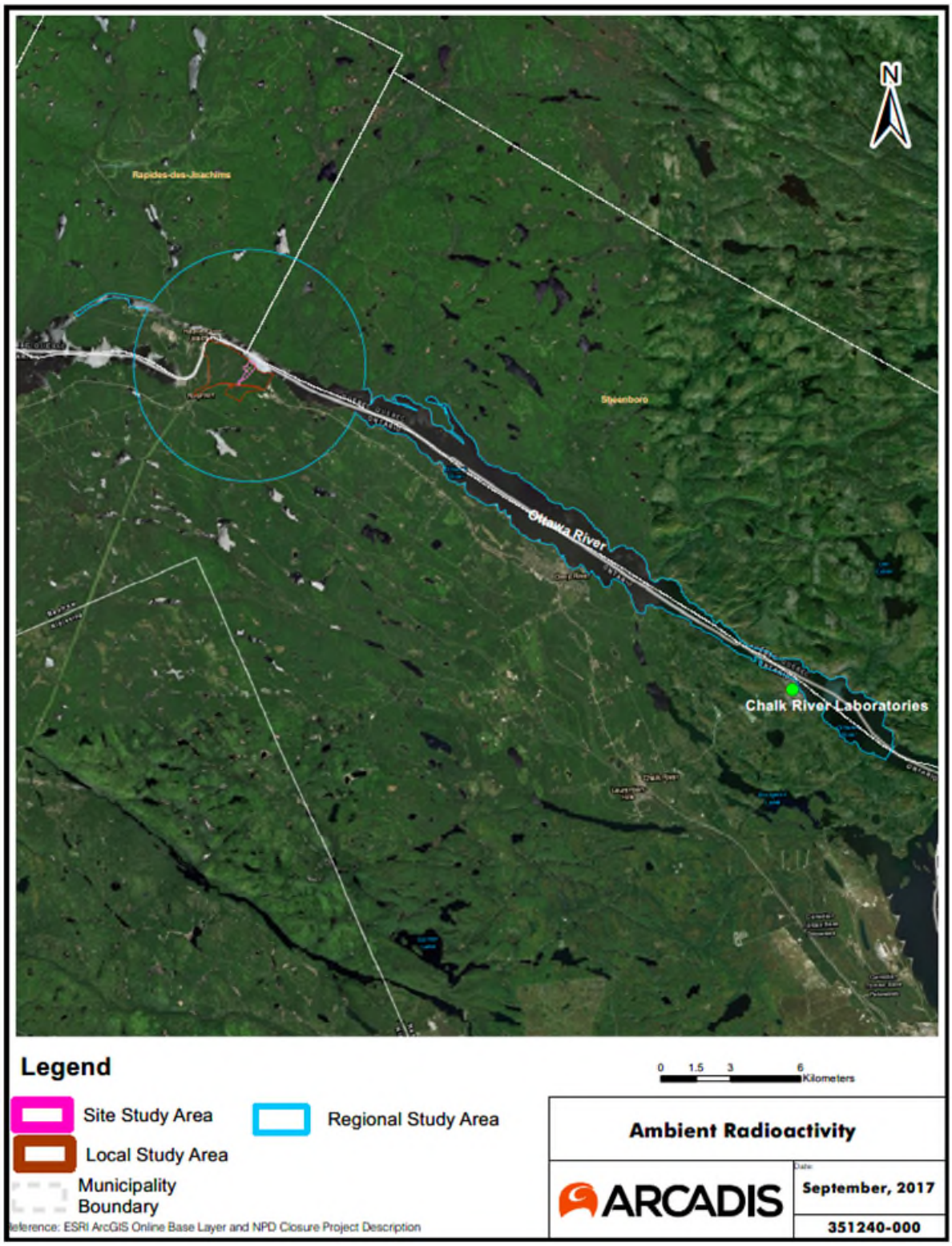
In addition to the above protected areas in the Regional Study Area, there are ZECs (zone d'exploitation controlée, controlled harvesting zone) located across the Ottawa River in Quebec. These are discussed further as part of the socio-economic environment (Section 8.10 below).

8.7 Ambient Radioactivity

8.7.1 Spatial Boundaries

The Site and Local Study Areas for ambient radioactivity consist of the lands delineated in Figure 5.2-1 and Figure 5.2-2 respectively. This includes the two closed landfills on the NPD site. Although ambient radioactivity is not expected to extend beyond the NPD site, a Regional Study Area has been defined, as illustrated in Figure 8.7-1 below; it incorporates both the atmospheric and surface water environment Regional Study Areas. Regional baseline characterization information is also provided where available.

Figure 8.7-1 Ambient Radioactivity Regional Study Area



8.7.2 Site/Local Study Area

CNL monitors ambient gamma radiation dose rates in air at thermoluminescent dosimeter (TLD) stations around the NPD site. Table 8.7-1 gives the locations of the TLDs in the Site and Local Study Areas, and Table 8.7-2 shows the ambient dose rates for these stations.

Figure 8.7-2 shows the locations and historical trends of ambient gamma dose rate, averaged yearly, for the sampling locations in the Site and Local Study Areas, as well as one sampling location in the Regional Study Area.

Table 8.7-1 Location of the TLD Stations Located Near NPD Site (Source: Wills 2013).

Location	EMB Code	NPD Code	Easting (m)	Northing (m)
NPD at Highway 17	T29	T2	294243	5117291
NPD Main Site (parking lot)	T30	T3	294859	5117896
Point Stewart, NPD, near Ottawa River	T31	T4	295603	5117594

T4 lies along the prevailing wind directions from the NPD site. The ambient radiation fields at T2 (the junction of Highway 17 and the NPD access road) are consistently slightly lower than the other location in the Local Study Area; this is attributed to the wetland conditions around the station, with the water providing some shielding from the soil's natural radiation field (Wills 2013).

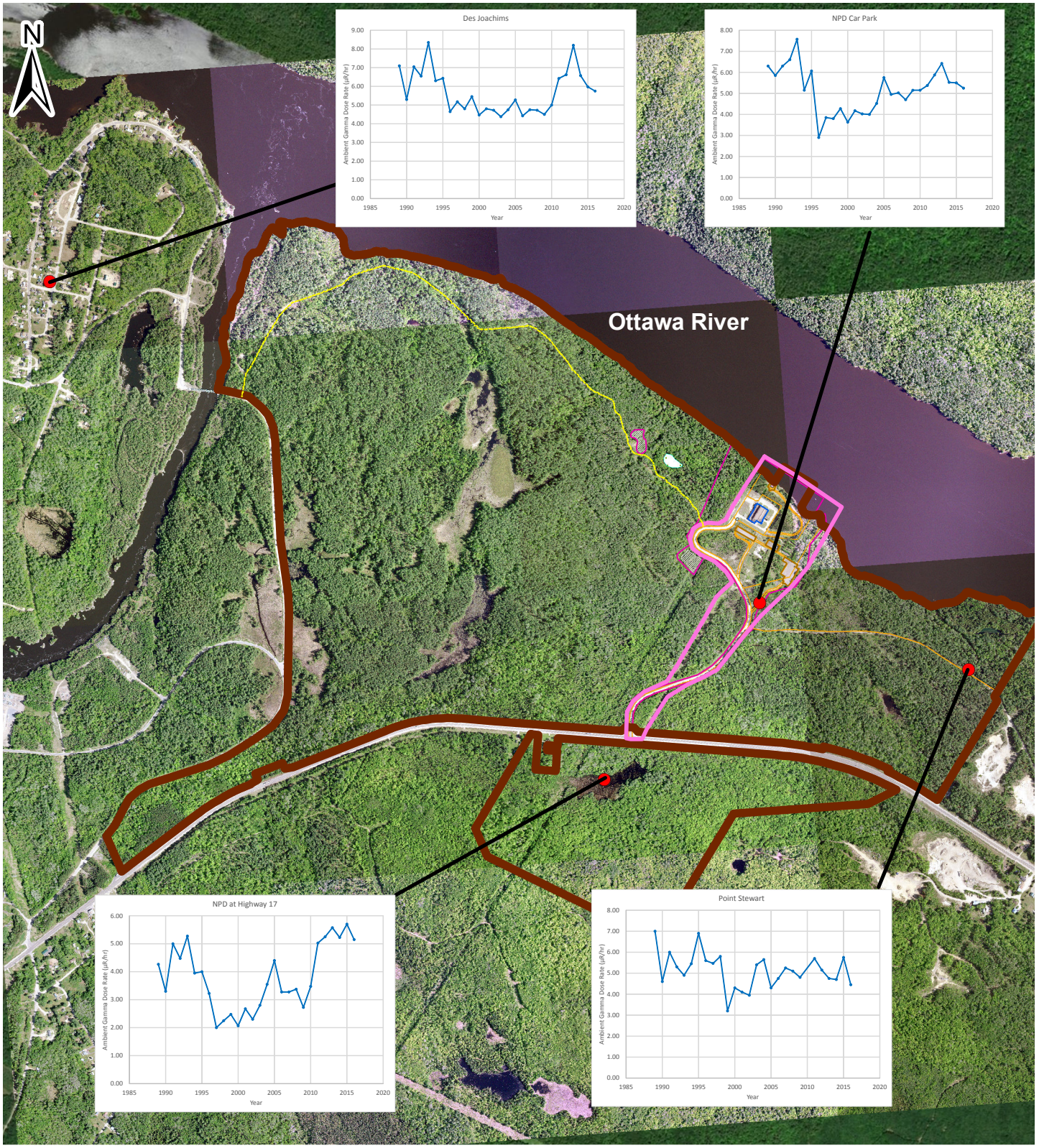
Table 8.7-2 Ambient Gamma Radiation in Air at TLD Stations: Site and Local Study Areas (Source: Wills 2013). Locations are Illustrated in Figure 8.7-2.

Year	Quarter	NPD at Highway 17 (μR/hr)	NPD Car Park (μR/hr)	Point Stewart (μR/hr)
1972 - 1987	Average over the years 1972-1987	6.9	NA	9.3
1988	4	3.0	5.6	NA
1989	1	4.9	6.9	NA
1989	2	2.4	4.3	7.0
1989	4	5.5	7.7	NA
1990	1	4.3	3.8	NA
1990	2	4.3	7.2	4.6
1990	3	1.6	6.0	NA
1990	4	3.0	6.4	NA
1991	1	6.0	6.0	NA
1991	2	5.0	6.5	NA
1991	3	4.7	6.4	6.0
1991	4	4.3	6.3	NA
1992	1	4.3	5.6	NA
1992	2	4.4	7.3	5.3
1992	3	4.3	6.7	NA
1992	4	4.9	6.8	NA
1993	1	4.5	7.2	NA
1993	2	3.3	5.8	4.9
1993	3	5.0	6.6	NA

Year	Quarter	NPD at Highway 17 (µR/hr)	NPD Car Park (µR/hr)	Point Stewart (µR/hr)
1993	4	8.3	10.7	NA
1994	1	3.4	4.3	NA
1994	2	3.9	5.4	5.7
1994	3	5.2	5.7	5.2
1994	4	3.3	5.2	NA
1995	1	3.7	5.9	NA
1995	2	3.1	5.2	5.0
1995	3	5.2	7.1	8.8
1996	1	2.4	2.9	NA
1996	2	2.8	NA	2.9
1996	3	4.4	NA	8.3
1996	4	3.3	NA	NA
1997	1	0.3	2.5	5.2
1997	2	2.8	4.9	5.2
1997	3	2.1	3.7	6.0
1997	4	2.8	4.3	NA
1998	1	0.4	1.0	NA
1998	2	3.6	5.6	5.9
1998	3	1.9	3.7	5.7
1998	4	3.1	4.9	NA
1999	1	0.0	2.1	NA
1999	2	3.3	5.1	1.8
1999	3	2.6	4.2	4.6
1999	4	4.0	5.7	NA
2000	1	0.1	1.4	NA
2000	2	3.9	5.7	4.9
2000	3	2.2	3.8	3.7
2001	1	1.0	1.6	NA
2001	2	3.6	5.6	1.8
2001	3	2.1	3.7	6.4
2001	4	4.0	5.8	NA
2002	1	-0.7	0.5	NA
2002	2	3.4	5.3	1.2
2002	3	2.9	4.7	6.7
2002	4	3.6	5.6	NA
2003	1	0.2	1.5	NA
2003	2	3.6	5.5	4.4
2003	3	4.4	4.5	6.4
2003	4	3.0	4.5	NA
2004	1	2.1	2.1	NA
2004	2	4.1	6.1	4.6
2004	3	4.5	5.2	6.7
2004	4	3.5	4.7	NA
2005	1	2.7	1.2	NA
2005	2	3.7	6.3	3.2
2005	3	4.6	4.1	5.4
2005	4	6.6	11.4	NA

Year	Quarter	NPD at Highway 17 (μR/hr)	NPD Car Park (μR/hr)	Point Stewart (μR/hr)
2006	1	1.5	2.8	NA
2006	2	3.8	5.7	4.5
2006	3	4.1	5.3	5.0
2006	4	3.7	6.0	NA
2007	1	2.9	4.2	NA
2007	2	3.2	5.5	4.4
2007	3	3.6	5.2	6.1
2007	4	3.4	5.2	NA
2008	1	2.3	2.7	NA
2008	2	3.8	5.6	4.4
2008	3	4.0	5.6	5.8
2008	4	3.4	4.9	NA
2009	1	1.8	3.9	NA
2009	2	3.2	5.3	3.7
2009	3	2.9	5.5	5.9
2009	4	3.0	5.9	NA
2010	1	0.4	4.6	NA
2010	2	1.4	3.6	NA
2010	3	5.7	6.6	NA
2010	4	6.4	5.8	NA
2011	1	1.7	2.6	NA
2011	2	6.7	6.3	5.6
2011	3	5.4	6.3	5.8
2011	4	6.3	6.3	NA
2012	1	3.2	4.4	NA
2012	2	6.1	6.3	4.5
2012	3	5.7	6.9	5.8
2012	4	6.0	5.9	NA
2013	1	4.4	7.3	NA
2013	2	6.6	6.3	3.5
2013	3	5.7	6.6	6.0
2013	4	5.6	5.5	NA
2014	1	3.0	4.3	NA
2014	2	6.0	6.1	4.2
2014	3	5.1	5.7	5.2
2014	4	6.8	6.0	NA
2015	1	3.1	3.9	NA
2015	2	7.2	6.0	6.2
2015	3	5.9	5.6	5.3
2015	4	6.6	6.5	NA
2016	1	3.7	4.5	NA
2016	2	5.7	5.5	4.5
2016	3	5.7	5.9	4.4
2016	4	5.5	5.1	NA

Notes:
NA – Not Applicable (i.e., no data).
In the above table, R is for Roentgens for which the conversion to SI unit is 1 R = 0.0088 Gray.



Legend

- Guardhouse
- Pumphouse
- Parking
- Ambient Gamma Monitoring Locations
- Wetland
- Road
- Trail
- Landfill
- Local Study Area
- Site Study Area
- NPDWF

0 150 300 600 Meters

Ambient Gamma Dose Rate (µR/hr)

ARCADIS

Date: **September, 2017**

351240-000

Reference: ESRI ArcGIS Online Base Layer and NPD Closure Project Description

As seen in the figure above, since the NPDNGS was permanently shut down in 1987, there have been no anomalies in data on ambient radiation fields provided by the TLDs that are located near the NPD site.

Ambient radiation fields were lowest during the first quarters, when snow cover provides partial shielding of radiation from the ground. There was a slight decrease in recorded ambient radiation fields between the start of the post-shutdown monitoring period and 1997. The radiation fields are characteristic of those observed in regions with similar surface soils that are unaffected by nuclear facilities (Wills 2013). The ambient radiation fields are comparable to the radiation field in Ottawa of 5.7 µR/hr arising from natural cosmic and terrestrial sources (CNSC 2013a).

More recently, gamma radiation surface scans were undertaken as part of the Balance of Site Characterization at the NPD site (McVeigh 2018b). This involved gamma scans in four different CUs: Class 1, Class 2, Class 3, and Background Reference Areas (BRA). These areas are the same as the CUs for soil quality, and are shown in Figure 8.5-13 for the NPD site.

BRA gamma surface scan results were used to represent the background condition. A 95% coverage upper tolerance limit (UTL) at 95% confidence was calculated for the BRA, and was used as a reasonable upper limit of what would be likely to observe in background. An evaluation of gamma scan results in Class 2 and Class 3 CUs demonstrated that elevated scans were attributable to naturally occurring radioactive material associated with local geology (e.g., rocky outcroppings). However, the gamma scans, coupled with soil sample testing in Class 1 CUs (areas associated with the facility and licensed area), identified four areas of discrete contamination associated with the facility. The results of these gamma scans are illustrated within Section 3 of McVeigh (2018b).

8.7.3 Regional Study Area

As described in Wills (2013), ambient gamma dose rates are also monitored beyond the NPD site. Table 8.7-3 gives the location of the TLD in the Regional Study Area. This TLD, T1, lies along the prevailing wind directions from the NPD site. T1 was moved to its current location at some time between 1994 and 1996, from a location in Des Joachims about half a kilometre away. Table 8.7-4 presents the measured ambient dose rates for this location.

The location and historical trends for the ambient gamma dose rates at this location is shown above in Figure 8.7-2. A maximum average monthly dose rate of 10.9 µR/h was seen in the fourth quarter of 1993.

Ambient tritium levels in the Regional Study Area are discussed in Section 8.2.4.2.

Table 8.7-3 Location of the TLD Station Located Near NPD (Source: (Wills 2013))

Location	EMB Code	NPD Code	Easting (m)	Northing (m)
Des Joachims (Fraser's)	T28	T1	292354	5119264

Table 8.7-4 Quarterly Ambient Gamma Radiation in Air at the Des Joachims TLD Station (Source: (Wills 2013))

Year	Quarter 1 (μR/hr)	Quarter 2 (μR/hr)	Quarter 3 (μR/hr)	Quarter 4 (μR/hr)	Average (μR/hr)
1972 - 1987	Average over the years 1972-1987				9.3
1988				6.5	6.5
1989	7.8	5.8		7.7	7.1
1990	3.4	6.4	4.6	6.8	5.3
1991	5.5	7.4	7.2	8.1	7.1
1992	6.0	7.4	5.7	7.1	6.6
1993	8.0	7.4	7.1	10.9	8.4
1994	5.8	6.7	6.7	6.0	6.3
1995	5.5	7.0	6.8	-	6.4
1996	3.1	6.2	NA	NA	4.7
1997	4.2	6.0	4.9	5.6	5.2
1998	3.3	6.3	3.9	5.7	4.8
1999	4.6	6.0	5.1	6.1	5.5
2000	3.3	6.0	4.1	-	4.5
2001	2.7	5.6	4.1	6.8	4.8
2002	2.8	6.2	4.7	5.2	4.7
2003	3.5	6.3	5.1	2.6	4.4
2004	2.6	5.8	5.9	4.7	4.8
2005	2.1	5.2	5.1	8.7	5.3
2006	3.3	4.6	5.5	4.3	4.4
2007	4.8	5.0	5.1	4.1	4.8
2008	4.1	4.7	5.5	4.6	4.7
2009	3.2	4.7	5.2	4.9	4.5
2010	2.6	3.8	6.2	7.4	5.0
2011	4.2	8.0	6.1	7.4	6.4
2012	4.4	7.5	7.5	7.1	6.6
2013	9.5	8.9	7.1	7.3	8.2
2014	4.7	7.5	6.6	7.5	6.6
2015	4.3	5.0	7.0	7.6	6.0
2016	4.3	6.2	6.0	6.5	5.8

Notes:

NA – Not Applicable (i.e., no data).

In the above table, R is for Roentgens for which the conversion to SI unit is 1 R = 0.0088 Gray.

8.8 Human Health

8.8.1 Spatial Boundaries

The Site and Local Study Areas for human health are the same as those delineated in Figure 5.2-1 and Figure 5.2-2 respectively. As this area is all owned by the Federal Government, there are no residents present. Workers are, and will continue to be, present in this area for the duration of the decommissioning, and as such the Site/Local Study Areas will describe baseline worker health.

The Regional Study Area for this assessment consists of the Renfrew County and District and Région de l'Outaouais Health Units, illustrated in Figure 8.8-1 and Figure 8.8-2. Renfrew County and District has a land area of 14,980 km^2 and a population of approximately 103,000. The Région de l'Outaouais has a land area of 30,760 km^2 and a population of approximately 369,000.

Figure 8.8-1 Southern Ontario Health Regions - Renfrew County and District Health Unit is #3557, near the top of the figure (Source: Statistics Canada 2013)

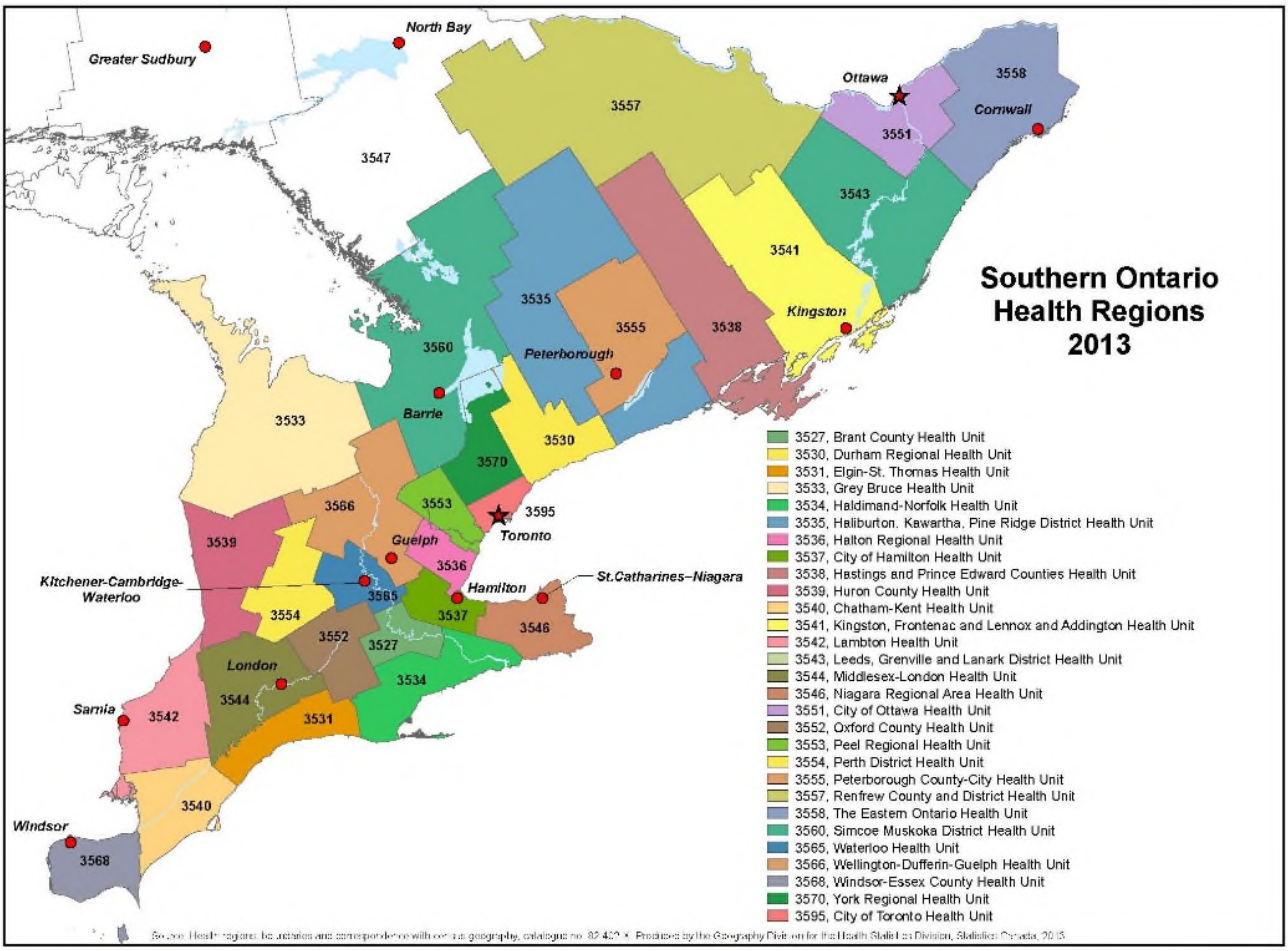
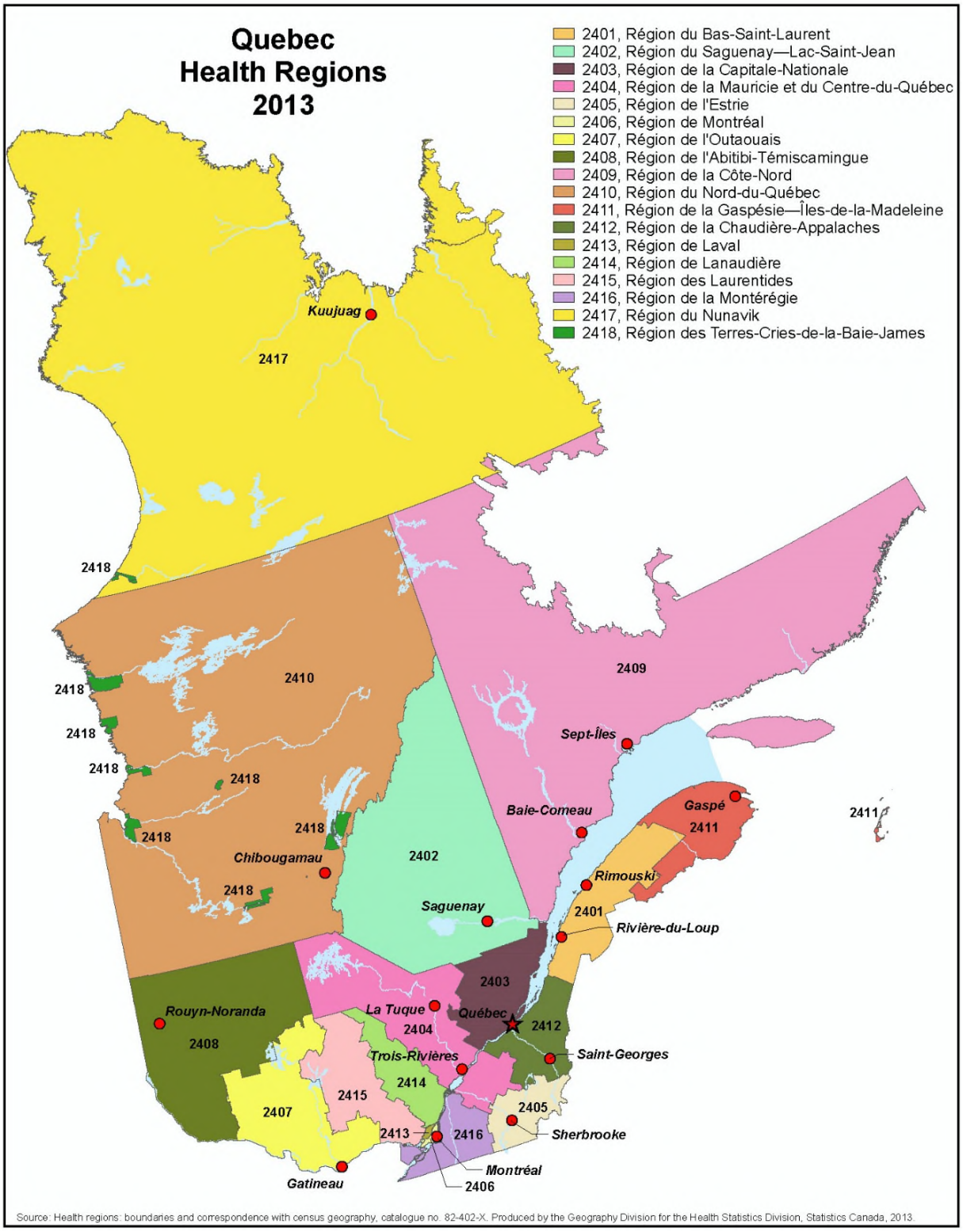


Figure 8.8-2 Quebec Health Regions – Région de l'Outaouais is #2407 (Source: Statistics Canada 2013)



8.8.2 Site/Local Study Area

As discussed above, there are not residents present within the Site/Local Study Area, as it is owned by the Federal Government. The only people present in the Site/Local Study Area are workers and visitors. Workers are assumed to live within the Regional Study Area. As such, the results presented for the Regional Study Area are also applicable to the workers at the site. In addition to the information presented for the Regional Study Area, worker health information is also presented here.

Table 8.8-1 shows the measured whole body and collective doses for Nuclear Energy Worker (NEW) and Non-NEW workers (both CNL employees and contractors) and visitors in 2021 (Johnson 2022b).

Table 8.8-1 Whole Body Effective Dose and Collective Dose for Workers and Visitors at NPD for 2021 (Johnson 2022b)

Monitored Person Type		Total # of Persons	Dose Range (mSv)						Individual Dose (mSv)			Collective Dose (person-mSv)
			0	0.01 – 0.5	0.51 – 1.00	5.01 – 10.00	10.01 – 20.00	> 20.00				
			Number of Persons						Max	Avg [a]	Avg All [b]	
NEW	Employee	139	139	1	-	-	-	-	0.01	0	0	0.01
	Contractor	26	26	-	-	-	-	-	0	0	0	0
	Visitor [c]	24	24	-	-	-	-	-	0	0	0	0
Non-NEW	Contractor	0	0	-	-	-	-	-	-	-	-	-
	Visitor	0	0	-	-	-	-	-	-	-	-	-
Totals		179	178	1	0	0	0	0	0.01	0	0	0.01

Notes:

a Average of all measured doses that exclude the zero dose value, rounded to two decimal places.

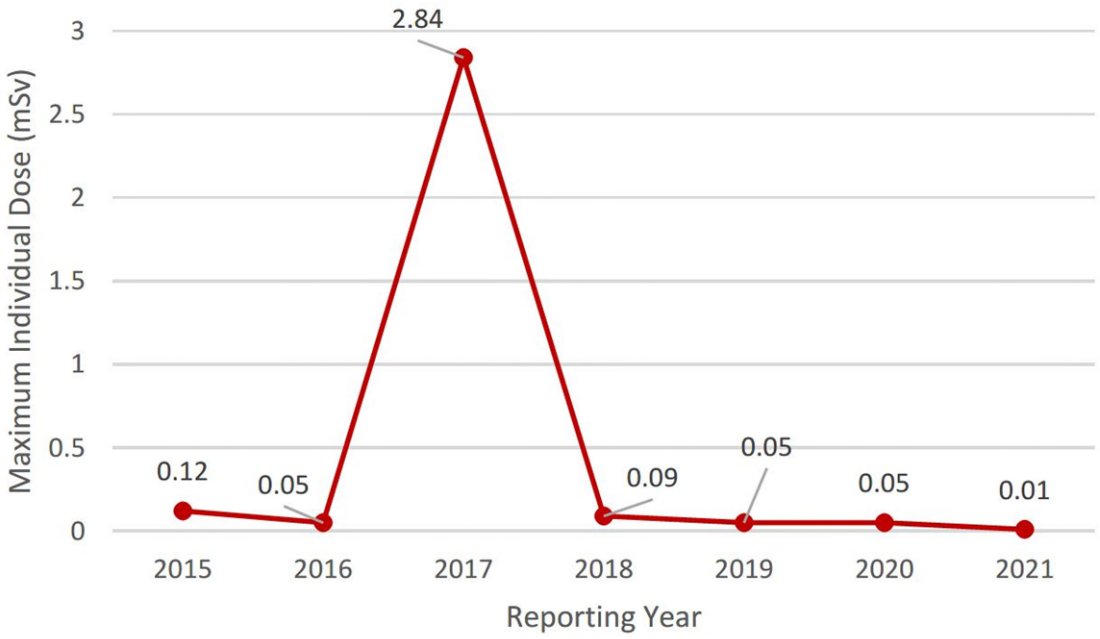
b Average of all measured doses that include the zero dose value, rounded to two decimal places.

c Visitors that have been identified for a particular activity on site, but incorrectly remained as NEWs for that activity because of past activities they performed on site where the NEW status was appropriate.

As discussed in Johnson (2022b), during 2021, no worker at NPDWF received a dose in excess of any of the respective radiation dose limits for radiation workers, as defined in the CNSC Radiation Protection Regulations. The maximum annual dose for any individual at the NPDWF in 2021 was 0.01 mSv, which is a small percentage of the applicable Action Level and regulatory limit. No extremity dose was recorded at NPDWF during 2021. This was due to the radiological conditions of the work exhibiting an extremity dose rate and expected exposure below the threshold of the capability for the Radiation Protection Program for extremity TLDs to be assigned. No tritium bioassay tests were prescribed during 2021, accounting for zero assigned tritium committed effective dose at this facility. In addition, there was zero neutron committed effective dose assignment at the facility to all personnel. No action levels were challenged during the 2021 reporting period. Anticipated dose for planned activities, as well as individual dose management, was managed effectively, using dose control points consistent with CNL's ALARA program.

Figure 8.8-3 shows the maximum individual effective dose at the NPDWF, from 2015 to 2021 (Johnson 2022b).

Figure 8.8-3 NPDWF Maximum Individual Effective Dose (Source: Johnson 2022b)



Maximum individual effective dose and collective effective dose within the NPDWF facility have consistently maintained low trends from 2018-2021. Dose accrual during 2017 had sharply increased as a result of planned work activities involving significant engineering assessment activities, facility characterization, and large scope hazard reduction activities. Maximum individual effective dose as well as collective effective doses for 2021 have either experienced a reduction or remained the same. These levels are consistent with those from 2014-2016, prior to SWS activities that occurred in 2017. This is an indication that dose control and ALARA practices have been managed effectively and consistently with CNL and NPDWF facility operations. (Johnson 2022b)

8.8.3 Regional Study Area

8.8.3.1 Statistics Canada Health Profiles

The Public Health Agency of Canada (PHAC), a federal agency within the Ministry of Health Portfolio, states that “any analysis of the health of the population must extend beyond an assessment of traditional health status indicators like death, disease and disability. A population health approach establishes indicators related to mental and social well-being, quality of life, life satisfaction, income, employment and working conditions, education and other factors known to influence health” (PHAC 2016). Data related to many of the above factors are collected and compiled by Statistics Canada, based on geographic health region (Statistics Canada Health Profiles 2013). The health profile data collected and compiled by Statistics Canada includes a number of characteristics. The following have been selected as the focus of the baseline health assessment:

- Well-being: includes perceived health, mental health and life stress;
- Health Conditions: including but not limited to overweight/obesity, arthritis, diabetes, mood disorder, pain or discomfort, injuries, strokes and cancer incidences;
- Health Behaviours: includes smoking, drinking, leisure-time physical activity, fruit and vegetable consumption and use of bike helmet;
- Human Function: includes participation and activity limitation, and functional health;
- Mortality and Diseases (classified under Deaths by Statistics Canada): including but not limited to infant mortality, life expectancy, deaths from cancers, circulatory diseases and respiratory diseases, suicide and premature mortality.

8.8.3.1.1 Ontario and Renfrew County

Table 8.8-2 presents the statistical data for the above characteristics for Renfrew County and District Health Unit, as well as for the province of Ontario as a whole.

Table 8.8-2 Health Characteristics Data for Renfrew County and District Health Unit and the Province of Ontario. Adapted from Statistics Canada Health Profile (2013)

	Note	Renfrew County and District Health Unit (Health Region)		Ontario (Province)		Statistically Significant Difference?
Characteristic		Population	Rate	Population	Rate	
Well-being						
Perceived health; very good or excellent (%)		89,863	56.8%	11,129,303	60.4%	-
Perceived mental health; very good or excellent (%)		89,863	67.6%	11,129,303	72.4%	-
Perceived life stress (%)		86,545	19.9%	10,671,050	22.8%	-
Health Conditions						
Overweight or obese (%)	*	102,620	56.9%	12,851,820	52.6%	+
Overweight (%)	*	102,620	34.3%	12,851,820	34.3%	~
Obese (%)	*	102,620	22.6%	12,851,820	18.3%	+
Arthritis (%)		86,545	19.9%	10,671,050	17.2%	+
Diabetes (%)		89,863	6.9%	11,129,303	6.6%	+
Asthma (%)		89,863	8.1%	11,129,303	7.9%	+
High blood pressure (%)		89,863	21.7%	11,129,303	17.6%	+
Mood disorder (%)		89,863	9.9%	11,129,303	7.6%	+
Pain or discomfort; moderate or severe (%)		89,863	16.7%	11,129,303	14.2%	+
Pain or discomfort that prevents activities (%)		89,863	16.2%	11,129,303	15.7%	+
Low birth weight (% of live births)	1	985	5.3%	135,930	6.2%	~
Chronic obstructive pulmonary disease (COPD) (%)		61,925	3.9%	7,339,020	3.8%	~
Injuries within the past 12 months causing limitation of normal activities (%)		89,863	..	11,129,303	..	Not Calculated
Injuries in the past 12 months; sought medical attention (%)		89,863	..	11,129,303	..	Not Calculated
Hospitalized stroke event rate (per 100000 population)		80,205	139	9,807,415	119	~
Hospitalized acute myocardial infarction event rate (per 100000 population)		80,205	201	9,807,415	198	~
Injury hospitalization (per 100000 population)	*	102,620	532	12,851,820	409	+

	Note	Renfrew County and District Health Unit (Health Region)		Ontario (Province)		Statistically Significant Difference?
Characteristic		Population	Rate	Population	Rate	
Cancer incidence (per 100000 population)	*	102,620	424	12,851,820	398.8	~
Colon cancer incidence (per 100000 population)	*	102,620	50.2	12,851,820	47.8	~
Lung cancer incidence (per 100000 population)	*	102,620	56.7	12,851,820	49.2	~
Breast cancer incidence (per 100000 population)	2	51,405	82.3	6,588,685	97.8	~
Prostate cancer incidence (per 100000 population)	3	51,210	126.5	6,263,140	135.7	~
Health Behaviours						
Current smoker; daily or occasional (%)		89,863	22.2%	11,129,303	19.2%	+
Current smoker; daily (%)		89,863	18.2%	11,129,303	14.4%	+
Heavy drinking (%)		89,863	19.5%	11,129,303	16.9%	+
Leisure-time physical activity; moderately active or active (%)		89,863	54.2%	11,129,303	53.8%	+
Fruit and vegetable consumption; 5 times or more per day (%)	*	102,620	37.3%	12,851,820	38.9%	-
Bike helmet use (%)		89,863	21.8%	11,129,303	36.1%	-
Participation and activity limitation; sometimes or often (%)		89,863	..	11,129,303	..	Not Calculated
Functional health; good to full (%)		89,863	..	11,129,303	..	Not Calculated
Infant mortality (per 1000 live births)	1	985	5.5	135,930	5.1	~
Life expectancy at birth (years)		N/A	81	N/A	81.5	Not Calculated
Life expectancy at age 65 (years)		N/A	20	N/A	20.3	Not Calculated
Total; all causes of death (per 100000 population)	*	102,620	599.2	12,851,820	521.8	+
All cancers; deaths (per 100000 population)	*	102,620	182	12,851,820	159.1	~
Colorectal cancer; deaths (per 100000 population)	*	102,620	22.9	12,851,820	17	~
Lung cancer; deaths (per 100000 population)	*	102,620	50	12,851,820	40.3	~
Breast cancer; deaths (per 100000 population)	*	102,620	12.5	12,851,820	12	~
Prostate cancer; deaths (per 100000 population)	*	102,620	10	12,851,820	8	~

	Note	Renfrew County and District Health Unit (Health Region)		Ontario (Province)		Statistically Significant Difference?
Characteristic		Population	Rate	Population	Rate	
Circulatory diseases; deaths (per 100000 population)	*	102,620	189.6	12,851,820	155.6	+
Ischaemic heart diseases; deaths (per 100000 population)	*	102,620	105.8	12,851,820	86.9	+
Cerebrovascular diseases; deaths (per 100000 population)	*	102,620	35.9	12,851,820	30.7	~
All other circulatory diseases; deaths (per 100000 population)	*	102,620	47.8	12,851,820	38	~
Respiratory diseases; deaths (per 100000 population)	*	102,620	42.6	12,851,820	41.3	~
Pneumonia and influenza; deaths (per 100000 population)	*	102,620	8.8	12,851,820	11.2	~
Bronchitis; emphysema and asthma; deaths (per 100000 population)	*	102,620	2.5	12,851,820	2.2	~
All other respiratory diseases; deaths (per 100000 population)	*	102,620	31.3	12,851,820	27.8	~
Unintentional injuries; deaths (per 100000 population)	*	102,620	32.6	12,851,820	23.4	~
Suicides and self-inflicted injuries; deaths (per 100000 population)	*	102,620	7.3	12,851,820	7.7	~
Human immunodeficiency virus [HIV] disease; deaths (per 100000 population)	*	102,620	x	12,851,820	0.9	Not Calculated
Premature mortality (per 100000 population)	*	102,620	254	12,851,820	239	~

Notes

. Not available for any reference period
.. Not available for a specific reference period
N/A Not applicable
E Use with caution
F Too unreliable to be published
x Suppressed to meet the confidentiality requirements of the Statistics Act
* assumed whole population
1 number of live births
2 assumes whole population (Females only)
3 assumes whole population (Males only)

Table 8.8-3 Legend for Statistically Significant Difference Assessment

Symbol	Meaning
-	Renfrew County and District Health Unit shows statistically significant lower responses than Ontario
+	Renfrew County and District Health Unit shows statistically significant higher responses than Ontario
~	No statistically significant difference between the Renfrew County and District Health Unit and Ontario
Not Calculated	Statistical significance not calculated due to lack of information

A two-sided T-test was used to compare the health characteristics between the Renfrew County and District Health Unit and Ontario based on the data obtained from Statistics Canada 2013 Health Profile, as shown in Table 8.8-2. Differences that are statistically significant at α=0.05 level were identified in the last column, with green color denoting a lower percentage in the Renfrew County and District Health Unit area and blue color denoting a higher percentage in the Renfrew County and District Health Unit area when compared to the provincial level in Ontario.

Lower percentages in perceived well-being (both health and mental health) were observed in the Renfrew County and District Health Unit when compared to the provincial percentages. Higher rates of certain health conditions were also observed in the Renfrew County and District Health Unit than in Ontario: obesity, arthritis, diabetes, asthma, high blood pressure, mood disorder, pain or discomfort and injury hospitalization. For health behaviours, percentage of smokers and drinkers are higher in the Renfrew County and District Health Unit than in Ontario. Though more physically active, the residents in the Renfrew County and District Health Unit are less likely to use bike helmet and consume less fruit and vegetable than the average residents in Ontario.

A slightly higher overall death rate was observed in the Renfrew County and District Health Unit for the year where the data was assessed. Specifically, death rates from circulatory diseases and ischaemic heart diseases in the Renfrew County and District Health Unit are slightly higher than the provincial averages.

8.8.3.1.2 Quebec and Région de l'Outaouais

Table 8.8-4 presents the statistical data for the above characteristics for Région de l'Outaouais (Health Region), as well as for the province of Quebec as a whole.

Table 8.8-4 Health Characteristics Data for Région de l'Outaouais (Health Region) and the Province of Quebec. Adapted from Statistics Canada Health Profile (2013)

	Note	Région de l'Outaouais (Health Region)		Quebec (Province)		Statistically Significant Difference?
Characteristic		Population	Rate	Population	Rate	
Well-being						
Perceived health; very good or excellent (%)		318,605	62.5%	6,895,303	59.5%	+
Perceived mental health; very good or excellent (%)		318,605	72.3%	6,895,303	74.9%	-
Perceived life stress (%)		306,005	30.3%	6,644,380	27.3%	+
Health Conditions						
Overweight or obese (%)	*	369,170	54.2%	7,903,000	50.5%	+
Overweight (%)	*	369,170	35.3%	7,903,000	33.4%	+
Obese (%)	*	369,170	18.9%	7,903,000	17.1%	+
Arthritis (%)		306,005	16.1%	6,644,380	13.7%	+
Diabetes (%)		318,605	5.8%	6,895,303	6.2%	-
Asthma (%)		318,605	13.2%	6,895,303	8.9%	+
High blood pressure (%)		318,605	16.7%	6,895,303	17.2%	-
Mood disorder (%)		318,605	9.9%	6,895,303	5.0%	+
Pain or discomfort; moderate or severe (%)		318,605	15.6%	6,895,303	14.8%	+
Pain or discomfort that prevents activities (%)		318,605	13.2%	6,895,303	12.7%	+
Low birth weight (% of live births)	1	3,879	5.4%	80,890	5.7%	~
Chronic obstructive pulmonary disease (COPD) (%)		210,725	7.8%	4,641,105	4.6%	+
Injuries within the past 12 months causing limitation of normal activities (%)		318,605	..	6,895,303	..	Not Calculated
Injuries in the past 12 months; sought medical attention (%)		318,605	..	6,895,303	..	Not Calculated
Hospitalized stroke event rate (per 100000 population)		281,550	.	6,152,400	.	Not Calculated
Hospitalized acute myocardial infarction event rate (per 100000 population)		281,550	237	6,152,400	219	+
Injury hospitalization (per 100000 population)	*	369,170	443	7,903,000	512	-
Cancer incidence (per 100000 population)	*	369,170	408.2	7,903,000	413.4	~

	Note	Région de l'Outaouais (Health Region)		Quebec (Province)		Statistically Significant Difference?
Characteristic		Population	Rate	Population	Rate	
Colon cancer incidence (per 100000 population)	*	369,170	57.5	7,903,000	52.4	~
Lung cancer incidence (per 100000 population)	*	369,170	68.7	7,903,000	70.1	~
Breast cancer incidence (per 100000 population)	2	187,990	98.2	4,027,140	100.6	~
Prostate cancer incidence (per 100000 population)	3	181,180	97.1	3,875,860	96.5	~
Health Behaviours						
Current smoker; daily or occasional (%)		318,605	26.3%	6,895,303	22.4%	+
Current smoker; daily (%)		318,605	22.1%	6,895,303	17.3%	+
Heavy drinking (%)		318,605	16.4%	6,895,303	18.7%	-
Leisure-time physical activity; moderately active or active (%)		318,605	51.4%	6,895,303	50.1%	+
Fruit and vegetable consumption; 5 times or more per day (%)	*	369,170	44.7%	7,903,000	46.8%	-
Bike helmet use (%)		318,605	..	6,895,303	..	Not Calculated
Human Function						
Participation and activity limitation; sometimes or often (%)		318,605	..	6,895,303	..	Not Calculated
Functional health; good to full (%)		318,605	..	6,895,303	..	Not Calculated
Mortality and Diseases						
Infant mortality (per 1000 live births)	1	3,879	3.2	80,890	4.7	~
Life expectancy at birth (years)		N/A	80.1	N/A	81.2	Not Calculated
Life expectancy at age 65 (years)		N/A	19.1	N/A	20.1	Not Calculated
Total; all causes of death (per 100000 population)	*	369,170	611.1	7,903,000	549.9	+
All cancers; deaths (per 100000 population)	*	369,170	204	7,903,000	183.4	+
Colorectal cancer; deaths (per 100000 population)	*	369,170	24.1	7,903,000	21.9	~
Lung cancer; deaths (per 100000 population)	*	369,170	67.9	7,903,000	56.4	+
Breast cancer; deaths (per 100000 population)	*	369,170	13	7,903,000	13	~
Prostate cancer; deaths (per 100000 population)	*	369,170	8.8	7,903,000	7	~
Circulatory diseases; deaths (per 100000 population)	*	369,170	161.8	7,903,000	142.9	+

	Note	Région de l'Outaouais (Health Region)		Quebec (Province)		Statistically Significant Difference?
Characteristic		Population	Rate	Population	Rate	
Ischaemic heart diseases; deaths (per 100000 population)	*	369,170	92.6	7,903,000	77.5	+
Cerebrovascular diseases; deaths (per 100000 population)	*	369,170	26.9	7,903,000	25.8	~
All other circulatory diseases; deaths (per 100000 population)	*	369,170	42.4	7,903,000	39.6	~
Respiratory diseases; deaths (per 100000 population)	*	369,170	50.4	7,903,000	47.2	~
Pneumonia and influenza; deaths (per 100000 population)	*	369,170	9	7,903,000	10.1	~
Bronchitis; emphysema and asthma; deaths (per 100000 population)	*	369,170	1.7	7,903,000	2.5	~
Unintentional injuries; deaths (per 100000 population)	*	369,170	23.7	7,903,000	23.4	~
Suicides and self-inflicted injuries; deaths (per 100000 population)	*	369,170	13.2	7,903,000	14	~
Human immunodeficiency virus [HIV] disease; deaths (per 100000 population)	*	369,170	1.1	7,903,000	1.2	~
Premature mortality (per 100000 population)	*	369,170	293.3	7,903,000	251.1	+

Notes

.	Not available for any reference period	x	Suppressed to meet the confidentiality requirements of the Statistics Act
..	Not available for a specific reference period	*	assumed whole population
N/A	Not applicable	1	number of live births
E	Use with caution	2	assumes whole population (Females only)
F	Too unreliable to be published	3	assumes whole population (Males only)

Table 8.8-5 Legend for Statistically Significant Difference Assessment

Symbol	Meaning
-	Renfrew County and District Health Unit shows statistically significant lower responses than Ontario
+	Renfrew County and District Health Unit shows statistically significant higher responses than Ontario
~	No statistically significant difference between the Renfrew County and District Health Unit and Ontario
Not Calculated	Statistical significance not calculated due to lack of information

A two-sided T-test was used to compare the health characteristics between the Région de l'Outaouais and Quebec based on the data obtained from Statistics Canada 2013 Health Profile, as shown in Table 8.8-4. Differences that are statistically significant at α=0.05 level were identified in the last column, with green color denoting a lower percentage in the Région de l'Outaouais and blue color denoting a higher percentage in the Région de l'Outaouais when compared to the provincial level in Quebec.

A higher percentage in perceived well-being (health) was observed in the Région de l'Outaouais when compared to the provincial percentages; however, perceived mental health well-being was perceived to be lower in Région de l'Outaouais. Higher rates of certain health conditions were also observed in the Région de l'Outaouais than in Quebec, including: obesity, arthritis, asthma, mood disorder, pain or discomfort, COPD, and hospitalization for acute myocardial infarction events. For health behaviours, percentage of smokers are higher in the Région de l'Outaouais than in Quebec.

A slightly higher overall death rate was observed in the Région de l'Outaouais for the year where the data was assessed. Specifically, death rates from circulatory diseases and cancers are slightly higher in Région de l'Outaouais than the provincial averages.

8.8.3.2 Childhood Leukemia Around Nuclear Facilities

In the late 1980s and early 1990s, the then Atomic Energy Control Board (AECB), now the CNSC, conducted a large, two-phase study to investigate the incidence and mortality of leukemia in children living around nuclear facilities in the province of Ontario, including the NPDWF. The studies looked at data from the Ontario Cancer Registry, for children up to age 14, for areas around the facility as well as the general population of Ontario.

The AECB studies did not find evidence of increased risk of childhood leukemia in the vicinity of the NPDWF. The occurrence of leukemia in the areas surrounding NPDWF was lower than expected, for the area surrounding Rolphton as well as for the entire Renfrew County. These findings were observed based on assessment of residence at birth and assessment of residence at death. The overall conclusion was that the occurrence of childhood leukemia was less than expected and within the bounds of chance variation in the vicinity of the nuclear facilities in Renfrew County (i.e., both, NPDWF and CRL) (Clarke *et al*., 1991).

This is consistent with the findings of the CNSC's study of radiation doses to populations living near Ontario's three nuclear power plants (i.e., Pickering, Darlington and Bruce NGSs). The study, called "Radiation and Incidence of Cancer Around Ontario Nuclear Power Plants from 1990 to 2008", found no evidence of childhood leukemia clusters around the three Ontario NPPs. The rates of cancer incidence for children aged 0–4 and aged 0–14 were similar to the general Ontario population (CNSC 2013b).

8.8.3.3 Local Food Consumption

This section provides information on the local food consumption characteristics for people living in the Regional Study Area, based on the NPD DRL Study (Chouhan and Scheier 2011). The following assumptions were made in developing DRLs:

- Resident groups grow fruits, vegetables and potatoes in a garden that is irrigated by river water (relevant for aquatic releases only);
- The farm groups are also assumed to grow fruits, vegetables and potatoes, at a larger scale;
- Resident groups buy some local meat from a local butcher shop (locally-raised meat);
- Farm groups are assumed to raise other animals for their own consumption (i.e., not for sale);
- Resident and farm groups hunt local deer; and
- Local residents and cottage residents fish in the Ottawa River (relevant for aquatic releases only).

Table 8.8-6 presents the local food consumption percentages that were assumed in the DRL study.

Table 8.8-6 Percentage of Food from Local Sources (Source: Chouhan and Scheier 2011)

Receptor Group	Animal Products							Plant Products			Fish
	Beef	Pork	Poultry	Lamb	Venison	Eggs	Cow Milk*	Fruit	Garden Vegetables	Potatoes	
Airborne Effluents											
Rapides-des-Joachims, Point Stewart and Rolphton residential	10	0	0	0	100	0	0	10	20	20	0
Cottage	0	0	0	0	0	0	0	0	0	0	0
Mackey Beef Farm	100	50	50	100	100	50	20	20	50	50	0
Bass Lake beef farm	100	50	50	0	100	50	20	20	50	50	0
Liquid Effluents											
Cottage	0	0	0	0	0	0	0	0	0	0	100
Point Stewart residential	0	0	0	0	0	0	0	10	20	20	50
Deep River residential	0	0	0	0	0	0	0	10	20	20	50

Note:

* Milk values may be different for breast feeding infants or infants fed on formula.

8.8.3.4 Local Water Use

The majority of people within the Regional Study Area obtain their domestic water (used for ingestion, washing, bathing, and swimming) from groundwater wells. In the region, nearby residential communities such as Point Stewart and Rapides-des-Joachims rely on groundwater wells for their domestic water use.

Table 8.8-7 summarizes the statistics on the groundwater wells as presented in Ontario Ministry of the Environment, Conservation and Parks (MECP) well records.

Table 8.8-7 Summary of MECP Groundwater Well Records in Vicinity of NPD

Well Type	Number of Wells	Well Depths (m)	Static Water Level Depth (m)
Overburden	13	3.0 – 32.6	Not Reported
Bedrock	69	4.7 – 193.5	0.9 – 21.9 with one artesian well

It is noted in the PostSA TSD that these wells draw water from deep aquifers. The farm groups also obtain all of their water from wells, including that used to raise livestock. Most residents of Deep River have access to a municipal water supply, which is pulled from the river. Residents of Deep River and Point Stewart, as well as the cottage group, may also use the Ottawa River for swimming during the summer months (Chouhan and Scheier 2011).

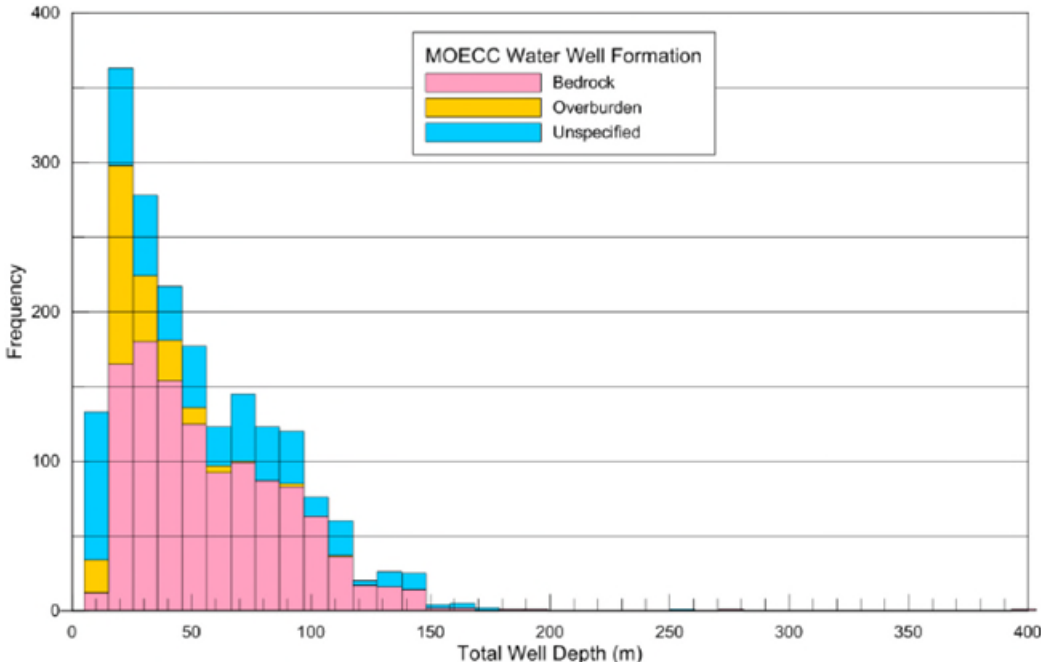
Additionally, the MOECC database of water supply wells (MOECC 2018b) was queried for the region between Rolphton and Pembroke (Killey 2018). The number and depth of the water supply wells, and the formation from which they draw water, are shown in Table 8.8-8. The basic summary statistics for well depths for the unspecified wells are quite similar to the entire dataset, so it's reasonable to assume that the unspecified wells follow a similar distribution between bedrock and overburden.

Table 8.8-8 Numbers of Bedrock, Overburden and Unspecified Wells, and Well Depths (Killey 2018, from MOECC 2018b)

Source Unit	Number of Wells	Depth (m)			
		Average	Median	Min	Max
Bedrock	1151	53.9	45.7	5.5	395.9
Overburden	246	21.7	18.3	1.2	111.6
Unspecified	505	48.5	38.1	1.8	253.0
All Wells	1902	48.3	38.4	1.2	395.9

The database also provides the total depths of the wells. Figure 8.8-4 is a frequency plot of well depths for wells completed in bedrock, in overburden, and for wells where the formation supplying water is unspecified. Information on wells obtained in 2017 from the community survey undertaken by CNL (Moore 2017). However, the well information response in the survey was extremely limited relative to the MOECC database (Killey 2018).

Figure 8.8-4 Total Depth Frequencies for Wells Completed in Overburden, Bedrock, and in Unspecified formations (Killey 2018)



Although it is evident from the MOECC database that there are some shallow water supply wells, if statistical data are used to calculate potential exposures, median well depth (38 m) would be a reasonable selection for residential and farming groups.

It is noted that this MOECC database contains records submitted to the province by licensed water well drilling companies. It is possible that some homes, and more likely some cottages that are used seasonally (and that may have limited or no road access), draw their water supply from hand-driven well points or from hand-dug wells installed by the owner, rather than by a contracted well driller. Such unrecorded installations will be shallow, and almost certainly restricted to overburden. One might reasonably speculate that wells installed by the property owner will be between 5 and 10 m deep. The rates of water production from such manually installed wells will frequently be small, so the numbers of permanent homes using such water sources will also be limited.

8.9 Traditional Land and Resource Use

Indigenous interests expressed to CNL during engagement with communities have been considered in the following assessment. CNL relied on information obtained through engagement activities and various studies and reports, many of which were led by Indigenous peoples.

8.9.1 Spatial Boundaries

The spatial boundaries associated with the Indigenous traditional land and resource use environment were determined based on the potential for the project to affect Indigenous peoples and their use of land for traditional purposes in proximity to the facility for traditional purposes. These spatial boundaries fall within a much broader area of traditional land use.

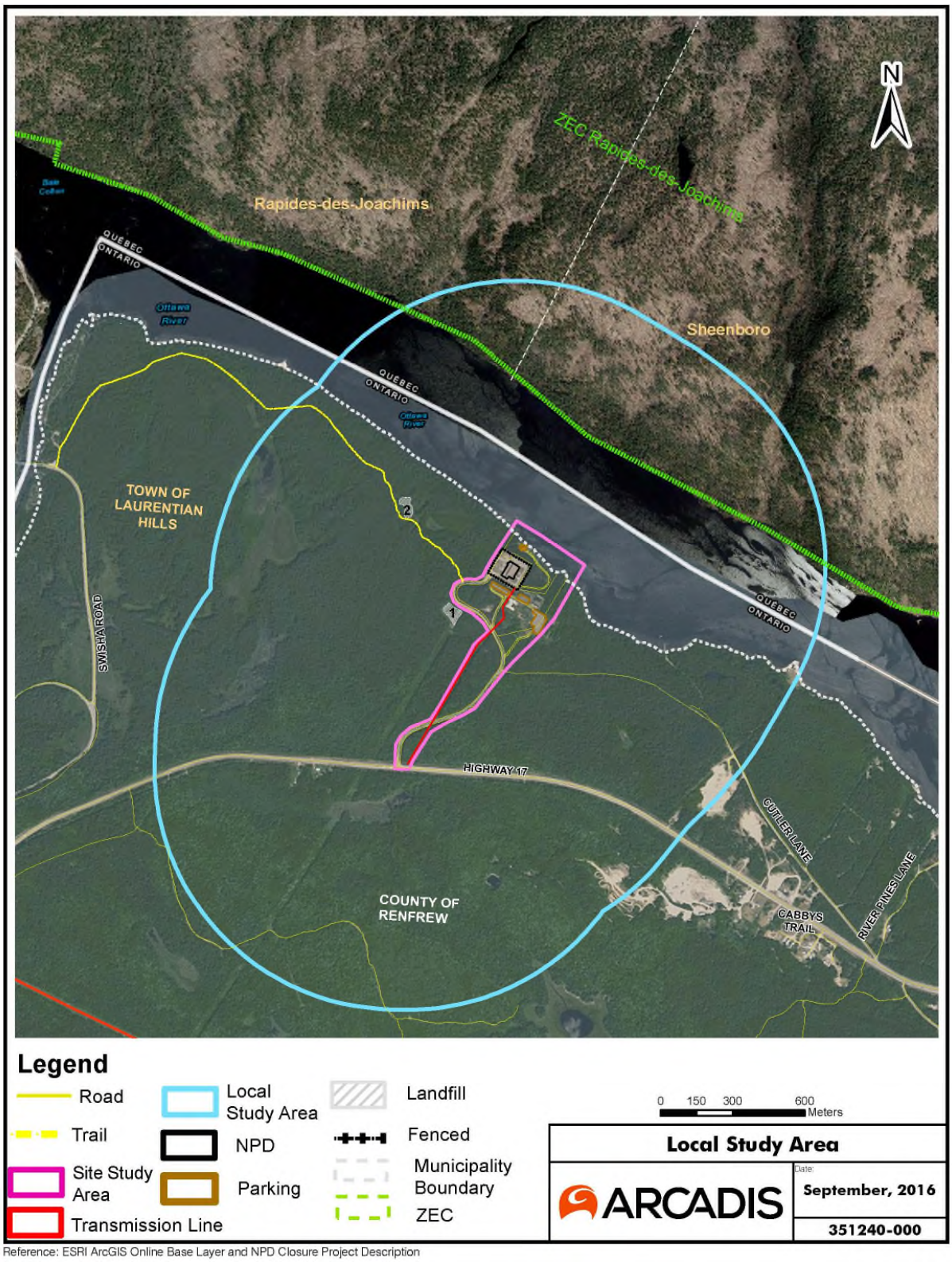
The Site Study Area for the Traditional land and resource use environment is the same as the general Site Study Area defined in Figure 5.2-1 above.

The Local Study Area has been defined as the Site Study Area plus an area with a 1-km radius beyond the Site Study Area (see Figure 8.9-1 below).

The Regional Study Area has been defined as the Site Study Area and an area with a 5-km radius beyond the Site Study Area, as illustrated in Figure 8.9-2 below.

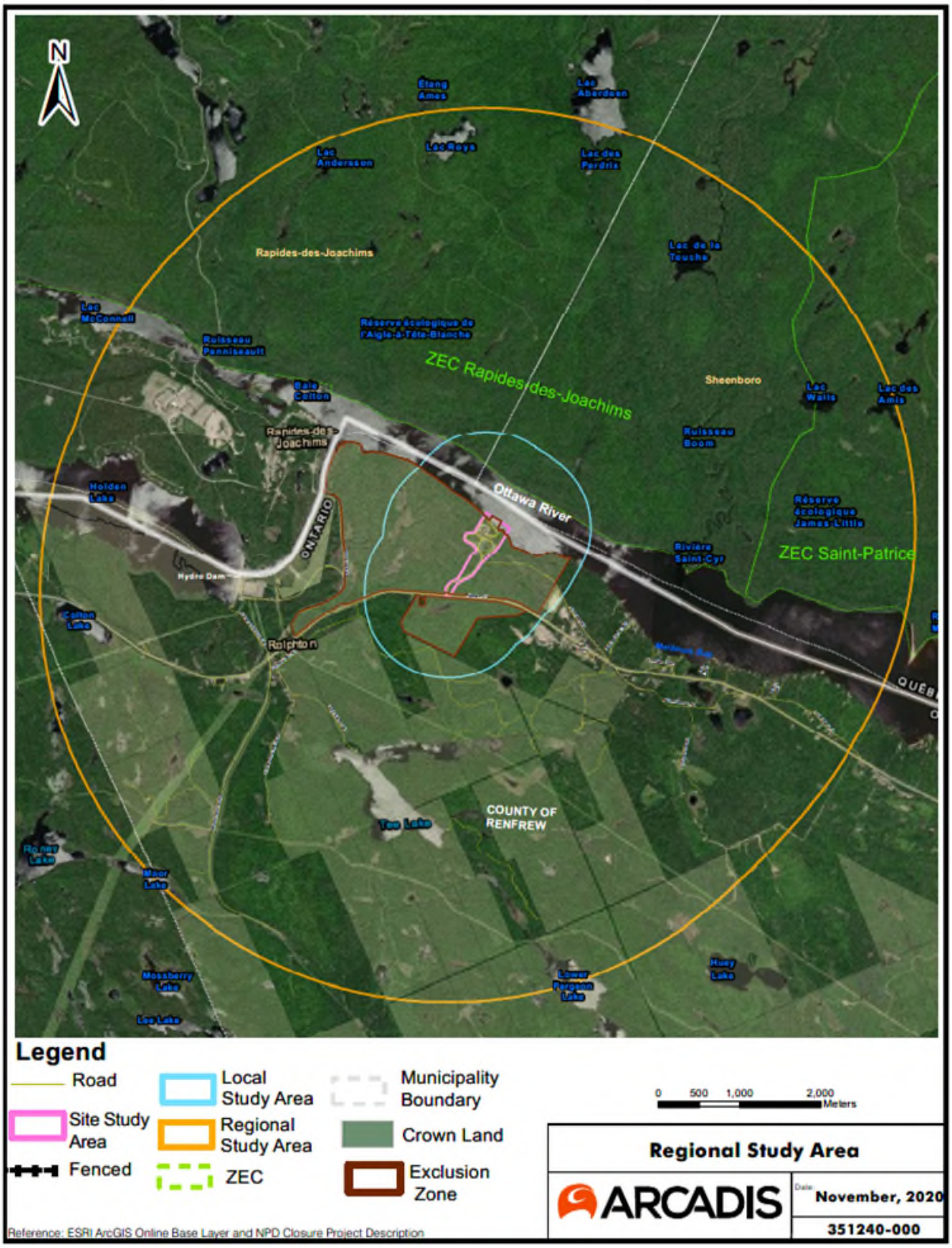
All of the study areas noted here are illustrated in Figure 8.9-2, along with areas of Crown land (including both federal and provincial lands).

Figure 8.9-1 Traditional Land and Resource Use Environment Local Study Area



Reference: ESRI ArcGIS Online Base Layer and NPD Closure Project Description

Figure 8.9-2 Traditional Land and Resource Use Environment Regional Study Area



8.9.2 Traditional Land and Resource Use

8.9.2.1 Methods

Indigenous interests expressed to CNL during engagement with Indigenous Nations, communities and organizations identified for the NPD Closure Project have been considered in the following assessment. In 2016 CNL, on two occurrences, sent letters to the identified Indigenous Nations, communities and organizations requesting information on traditional land and resource use in the area surrounding the NPD Closure Project and the CRL site. CNL also sent a letter in May 2020 asking questions to verify assumptions made in lieu of having responses to previous letters or direct input from the Indigenous Nations, communities and organizations.

Information on traditional land use activities by Indigenous peoples has been drawn from: existing studies and reports; Indigenous organization websites; the MNO Traditional Knowledge and Land Use Study (KnowHistory 2019); the AOO AKLUS (SVS, AOO, 2020); the AOPFN AKLUS (SVS, AOPFN, 2020); the AOPFN Diet and Harvest Study (Fediuk, *et al.*, 2021); the AOPFN Culture and Rights Study (Malone *et al.*, 2021); the KZA submission for NSDF (KZA 2023); the KFN submission for NSDF (KFN 2023); formal and informal engagement activities; and general knowledge of the region. The MNO reviewed the March 2020 revised draft EIS which included incorporation of the findings of the MNO TKLUS. The AOO and AOPFN have also provided CNL with feedback on how their AKLUS studies were incorporated into this section. Information on traditional land and resource use and how it was gathered for each Indigenous Nation, community and organization is also documented below.

In the absence of specific feedback from identified Indigenous Nations, communities and organizations, traditional land and resource use is assumed wherever there are publicly accessible lands (e.g., Ontario Crown land), which is a conservative approach to the assessment and also to reflect the dynamic practice of traditional land and resource use by Indigenous peoples in time and space. By making this assumption, it is more likely effects will be identified and assessed and potential use will be factored into project planning.

Algonquins of Pikwàkanagàn First Nation (AOPFN)

Traditional land and resource use knowledge for the AOPFN is primarily derived from the October 2020 AOPFN AKLUS (SVS, AOPFN, 2020). Algonquin Knowledge was defined in the study as,

> *"a body of knowledge and information shared by Algonquin peoples and transmitted between Indigenous peoples, which supports traditional land use for the benefit and well-being of Indigenous peoples*" (SVS AOPFN, 2020, p.5).

The same consultant that prepared the AOO AKLUS (SVS, AOO, 2020) also prepared the AOPFN AKLUS (SVS, AOPFN, 2020). Additionally, some information on Algonquin traditional use has come through two other studies completed in 2021. CNL provided funding to AOPFN for two studies, a Culture and Rights Study and a Diet and Harvest Study. While not wholly traditional land and resource use studies, both studies included AOPFN traditional knowledge inputs and valuable material on traditional land and resource use and considered for purposes of the analysis. Both studies build on the previously prepared AKLUS and are specific to AOPFN. Potential effects, issues and recommendations raised in those two Reports are being

discussed directly with AOPFN and are included in the Section 6 summary discussion of interests and concerns and in Appendix C – Table C-4. While both Reports are identified as Confidential some key findings related to traditional use have been included in this Report.

Some contextual information on Algonquin traditional knowledge and use in this EIS is taken from supporting documents associated with resource management plans for the Ottawa Valley and surrounding region. Specifically, this information has been documented in Supporting Documentation to Forest Management Plans for the Ottawa Valley Forest, Nipissing Forest, Algonquin Park Forest, Mazinaw-Lanark Forest and Bancroft-Minden Forest. These five forests cover a wide area of central-eastern Ontario roughly equivalent to the unceded Algonquin traditional territory.

The Supporting Documentation to those Forest Management Plans includes documents such as the Aboriginal Background Information Reports which describes use of natural resources and protection of identified Aboriginal Values. That information is intended to describe traditional uses and protection of natural resources on Ontario Crown land over this wide region but does not include private or federal Crown land. These Reports describe traditional uses undertaken by all AOO communities including the AOPFN. The NPD site is located within the general area of the Ottawa Valley Forest but that Forest Management Plan has no jurisdiction over the NPD site, nor does it describe use of the site. These Forest Management Plans do describe in general terms, traditional use occurring on Crown lands near the NPD site; however it should be noted that the findings from these Supporting Documents were not verified with AOPFN Knowledge Keepers for the development of this EIS. It is also noted that the forest management planning process does not enable fulsome documentation of Algonquin knowledge, land use and occupancy data and is subject to limitations as a source of this data.

Algonquins of Ontario (AOO)

Traditional land and resource use knowledge for the AOO is primarily derived from the December 2020 released AKLUS. The same consultant that prepared the AOO AKLUS (SVS, AOO, 2020) also prepared the AOPFN AKLUS which was released in October 2020 (SVS, AOPFN, 2020). In the two reports, Algonquin Knowledge was defined in the study as:

> *A body of knowledge and information shared by Algonquin peoples and transmitted between Indigenous peoples, which supports traditional land use for the benefit and well-being of Indigenous peoples.*

Some contextual information on Algonquin traditional knowledge and use in this EIS is taken from supporting documents associated with resource management plans for the Ottawa Valley and surrounding region. Specifically, this information has been documented in Supporting Documentation to Forest Management Plans for the Ottawa Valley Forest, Nipissing Forest, Algonquin Park Forest, Mazinaw-Lanark Forest and Bancroft-Minden Forest. These five forests cover a wide area of central-eastern Ontario roughly equivalent to the unceded Algonquin traditional territory.

The Supporting Documentation to those Forest Management Plans includes documents such as the Aboriginal Background Information Reports which describes use of natural resources and protection of identified Aboriginal Values. That information is intended to describe traditional uses and protection of

natural resources on Ontario Crown land over this wide region but does not include private or federal Crown land. These Reports describe traditional uses undertaken by all AOO communities including the AOPFN. The NPD site is located within the general area of the Ottawa Valley Forest but that Forest Management Plan has no jurisdiction over the NPD site, nor does it describe use of the site. These Forest Management Plans do describe in general terms, traditional use occurring on Crown lands near the NPD site. It is noted that the forest management planning process does not enable fulsome documentation of Algonquin knowledge, land use and occupancy data and is subject to limitations as a source of this data.

Métis Nation of Ontario (MNO)

The MNO have completed a traditional knowledge and land use study that documents use of lands and waters near the CRL site (KnowHistory 2019). Some other information on traditional land and resource use in this area of Ontario was obtained from the MNO website. Forest Management Plans prepared by the Ontario Ministry of Natural Resources and Forestry for the area around the NPD site describe traditional Algonquin use for the AOO and AOPFN but traditional use of the MNO is not described.

Williams Treaties First Nations (WTFN)

While CNL was unable to find any documents such as forest management plans to describe WTFN community uses near the NPD site, some WTFN members indicated verbally during an engagement in the spring of 2020 that they may have members living and/or harvesting near the NPD site. CNL has requested any information describing these communities' traditional uses near the NPD site. In the absence of additional feedback from WTFN, CNL has conservatively assumed that harvesting activities by WTFN communities are undertaken in the Kichi-Sìbì (Ottawa River) Valley. Forest Management Plans prepared by the Ontario Ministry of Natural Resources and Forestry for the area around the NPD site describe traditional Algonquin use for the AOO and AOPFN but traditional use of the WTFN communities is not described.

Kitigan Zibi Anishinabeg

KZA submitted information to the CNSC for the NSDF Hearing that provided some insight into traditional use undertaken by the community. That information included a background on the KZA community, traditional territory and rights. That filing also included an appendix with a Brief of Documents. One of those documents was a 1993 report by Jacques Frenette titled "Contemporary Occupation and Use of Territory among the Algonquins of Maniwaki". While dated, this report did provide some comprehensive information on KZA that covered the historical period (up until the 1950s) and the modern period (up until the date of the Report).

Kebaowek First Nation

KFN also submitted information to the CNSC for the NSDF Hearing that provided some insight into traditional use undertaken by the Nation.

Algonquin Anishinabeg Nation Tribal Council (AANTC) Communities

CNL has requested any information describing these communities' traditional uses near the NPD site. While no information describing recent traditional use by AANTC community members has been found or identified, CNL is of the opinion that likely there is some use occurring on the Kichi-Sìbì (Ottawa River) or on the Quebec side of the Kichi-Sìbì (Ottawa River) by some individuals from these communities. Thus CNL has conservatively assumed that AANTC community members access and practice traditional activities along the Kichi-Sìbì (Ottawa River) or on the Quebec side of the Kichi-Sìbì (Ottawa River). Forest Management Plans prepared by the Ontario Ministry of Natural Resources and Forestry for the area around the NPD site describe traditional Algonquin use for the AOO and AOPFN but traditional use of the AANTC communities is not described.

8.9.2.2 Results

8.9.2.2.1 General

Information gathered on traditional use is described below.

8.9.2.2.2 Algonquins of Pikwàkanagàn First Nation

The NPD site is situated within the unceded Algonquin Territory, where negotiations with the Crown have occurred since 1991.

As part of a submission to the CNSC for a 10-year renewal of the Nuclear Research and Test Establishment Operating Licence for the CRL (Commission Member Document 18-H2.51), the AOO (including AOPFN) identified that it asserts unextinguished and constitutionally protected Aboriginal rights to the unceded Algonquin traditional territory in Eastern Ontario (also referred to as the "Settlement Area") and is currently in negotiations towards a modern-day treaty with the Governments of Ontario and Canada. The NPD Closure Project will occur within the unceded Algonquin traditional territory. The unceded Algonquin traditional territory includes 36,000 km^2 within the watersheds of the Kichi-Sìbì (Ottawa River) and the Mattawa River. It is recognized that AOPFN members continue to practice traditional land use activities throughout this region. Algonquin traditional use has occurred for a very long period of time. In the *Aboriginal Background Information Report* to the Forest Management Plan for the Ottawa Valley Forest (OVF) 2011 to 2021 it was indicated that:

> "*Since the 1700's the Algonquins were known to spend the majority of the year occupying the different parts of the Ottawa Valley hunting, fishing, trapping and gathering among other things. These activities necessitated use of timber and other resources.*" (OVF 2011b)

The AOO website describes the importance of traditional harvest to all Algonquin communities:

> "*The harvesting of flora and fauna for food and trade has been integral to the Algonquin way of life since time immemorial. These practices embody an inherent respect for the environment and a fundamental*

commitment to the sustainable management of resources which has been passed from generation to generation.

The Algonquins of Ontario (AOO) are comprised of ten Algonquin communities, including the Algonquins of Pikwàkanagàn First Nation, Antoine, Kijicho Manito Madaouskarini (Bancroft), Bonnechere, Greater Golden Lake, Mattawa/North Bay, Ottawa, Shabot Obaadjiwan, Snimikobi and Whitney and Area.

The rights of Aboriginal people in Canada to engage in traditional activities, including the harvesting of wildlife, fish, migratory birds and plants, is recognized by the Constitution Act, 1982 and upheld by the Supreme Court of Canada. As stewards of our ancestral lands, the AOO recognize the importance of exercising this right in a responsible manner." (AOO 2017a)

In the AOPFN AKLUS it was documented how hunting territories were managed, including dealing with encroachment and stewardship:

"The Algonquins passed down their family hunting-territories from generation to generation. It was the duty of each generation to protect their lands against encroachment, to grant permission to outsiders to pass over their lands, and to manage their territory's resources to ensure an ongoing livelihood for their people." (SVS, AOPFN, 2020, p. 19)

The AOO, including AOPFN, further re-iterated the importance of traditional harvest in their Agreement-In-Principle with the Governments of Ontario and Canada. In Chapter 8, it is indicated that:

"*The Final Agreement will provide that Beneficiaries have the right to Harvest Fish, Wildlife, Migratory Birds and Plants for Domestic Purposes throughout the year within the Settlement Area as further described in this Chapter.*" (AOO *et al*., 2016, p. 51).

As indicated in the quotation above, the intent of such harvest is for domestic purposes and not for commercial purposes (AOO *et al*., 2016). Indigenous peoples, including the ancestors of the modern-day Algonquins living in the Ottawa Valley undertook traditional activities throughout the lands and waters of the Ottawa Valley, including the NPD site and the adjacent Kichi-Sìbì (Ottawa River) for fishing, trade and transportation.

AOPFN Algonquin Knowledge and Use Study

The AOPFN AKLUS identified three major objectives on page 8 (SVS, AOPFN, 2020):

- Document evidentiary information that shows where and how Algonquins currently and historically have used the lands and waters around the NSDF and NPD sites, and Algonquin concerns related to these projects.
- Demonstrate how proposed and ongoing nuclear projects may impact Algonquin land use and occupancy.

- Propose appropriate mitigation measures and recommendations to ensure impacts to AOPFN rights and interests are minimized or accommodated (the AOPFN has expressed to CNL that this list is preliminary).

The temporal scope of the study included both historic (includes information participants know about through teaching or knowledge transfer from past generations, including oral history) and current (anything that occurred in a participant's lifetime) use. The geographical scope of the study included a 25 kilometer radius study area, which is extended by 5 kilometers more along the downstream side of the Kichi-Sìbì (Ottawa River). The high importance of the Kichi-Sìbì (Ottawa River) to the Algonquin people is well described in the AOPFN AKLUS report.

Map biography information that was collected included the following: locations of wildlife harvesting, trapping, fishing and gathering of plants or natural materials; locations of culturally and/or historically significant sites; locations of camps or places where people stay overnight on the land; travel routes and trails; areas of ecological importance; and, areas of demographic importance (e.g., locations of current or past residences or birthplaces).

The oral history information that was collected included: harvesting philosophy and techniques; use of harvested species for food, medicine, ceremony, crafts or economic purposes; Algonquin cultural knowledge; perspectives on cultural harvesting areas, cumulative effects on development and changes to the environment and land use activities; perspectives about ways the NPD Closure project may alter participants' use of the lands and waters; and, suggestions for how participants would like to see their concerns mitigated. It was also noted by study participants that the knowledge necessary for land-based practices is passed on and learned through generations (SVS, AOPFN, 2020, p. 263133). This means that continued access to traditional lands is important for this cultural continuance.

The features mapped include the following AOPFN Algonquin Land Use and Occupancy Categories: travel routes; boat launches or landings; personal fishing areas; commercial trapping or snaring; fish spawning habitat; bird habitat; reptile or amphibian habitat; species at risk habitat; mammal habitat; plant habitat; wildlife harvesting area; plant and natural materials gathering area; overnight locations; and, Algonquin cultural sites or areas of demographic importance.

The AKLUS also included sections on Algonquin history and the archaeological assessment that occurred as a part of the NPD Closure Project (SVS, AOPFN, 2020).

The AKLUS involved the participation of thirteen members of AOPFN and represents some of the traditional use occurring within the study area. AOPFN specifically expressed that this must be viewed as a "snapshot" of use by a small subset of the AOPFN community, with the understanding that absence of data does not equate to absence of use and value in a certain location by AOPFN members (SVS, AOPFN, 2020).

Land Use values were reported in the TKLUS but were not specifically shown on maps in the report to protect the confidentiality of the locations. An Algonquin Land Use and Occupancy Map was included in the Report that documented traditional use in the identified study areas near the NPD site. The map was divided into one square kilometer grid squares. Grid squares were shaded where traditional use was documented

within a particular square kilometer (data being present in the square). Unshaded areas do not equate to an absence of use but may be simply an absence of data given the constraints of the study.

Along with mapping and describing land use, the Study team also asked oral history questions that focused on: the participant's Algonquin Knowledge of the area; their perceptions of current harvesting areas; perspectives on cumulative effects of development; and, changes to the environment and land use activities. The AOPFN AKLUS report (SVS, AOPFN, 2020, p.28) notes that the features mapped fall into several different Algonquin land use and occupancy categories. The report notes that:

> "*These results demonstrate the extent to which Algonquins exercise their inherent rights and interests on the lands and waters surrounding the NPD project site and were used to inform the recommended mitigation and accommodation measures proposed in Section 4.0*." (SVS, AOPFN, 2020, p.28)

AOPFN participants in the study expressed their deep connections to the area around the NPD site:

> *The proposed NPD project is located within AOPFN's traditional territory, the lands and waters throughout which hold great cultural, historical and ecological significance to the Algonquins. Interview participants described deep connections to this area extending back through generations, emphasizing the importance of the lands and waters to Algonquin culture and ways of life that have existed throughout history and continue into the present day. Interview participants described exercising their Aboriginal rights and interests throughout the area, mapping sites of both land-use and occupancy, including sites where participants hold Algonquin Knowledge. Given these deep connections Algonquins hold to the NPD project study area, interviewees expressed a number of concerns related to the project and how it may impact their connection to and use of these lands and waters.* (SVS, AOPFN, 2020, p. 38)

The AOPFN AKLUS (SVS, AOPFN, 2020) goes on to note that there are numerous features mapped in and around the NPD site. As well there are some values that are mapped on a grid that overlaps the NPD site. AOPFN traditional use with respect to trapping, hunting, fishing, gathering and cultural uses and ceremonies is reported further below. Beyond traditional uses and cultural/historic sites, the AOPFN AKLUS also documents areas of important habitat including fish spawning (Oga (pickerel/walleye) and lake sturgeon), species at risk (bald eagle – note that the bald eagle was delisted from SARO and is no longer a species at risk) and mammal (waboz (rabbit), makwa (bear), wawashkeshi (white-tailed deer), monz (moose) and mahingan (wolf)) habitat. The number of habitat areas, in particular mammal habitat areas documented in the AKLUS study area is extensive and represents the category with the largest number of recorded observations.

The AOPFN AKLUS report (SVS, AOPFN, 2020) generally describes the concerns harvesters have with respect to environmental impacts from nuclear facilities in the unceded Algonquin traditional territory. These concerns are articulated both in a historical and present-day context (concerns both about the existing facilities and future uses). The concerns are associated with harvesting, health, and well-being, ability to connect to land and waters, and overall impact to the environment and specifically the Kichi-Sìbì (Ottawa River). One AOPFN AKLUS participant also noted that the strong medicinal plants can be found alongside waterways (SVS, AOPFN AKLUS, p. 34).

AOPFN Diet and Harvest Study

The purpose of the Diet and Harvest Study, "is to provide a baseline of current AOPFN harvesting patterns, along with an understanding of reliance on and concerns related to both the Algonquin food system and commercially available food products to inform human health risk modelling for the AOPFN general population and most sensitive consumer" (Fediuk *et al*., 2021). The Diet and Harvest Study included a detailed dietary survey which reached the target of 250 AOPFN households on and off the AOPFN Reserve. The survey included questions on: household demographics; harvesting practice areas/use in the last five years; dietary patterns (Algonquin food and agricultural food products and usual sources); sources of water; food security; engagement in traditional activities; perception of health, community strengths and vulnerabilities; and potential project concerns.

An informative discussion of Algonquin Food System Practices is included in the Report. That philosophy is described in a quote from the AOPFN website:

> "*Our philosophy is to only take what you need; give in order to receive; recognize that you are an equal part of all that is; be thankful for everything that you get*" (AOPFN website, 2021).

The Diet and Harvest Report goes on to note the concerns that AOPFN members have with respect to perceived contamination on the Kichi-Sìbì (Ottawa River) (p. 27) as well as the challenges of harvesting across the AOPFN unceded territory due to land settlement and development activities that have reduced the area of land for traditional harvest (including, without limitation, the NPD site) over the last couple of centuries.

The Diet and Harvest Report summarized succinctly the interconnected importance of traditional harvest, food and the Algonquin Way of Life.

> *"Harvesting and reliance on Algonquin foods continue to be a central aspect of AOPFN lifeways. Despite negative impacts on access, food quality, and availability, the practice of harvesting, processing, and eating Algonquin foods continue to serve crucial social, knowledge transmission, cultural, nutritional, and food security/sovereignty needs. Algonquin foods and the places they are harvested in are also interconnected with personal and family histories."* (p. 35, Fediuk *et al.*, 2021)

The dietary frequency of Algonquins foods (which would be traditionally harvested) being consumed by study participants was tabulated with the following findings.

- Eighty-seven percent identified eating fish and aquatic animals with an average of 39.3 days consumption per year (pickerel/walleye were the most widely consumed but northern pike, bass, lake and speckled trout and lake whitefish were also consumed by 27% to 42% of the population).
- Eighty-seven percent identified eating land animals and furbearers with an average of 44.3 days of consumption per year (moose and deer were by far the most widely eaten animals).
- Forty-six percent identified eating birds with an average of 7.2 days of consumption per year (grouse, turkeys, ducks and geese).

- Thirty-nine percent reported eating berries and nuts with an average of 27.7 days of consumption per year.
- Thirty-eight percent reported eating other plant food (e.g., maple syrup, fiddleheads, cedar tea, wild rice, wild leeks) with an average of 20.6 days of consumption per year.
- Twenty-three percent reported eating mushrooms (e.g., maple syrup, fiddleheads, cedar tea, wild rice, wild leeks) with an average of 20.6 days of consumption per year.
- Forty-eight percent use plant species (sage, sweetgrass and cedar) for medicinal purposes and either burned and inhaled or applied the plant to skin.

The traditional food system of the AOPFN community is comprised of more than 100 kinds of animals, fish, birds, berries, nuts and plants.

Estimates of daily Algonquin food intake by species were calculated from the food frequency data and available average portion size data reported in the First Nations Food, Nutrition, and Environment Study (FNFNES) Ontario report. Four potential intake levels were assessed representing different proportions of Algonquin food consumption. These various intake levels provide data useful for human health impact assessment. The survey also provided data on local agricultural food consumption.

Participants in the Diet and Harvest survey were asked to identify where they harvest within the Algonquin territory. That area was divided into six areas: Area 1: the Ontario side of the Kichi-Sìbì, Rolphton, and Petawawa; Area 2: Algonquin Provincial Park; Area 3: Pikwàkanagàn, Bancroft, and Whitney; Area 4: Kingston, Prescott, and Calabogie; Area 5: Ottawa; and Area 6: Quebec side of the Kichi-Sìbì, Rolphton, and Portage du Fort. Area 1 is the area that includes both NPD and CRL. That is a large area that generally stretches from North Bay in the north to Pembroke in the south and from the Kichi-Sìbì (Ottawa River) to the northern and eastern boundaries of Algonquin Provincial Park.

The level of involvement of Algonquin households in traditional harvesting is described below.

> *"Seventy-three percent (73%) of AOPFN households that participated in the AOPFN Diet and Harvest survey (183/250) identified themselves as active harvesters. Seventy-seven percent of harvesters are on the land harvesting and/or camping for 3 weeks in the year, while 22% indicate they are harvesting between 1 and 3 months in a year."* (p. 59, Fediuk *et al.*, 2021)

Breaking down the participation of Algonquin households in traditional activities by geographic region resulted in the following findings. Area 1 which is geographically described above and includes NPD and CRL sites is highlighted in bold in the text below.

> *"Over half (56%) of all respondents (n=141), had fished in the territory within the last five years. Areas that were more commonly fished included the areas surrounding Pikwàkanagàn, Bancroft, and Whitney (73% of active fishers) and Algonquin Provincial Park (72% of active fishers). A small proportion (~7%) reported fishing on the north side of the Kichi-Sìbì in Quebec and south of Bancroft, while approximately one in four reported fishing in the area between North Bay and Petawawa.* ***Eighteen percent fished***

> ***within the zone containing the proposed CNL sites.*** *Fourteen percent reported going outside of the provided areas to fish.*
>
> *Figure 10 identifies the most common hunting areas for the 165 survey respondents who identified themselves as active hunters. Algonquin Provincial Park is the most actively used (93% of active hunters) followed by the areas surrounding Pikwàkanagàn, Bancroft, and Whitney (45% of active hunters).* ***Twelve percent hunt on the south side of the Kichi-Sìbì between North Bay and Pembroke*** *while 8% travel beyond the territory.*
>
> *There is a lower overall number of harvesters compared to hunters and fishers but a similar pattern of harvesting, concentrated within Algonquin Provincial Park (77% of active plant harvesters) and in the areas surrounding Pikwàkanagàn, Whitney, and Bancroft (70% of active plant harvesters).* ***A small proportion (12%) are harvesting on the south side of the Kichi-Sìbì between North Bay and Pembroke*** *and in the areas south of Renfrew County around Ottawa (13%). Some (11%) active plant harvesters reported going outside of the territory to harvest.*
>
> *Mushrooms tend to be harvested in Renfrew County and Algonquin Provincial Park with a small percentage of members (<5%) harvesting on the northern side of the Kichi-Sìbì between Rolphton and Portage-du-Fort, while 6% of members indicated that they harvested outside of these areas."* (pp. 60 – 63, Fediuk *et al*., 2021)

The Diet and Harvest study also discussed barriers to harvest and avoidance. The Report describes how areas such as NPD have been fenced off preventing access to this area for harvesting. Fears of contamination and the health of country foods are also cited as a major barrier preventing harvest and leading to avoidance behaviour around fenced off facilities and in the aquatic environment:

> *"For many harvesters, there is also strong uncertainty around the quality and safety of Algonquin foods from both the CNL Projects and other industrial activities (hydro-electric development, forestry)"* (p. 67, Fediuk *et al*., 2021)

The survey asked respondents about what factors were limiting their traditional food use. Uncertain quality/safety of food use around nuclear facilities was cited by 39% of survey respondents. Other factors included: uncertain quality/safety of food due to forestry (pesticides/herbicides) (37%); animal health concerns (ticks/cysts) (35%); sustainability/conservation concerns (24%); and, not enough time (54%).

Part of the AOPFN traditional territory was also divided up into zones for one very specific question as to whether any areas were commonly avoided. Zone 5 which is a square running from Pembroke to Rolphton, west into Algonquin Park and east into Quebec, and containing the NPD site, was an area subject to a higher degree of avoidance than any other area.

> *"Approximately three quarters (76%) of active harvesters (n=183) reported avoiding areas due to quality or safety concerns. Zone 5, which includes the proposed CNL Projects, is the most commonly avoided area, due to perceived food safety and quality concerns and highly restricted access to harvesting areas.*

Of those respondents who said they avoid areas (n=139), 92% avoided zone 5. This is more than double the proportion of avoidance of any other zone within the Study."

It should be noted that this Zone 5 area would also include Garrison Petawawa and also the communities from Pembroke to Rolphton between the Kichi-Sìbì (Ottawa River) and the Trans-Canada Highway. In summary, AOPFN members expressed concerns about the loss of lands for traditional use from various activities that have occurred on their traditional territories.

"AOPFN presence across and use of the land has been ongoing since time immemorial yet these culturally important and life-sustaining practices have been limited and impacted through overlapping barriers to accessing Algonquin foods in the recent past. Industrial activity, privatization of Algonquin land into private property parcels, fragmentation of harvesting areas, reduction in available habitat, and the real and perceived contamination of the lands and waters in Algonquin territory have resulted in areas with marked avoidance and dramatically limited use." (p. 73, Fediuk *et al*., 2021)

The concern about the loss of land area to harvest from was also considered in relationship to the economic and nutritional importance of traditional Algonquin foods to community members that are facing food security challenges. This was described in the Report as follow:

"The term "food insecurity" is commonly used to describe households and individuals who identify as not having enough income to purchase adequate food from grocery stores. This is often measured using an income-related food security tool. In this Diet and Harvest survey, participants simply were asked whether they were concerned about their household's ability to obtain sufficient amounts of grocery foods." (p. 73, Fediuk *et al.*, 2021)

The Report noted that in "the last year, one in every four AOPFN respondent families experienced challenges in purchasing adequate amounts of food to feed their families." (p 73, Fediuk *et al*., 2021)

AOPFN Culture and Rights Study

The purpose of the Culture and Rights Study is described below.

"The purpose of the Report is to provide current information and context regarding the existing status of AOPFN culture and Section 35 rights in relation to the area where the project is proposed, and a preliminary consideration of anticipated interactions between the project and AOPFN rights. This is primarily an initial project interactions report, meaning it does not contain a full assessment of these impacts or consideration of evolving commitments made by parties to avoid, reduce or compensate for these effects. It is understood that a formal Rights Impact Assessment (RIA) will be conducted by AOPFN with the Canadian Nuclear Safety Commission staff during the EA for the project. Data from this Study is expected to inform that RIA process."

The Culture and Rights Study is described in this traditional land and resource use section because it is the earnest desire of CNL to better understand Algonquin perspectives on Algonquin culture and rights and

what that means practically on a day-to-day basis. This is pointed out in Chapter 1 of the Report and is conveyed in the AOPFN Vision Statement (p. 13):

> *"Living in harmony with our cultural values enables our People to live in a healthy, natural environment, and to participate productively in modern society.*
>
> *The Algonquin People know and cherish their Rights: they protect their Rights by exercising them in their daily lives. (AOPFN Vision Statement)"*

The Culture and Rights Study differs from the AKLUS and Diet and Harvest Studies in that it describes how rights are conceptualized through traditional activities. This is described on page 39 of the Report.

> *"this Study is concerned with how AOPFN members conceptualize their rights to engage in such activities on the lands of their unceded territory. These rights are in part based on the seasonal movement through AOPFN territory that existed prior to and during the early settlement period, and the ability to practice them is tied to members' Algonquin culture and identity."*

AOPFN rights were considered within the context of three VCs, solely developed for the Culture and Rights Study: Harvesting and Traditional Use Rights; Governance and Stewardship Rights; and Cultural Continuity Rights. The central importance of land to the culture and community of AOPFN was described eloquently in the Report:

> *"AOPFN culture can be thought of as a way of life, a system of knowledge, values, beliefs and behaviour, passed down between generations of AOPFN members. It encompasses the systems within which people live, play, work, and interact with one another and their surroundings on a day-to-day basis. Culture is reflected and embedded in AOPFN practices and the relationships between people and their natural environment. Culture includes physical elements that can be seen and touched (tangible cultural resources) and other elements that, while equally important, are non-physical, subjective, and knowledge- or value-based (intangible cultural resources). Example intangible elements of culture include:*
>
> - *communally-held knowledge, values, and ways of knowing and transmitting knowledge,*
> - *spiritual practices, ceremonies and beliefs,*
> - *traditions and traditional pursuits,*
> - *visual and physical aspects of landscapes with which people identify, and connectedness to places and spaces, and*
> - *a common understanding of humankind's connection to, and role in, the natural environment."*

For many AOPFN members, their culture is the foundation of their personal identity, and the values, beliefs, knowledge, skills, symbols and activities that are built into their culture provides the "glue" for their well-being and connection to other members of their community and culture group. And land is the critical element of culture, as described by an AAC member:

'The land connects us to the past and to the future. (AOPFN Advisory Committee (AAC) member, January 25, 2021)" (pp. 14 – 15)

Information for the Report was largely drawn from focus groups and verification sessions and key informant interviews. The interviews gathered qualitative and site-specific information in study areas around the NPD site. The study areas for the Culture and Rights study are as follows: the Site Study Area is the NPD Closure Project footprint (with a 250 m buffer zone around the project). The Local Study Area is a 5 km radius around the NPD site, and the Regional Study Area is a 25 km radius around the NPD site (these study areas are different than those in the EIS).

Eleven AOPFN community members were interviewed.

Mapped values included those that would be considered traditional land and resource values considered by this EIS. These values included:

- Habitation values (including temporary, occasional, seasonal, and permanent camps and cabins);
- Cultural and spiritual values (including burial sites, ceremonial areas, and community gathering areas);
- Subsistence values (including harvest and kill sites, plant collection areas, and trapping areas);
- Environmental feature values (including specific, highly valued habitat for moose, elk, and deer); and
- Transportation values (including trails, water routes, and navigation sites).

The temporal boundaries included past, current, and planned future knowledge and use.

- A past value refers to an account of knowledge and use prior to living memory, passed down through history;
- A current value refers to an account of knowledge and use within living memory; and
- A planned future value refers to anticipated or intended knowledge or use.

Based on the key informant interviews, the Culture and Rights Study characterized the local study areas as follows:

"participants have knowledge of the areas within the SSA/Project Footprint, but primarily due to lack of access and perceived risk contributing to stigma associated with the NPD site and its surroundings, have largely been alienated from the vicinity for many decades. As a result, AOPFN members often do not feel they have the ability to access or make informed decisions about the SSA Similarly, within the LSA, participants are aware of wildlife habitat, but would need access to data and more opportunity to monitor current conditions to make decisions about harvesting based on safety. Within the Regional Study Area, some participants continue to harvest closer to Algonquin Provincial Park."

AOPFN participants reported one site-specific value related to Harvesting and Traditional Use Rights, two site-specific values related to Governance and Stewardship Rights, and four site-specific values related to

Cultural Continuity Rights within the project footprint (inclusive of data randomized for confidentiality with a 1 km buffer). The Harvesting and Traditional Use value was a fishing site for walleye last used in summer 2020. The Governance and Stewardship values were: an area AOPFN members avoid because elders warned them about the nuclear activity; and an area where AOPFN members emphasize the need to access data about health of animals, plants, and water before deciding whether or not to harvest. The Cultural Continuity values were: a recreational water route used by AOPFN members to access locations along the Kichi-Sìbì, including Oiseau Rock, last used in summer 2020; and, multiple water routes that are no longer used by AOPFN families for travel and harvesting purposes (pp. 34 – 35).

AOPFN participants also reported three site-specific values related to Harvesting and Traditional Use Rights within the Local Study Area (5 km radius of the project) including a fishing site for walleye and harvesting locations for birch bark and spruce roots (p. 35).

AOPFN participants reported nine site-specific values related to Harvesting and Traditional Use Rights and two site-specific values related to Governance and Stewardship Rights within the Regional Study Area (25 km radius of the project). The three Harvesting and Traditional Use sites included: a fishing site for bass and a fishing area AOPFN members avoid due to concerns about contamination; moose kill sites; and, good moose habitat. The Governance and Stewardship rights values were: an area along the waterfront of the Kichi-Sìbì that participants feel could be used by AOPFN for commercial, harvesting, and recreational purposes if it were accessible (essentially a potential future use site); and, an area where AOPFN members emphasize the need access to data about health of animals, plants, and water before deciding whether or not to harvest (p. 35).

Harvesting and Traditional Use Rights

AOPFN members described their rights as pertaining to the following traditional activities: hunting; trapping; fishing; gathering food plants and medicines; gathering plants and other natural materials for crafting and other cultural activities (e.g., birch bark for canoes); and habitation of camps and camping sites (p. 40). These activities do closely align with the traditional activities described in other EIS sections.

The Report and AOPFN participants described the concept of “sufficiency resources” that are required for the practicing of rights related to harvesting and traditional use. These were listed in the Report as follows (pp. 40-41):

- healthy populations of game in preferred hunting areas;
- healthy populations of fish in preferred fishing water bodies (including the Kichi-Sìbì, other rivers and streams, lakes, and ponds);
- clean and plentiful water from natural sources on the land;
- healthy and abundant food plants and medicines in preferred areas;
- confidence in the quality of wild foods (e.g., free from contamination);
- reasonable access to lands, waters, and resources;
- accessible within the constraints of time and cost;

- an adequate land base on which to pursue harvesting and traditional use;
- feelings of safety and security on the land;
- healthy cultural and spiritual relationships with the land;
- high levels of traditional knowledge of specific locations, and the ability to pass this knowledge across generations; and
- the ability to maintain traditional governance, land tenure, and stewardship systems.

The Report goes on to describe changes over time to AOPFN rights in the project area and throughout all the AOPFN traditional territory since European contact and describes the cumulative effects of settlement and industrial activities. It is noted specifically how the NPD area became an exclusion area and AOPFN members therefore were unable to practice rights in the area. Concerns about contamination of the lands and wild game are also described. The Culture and Rights Study also utilizes data and AOPFN member statements from the Diet and Harvest and AKLUS studies to illustrate concerns.

Governance Rights

Algonquin governance and stewardship rights are best described by text directly from the Report:

> *"Algonquin governance and stewardship practices extend back to the time prior to and around early settlement, as described in the Background (see Section 3.1). The following characteristics are of note and provide context for how AOPFN members today view their governance and stewardship rights:*
>
> - *Algonquin ancestors moved about their territories seasonally to various permanent sites;*
> - *Territories were divided by family-based landholdings, the boundaries of which citizens understood and respected, and descendants in present day have noted that accessing allocated family hunting grounds for Algonquin foods is part of their heritage, and a practice passed on from their ancestors;*
> - *These family-based land tenures included, besides access to hunting and harvesting, the duty to steward the land to ensure continuity of resources for future generations, protect against encroachment, and manage who had permission to travel through the lands;*
> - *Algonquin ancestors charged tolls for passage along the Ottawa River, and issued leases and collected rents from settlers; and*
> - *Algonquin ancestors never surrendered or ceded title to their traditional territories."* (p. 54)

AOPFN rights related to governance and stewardship were described by participants as: right to self-determination; right to participate in decision-making matters which would affect their rights; right to use traditional Algonquin government structure in decision-making; right to exercise traditional land tenure systems (e.g. who can access resources in which locations); right to exercise traditional stewardship systems (e.g. using protocols to protect species) to protect and conserve lands and resources for future generations; and right to access information about the health of animals, fish, plants, medicines, and water, to be able to make informed decisions about harvesting and consumption of resources (p. 56).

AOPFN members also expressed how a “sufficiency of resources” is necessary for the practice of rights related to governance. These resources include but are not limited to: ability to maintain traditional governance, land tenure, and stewardship systems; ability to participate in decision-making processes regarding AOPFN unceded territory; adequate consultation processes for projects proposed in AOPFN unceded territory; and adequate accommodation of AOPFN requests regarding projects proposed in unceded AOPFN territory (p. 56). AOPFN members note in the Report how these rights have eroded over time:

> *“Regional cumulative effects on AOPFN members’ ability to practice governance rights include a long history of land dispossession through the settlement period, long history of lack of consultation regarding projects in AOPFN unceded territory, diminished access to and control over AOPFN unceded territory, gradually being pushed inland away from water bodies over time resulting in changes in territorial autonomy, confinement to the Pikwàkanagàn Reserve, residential schools and associated interruption of transmission of governance practices between generations.*
>
> *Based on information collected from AOPFN members for this Study, in the time that nuclear projects have been constructed and operating in AOPFN’s territory (i.e., since 1943), AOPFN members have not been adequately consulted about these projects, including the NPD. Especially because AOPFN territory is unceded, participants and AAC members considered this to be an ongoing violation of their governance and stewardship rights.”* (p. 57)

Cultural Continuity Rights

With respect to the topic of cultural continuity, AOPFN described the following rights: right to practice AOPFN culture; right to transfer knowledge between generations about the practice of AOPFN culture; right to freely travel across the land and waters of AOPFN territory and right to protect and conserve the lands and resources so future generations can practice their rights (p. 65). In turn, these rights are dependent on access to their traditional lands and resources and the ability to harvest and the concern is expressed that since the take up of the lands for the NPD Closure Project those lands are unavailable for AOPFN to practice in that specific area.

The Report described the current conditions with respect to AOPFN Cultural Continuity Rights in the project area include the following:

- Diminished ability to teach and transfer knowledge to the next generation, and limited lands that can support this activity;
- Reduced feelings of safety and peaceful enjoyment of their land;
- No ability to revive practicing seasonal travel in the Study Area, due to cumulative impacts of alienation from AOPFN lands; and
- Continued sense of connection to the land and their heritage despite being barred from full access to their territories.” (p. 70)

8.9.2.2.3 Algonquins of Ontario

The NPD Closure Project occurs within unceded Algonquin Territory, subject to AOO's Land Claim, where negotiations with the Crown have occurred since 1991.

As part of a submission to the CNSC for a 10 year renewal of the Nuclear Research and Test Establishment Operating Licence for the CRL (Commission Member Document 18 H2.51), the AOO identified that it asserts unextinguished and constitutionally protected Aboriginal rights to unceded Algonquin traditional territory in Eastern Ontario (also referred to as the "Settlement Area") and is currently in negotiations towards a modern day treaty with the Governments of Ontario and Canada. The NPD Closure Project occurs within the unceded Algonquin traditional territory. The unceded Algonquin traditional territory includes 36,000 km^2 within the watersheds of the Kichi-Sibi (Ottawa River) and the Mattawa River. This area is the unceded Algonquin traditional territory of the AOO, composed of 10 Algonquin communities—the AOPFN, Antoine, Kijicho Manito Madaouskarini (Bancroft), Bonnechere, Greater Golden Lake, Mattawa/North Bay, Ottawa, Shabot Obaadjiwan (Sharbot Lake), Snimikobi (Ardoch) and Whitney and Area—and it is recognized that AOO citizens continue to practice traditional land use activities throughout this region. Algonquin traditional use has occurred for a very long period of time. In the Aboriginal Background Information Report to the Forest Management Plan for the Ottawa Valley Forest 2011 to 2021, it was indicated that:

> *Since the 1700s the Algonquins were known to spend the majority of the year occupying the different parts of the Ottawa Valley, hunting, fishing, trapping and gathering among other things. These activities necessitated use of timber and other resources.* (OVF 2011b)

The AOO website describes the importance of traditional harvest to all Algonquin communities:

> "*The harvesting of flora and fauna for food and trade has been integral to the Algonquin way of life since time immemorial. These practices embody an inherent respect for the environment and a fundamental commitment to the sustainable management of resources which has been passed from generation to generation.*
>
> *The Algonquins of Ontario (AOO) are comprised of ten Algonquin communities, including the Algonquins of Pikwàkanagàn First Nation, Antoine, Kijicho Manito Madaouskarini (Bancroft), Bonnechere, Greater Golden Lake, Mattawa/North Bay, Ottawa, Shabot Obaadjiwan, Snimikobi and Whitney and Area.*
>
> *The rights of Aboriginal people in Canada to engage in traditional activities, including the harvesting of wildlife, fish, migratory birds and plants, is recognized by the Constitution Act, 1982 and upheld by the Supreme Court of Canada. As stewards of our ancestral lands, the AOO recognize the importance of exercising this right in a responsible manner."* (AOO 2017a)

The AOO, including AOPFN, further re-iterated the importance of traditional harvest in their Agreement-In-Principle with the Governments of Ontario and Canada. In Chapter 8, it is indicated that:

> "*The Final Agreement will provide that Beneficiaries have the right to Harvest Fish, Wildlife, Migratory Birds and Plants for Domestic Purposes throughout the year within the Settlement Area as further described in this Chapter*." (AOO *et al*., 2016, p. 51).

As indicated in the quotation above, the intent of such harvest is for subsistence/community use purposes and not for commercial purposes (AOO 2016). Indigenous peoples, including the ancestors of the modern-day Algonquins living in the Ottawa Valley undertook traditional activities throughout the lands and waters of the Ottawa Valley, including the NPD site and the adjacent Kichi-Sìbì (Ottawa River) for fishing, trade and transportation.

Traditional land and resource use knowledge for the AOO is primarily derived from the December 2020 released AKLUS (SVS, AOO, 2020). Twenty (20) individuals participated in the AOO AKLUS, including 16 interviewees from the Algonquin communities of Greater Golden Lake, Kijicho Manito Madousakarini, Mattawa/North Bay, Ottawa and Sinimikobi, and two interviewees from the AOPFN. The AOO AKLUS also included the participation of two non-Algonquin Knowledge Holders, who are not Indigenous rights-holders, but hold a deep understanding of Algonquin knowledge and values and have a strong relationship with the AOO. The Algonquin communities of Bonnechere and Whitney and Area signed on in support of the project but were unable to participate in data collection. The total sample size of the AKLUS is small given the number of AOO members.

The AOO AKLUS indicates that the methodology used by the joint AOO and SVS research team is based on the best practices of Terry Tobias (2000) in his manual, Living Proof: The Essential Data Collection Guide for Indigenous Use and Occupancy Map Surveys.

The goal of the study was documented as:

> *The goal of the Study was to collect specific land use and occupancy data and Algonquin knowledge to determine how and where the NPD and NSDF projects will intersect and impact Algonquin use and occupancy. The research team collected this data through map biography and semi-structured interviews with Algonquin elders, land users, harvesters and Knowledge holders.* (SVS, AOO, 2020)

The temporal scope of the study included both historic (includes information participants know about through teaching or knowledge transfer from past generations, including oral history) and current (anything that occurred in a participant's lifetime) use. The geographical study area for the AOO AKLUS was a 25 kilometer radius from the NPD and an additional 5 kilometer radius further downstream on the Kichi-Sìbì (Ottawa River). The temporal scope of the study was for current and historic use. The high importance of the Kichi-Sìbì to the Algonquin people is well described in the AOO AKLUS report.

Concerns about the proposed NPD Closure Project were documented in the Report and formalized into a series of comments and recommendations. Participants expressed general concerns related to the loss of connection to, and use of the lands and water, the proximity of the project to the Kichi-Sìbì, contamination of country foods, bioaccumulation of contaminants in important species, threats to species at risk such as lake sturgeon and American eel, as well as the safety of the harvest, access to cultural sites, the archaeological potential of the area and the flow of information to the AOO.

The AKLUS also included sections on Algonquin history and the archaeological assessment that occurred as a part of the NPD Closure Project. It should be noted that given the small sample size of this AOO AKLUS, the data only represents a "snapshot" of traditional land use and occupancy within the Study Area.

8.9.2.2.4 Métis Nation of Ontario

The NPD Closure Project also occurs within the Mattawa/Lake Nipissing Traditional Harvesting Territory for the MNO Mattawa Métis Council, North Bay Métis Council and Sudbury Métis Council (MNO 2017, no date), which is part of MNO Region 5. The NPD Closure Project is also located in close proximity to the northern border of MNO Region 6.

The MNO completed a TKLUS (KnowHistory 2019) that was undertaken specifically for the NSDF Project and NPD Closure Project through funding supplied by the CNSC. The study area used in the TKLUS included a 50 km radius from the NPD and NSDF (located at CRL) projects but documented use beyond that radius. While the study only involved 11 participants it did document significant use within its study area. Because the study only involved 11 participants, the results should not be taken as the only land uses by MNO citizens in the region.

While best efforts were taken to ensure that the TKLUS was representative of Métis land use, it should be remembered that the study included a small number of participants and was restricted both due to capacity and by a backlog in the citizenship review process at the MNO registry. Additionally, some Métis Citizens practice avoidance behavior and do not harvest in the area surrounding the proposed NPD Closure Project due to concerns about plant and animal contamination.

8.9.2.2.5 Kitigan Zibi Anishinabeg

Kitigan Zibi in its 2023 submission to the CNSC for the NSDF Hearing described its community's connection to the Ottawa River watershed:

> *"Since time immemorial, the Algonquin Nation has occupied the length of the Kichi Sìbì, or Ottawa River, watershed, from its headwaters in north central Québec, all the way to its outlet in Montréal. Prior to contact, the Algonquin People were known as the Omàmìwininìwag. They had a clan governance system based on the Kichi Sìbì watershed. The Algonquin Nation has never ceded, nor abandoned its traditional territory. Their rights and title have not been extinguished. Hence, the Kichi Sìbì Watershed, including the CRL site, still remains unceded and the Algonquin First Nations still hold to this day their inherent rights to it."* (p. 2)

In that submission KZA goes on to describe historical and contemporary traditional use in its traditional territory and includes reference to NSDF (on the CRL property).

> *"KZA community members continue to occupy, manage, safeguard and intensively use lands and waterways as they carry out traditional and contemporary activities on their traditional lands. No treaties were signed by us in relation to our land and these rights remain unextinguished.*

Within the Algonquin Nation, Aboriginal title is held at the community level. KZA asserts Aboriginal rights and title over our traditional lands which are located in present-day Ontario and Québec and depicted below in Figure 2. While the NSDF site is not within KZA's title territory, the impacts of the proposed NSDF will undoubtedly be felt downstream from it. At its closest, the NSDF would be less than 38 kilometers from KZA's traditional lands. Consequently, our rights that flow from our title are engaged in this process. We continue to maintain that the Crown's duty to consult lies at the higher end of the spectrum, given the strong prima facie case for our claim and the serious potential adverse effect upon it. Given the community-specific nature of rights, KZA must be consulted with as an independent nation and with the recognition of its specific rights" (KZA 2023, pp. 2 – 3).

Figure 8.9-3 Traditional Territory of the KZA in Relation to CRL and NSDF

While NPD is not described in the above passage nor depicted in the map above, the NPD site is located 30 kilometers upstream of the NSDF (Chalk River) site and is therefore also outside of KZA's traditional territory. However, as indicated in the submission from KZA, it is very concerned about the proximity of the NSDF to this territory. CNL assumes that this concern extends to NPD. The importance of the Kichi Sìbì (Ottawa River) is further described below.

"The Kichi Sìbì is at the core of KZA's history, culture and traditional activities, a testament to the historical and cultural importance of this area to Anishinabe. The Kichi Sìbì is KZA's main ancestral water route and is still today a major cultural site, gathering place, and fishing spot. It is where KZA members share their traditional knowledge and culture and teach their youth their way of living and knowing. It is therefore

clear why KZA seeks to maintain both the ecological components and the unique cultural and spiritual integrity of the Kichi Sìbì watershed. As an Anishinabe Heritage Site, it remains a cornerstone of KZA's identity.

The CRL site is of particular significance to KZA given its proximity to several important cultural and spiritual sites along the Kichi Sìbì. Prior to contact, we exercised our inherent rights along the Kichi Sìbì in gathering, making offerings, and conducting ceremonies at these locations. One such example is Oiseau Rock, known in Algonquin as "Migizi Kiishkaabikaan". The Migizi Kiishkaabikaan is a rock face 150 meters above the Kichi Sìbì, located across from the CRL and NSDF site. The access to this significant site would and has been hindered by being just across the Ottawa River from the Chalk River facility." (KZA 2023, p. 5)

Harvesting Rights

The KZA submission also described harvesting use, rights and practices of the community and in particular in relation to the Ottawa River near the CRL site.

"Since time immemorial, KZA has been protecting, occupying and using the Kichi Sìbì and its watershed to live from the land, and through it. Still today, KZA people enjoy the Kichi Sìbì, navigate its flows, fish on its waters, and gather on its shores. This river has always been a major waterway to travel through our traditional territory and a famous gathering and fishing spot. In and beyond the Kichi Sìbì, KZA traditional territory encompasses the whole watershed and, hence surrounds CRL site and NSDF site. KZA members still enjoy and use all the entire Algonquin Nation traditional territory to which they still have access, including the NSDF surrounding area. From the Kichi Sìbì and roads, they reach into the area surrounding the CRL site to practice their traditional activities. They hunt in that area, in particular moose, gather medicinal products (bark, root, leaf, etc.) from various plants and trees, and pick food supply (blueberry, raspberry, nuts, wild garlic, etc.). Members using this area have noticed moose yards and many other special wildlife habitats in the vicinity of the CRL site. The CRL site is in fact part of one of the richer sections of the Kichi Sìbì, being one of the better areas where fish abound and an area of particular interest for KZA members looking to exercise fishing rights. They fish many species on the river, for instance Oga (Walleye), Trout, Burbot (Lota lota), Bass, Perch, Muskellunge, Northern Pike (Esox lucius), Bullhead, Catfish, Smelt, American eel (Anguilla rostrata), Lake Sturgeon (Acipenser fulvescens) and many others." (p. 16)

Right to Dignity of Our Culture

In their NSDF submission KZA described a concept, "Right to Dignity of Our Culture" which is tied to traditional use and is important in contextualizing the importance of the Kichi Sìbì (Ottawa River).

"KZA's culture and history are deeply rooted into the Kichi Sìbì, making this river an essential cultural area. To maintain a relationship with the territory, KZA must be able to protect, revitalize and teach their ways of being to future generations. KZA's ways of being are often understood in relation to natural environment and physical landscapes. KZA's relationship with the land is based on being grateful for its wealth and respecting it. A crucial aspect of this relationship is KZA's ability to use, travel through, and enjoy the surroundings in peace, without fear or trepidation. Physical obstructions in or alterations to the natural environment can not only sever the physical but also the spiritual relationship to the territory. One

> *of our inherent understandings is that Women are Keepers of the Waters and Men are Keepers of the Fire. Men's firekeeping teachings include the Earth's internal fire. Traditional knowledge teaches that the heat from the burying of nuclear waste would change the Earth's internal fire and that the nuclear energy leaching into the water, and then flowing into living forms, would disturb all life."* (KZA 2023, p. 17)

Along with their submission on the NSDF Hearing, KZA provided in an appendix an older but fairly comprehensive study on traditional use (Frenette, 1993).

> *"Our most recent formal study of land use and occupancy was prepared thirty years ago by Jacques Frenette. Although we recognize that the territory of our community is never permanently fixed, this study presents a general picture of our use and occupancy within our territory."* (KZA 2023, p 10)

The Frenette study was completed in in the early 1990s. While dated it does provide an overview of traditional and contemporary use in the periods (1850 to 1950) and to the period immediately pre-dating the study (1980s). The Report noted that during the 1850 to 1950 period traditional use was based on family hunting territories, although due to competition for resources from non-Indigenous peoples and other resource extraction activities this type of use could not be maintained. (Frenette, pp. 10 -11)

The Frenette study was a fairly exhaustive study of the KZA's traditional territory and traditional uses both in the historical period and contemporary (1980s) period. In the historical period traditional uses included trapping, hunting, fishing and gathering with a wide diversity of species utilized. The Frenette report also outlines the broader history of KZA's forced dependence on colonial systems through the progressive limitation of harvesting area or denial of access to lands which were previously healthy and available for traditional food harvesting (trapping, hunting, fishing, and gathering).

8.9.2.2.6 Kebaowek First Nation

KFN has indicated in their submission to the CNSC for NSDF (KFN 2023) that the NPD site is located on the area they have identified as an area of their asserted rights and title for themselves, TFN and WLFN (KFN, 2023, Figure 1). They furthermore indicated that their members of the broader Algonquin Nation — can still exercise their rights throughout the Algonquin Nation's entire traditional territory, which covers a larger area of both Quebec and Ontario.

KFN has documented traditional use on the Ottawa near the NPD site. In their NSDF submission KFN indicated that (pp. 27 and 28):

> *"In 2015 and 2016, KFN conducted a survey to obtain baseline inventory of harvesting and fixed cultural sites that living KFN members had used during their lifetimes. From November 2015 to May 2016, 46 members completed individual map-biography interviews to determine where they had engaged in each of 53 different land use activities. They mapped 10,344 features, including some in and around the Chalk River"*

On page 28 there is a Figure that does not have any place names on it but based on the geography of the Ottawa River the far eastern end of the Figure appears to include Swisha and Rolphton and therefore NPD.

As part of the NSDF submission KFN noted on page 28 that:

> *"In May 2023, Kebaowek completed a Rights Impact Survey related to the NSDF project which has presented more opportunities for land use and occupancy mapping of rights and responsibilities data collection in the area. This land use and occupancy information is not comprehensive, but it does provide a robust sample of the exercise of rights, livelihood, and cultural practices, and continued current use of lands and resources by the community members within Algonquin traditional territory"*

In the survey it was indicated that KFN members don't get to practice traditional uses as much as they like to, but survey respondents did indicate which traditional uses they participated in their territory over the last three years. The uses and their participation by men and women is provided below:

- Ceremony (female – 37%, male – 27%);
- Harvesting Medicines (female – 45%, male – 37%);
- Gathering Foods (female – 27%, male – 37%);
- Trapping (female – 12%, male – 20%);
- Fishing (female – 80%, male – 85%);
- Hunting (female – 45%, male – 68%); and,
- Camping (female – 73%, male – 68%).

With respect to fishing it was noted that the average annual catch is 63 fish with fishing done by both rod and net. KFN members also reported that 75% of the time they often or sometimes shared the foods that they harvested.

It was also noted in the survey that 61% own their own camp, 21% occupy the land but that 19% don't have a camp.

The submission from KFN on the NSDF also included a survey of activities members engaged around CRL/NSDF. These activities included hunting, fishing, gathering and spiritual activities (in particular visiting Oiseau Rock). These activities may or may not be representative of activities undertaken near NPD (spiritual activities in particular may be unique to Oiseau Rock).

8.9.2.2.7 Williams Treaties First Nations and AANTC

Engagements with the WTFN and AANTC communities have verbally indicated traditional use also occurs near the NPD site. CNL continues to engage these communities on more exact formal indications of traditional use.

8.9.2.3 Trapping

Trapping in Ontario occurs on licenced traplines on provincial land that are administered by the MNRF. There are approximately 50 licenced trapline areas in the OVF which is slightly over 800,000 ha (OVF

2011b). The trapping of fur bearing animals is a traditional and modern day land and resource use activity practiced by Indigenous peoples in the Ottawa Valley.

Trapping is one resource-based activity that has both a traditional and commercial aspect to it. Most Indigenous trappers trap for personal and cultural reasons as well as for the financial benefit of selling the furs and accessing country foods. Trapping, among other areas of importance, can produce some income to offset a trapper's costs and time.

The right to trap furbearing animals is outlined in section 8.3.24 of the AOO Agreement-In-Principle. The inclusion of such a chapter indicates the importance of trapping as a cultural activity to the AOO. Targeted species include (but are not limited to) beaver (Castor canadensis), fisher (Martes pennant) and marten (Martes Americana) (OVF 2011a).

CNL has assumed that trapping is occurring on provincial land in the OVF (and the nearby Algonquin Park Forest) by registered Algonquins who are members of one of the ten AOO communities. Evidence from the AOO AKLUS confirms this. While most of the trapping documented in the AKLUS is occurring several kilometers south and west of the NPD site, trapping was identified as close as immediately southwest of both Rolphton and Rapides-des-Joachims (SVS, AOO, 2020).

Trapping or snaring was identified in the AOPFN AKLUS study area in Algonquin Park significantly southwest of the NPD site (SVS, AOPFN, 2020).

In the MNO TKLUS it was identified that trapping has been a foundational element of Métis way of life and land use since the genesis of the Métis. Of the 11 participants in the MNO TKLUS, 7 reported participation in trapping although none had trapped within the 50 km study area.

CNL is unsure if Indigenous peoples from other First Nations and communities are trapping in the OVF.

8.9.2.3.1 Site/Local Study Area

There is no trapping within the site study area, which is in the CNL Exclusion Zone.

The vast majority of lands within the Ontario portion of the Local Study Area are federal lands owned by AECL with remaining lands in private tenure. A small portion of the Local Study intersects one designated Trapline Area (PE026) (MNRF 2010b). Engagement with all Indigenous Nations, communities and organizations to the end of July 2024 has not resulted in the identification of any Indigenous trappers operating within the Site Study Area, although it is possible.

8.9.2.3.2 Regional Study Area

The Regional Study Area intersects two designated Trapline Areas (PE026 and PE027) (MNRF 2010b). It is possible but not yet determined whether there are Indigenous peoples holding these traplines. Engagement with all Indigenous Nations, Communities and organizations to the end of August 2021 has not resulted in the identification of any Indigenous trappers operating within this study area, although it is possible through ongoing engagement.

As indicated above, the AKLUS did identify trapping by an AOO member in grids immediately southwest of both Rolphton and Rapides-des-Joachims. This would indicate that trapping by this AOO individual(s) was likely occurring with the Regional Study Area. It is not clear from the AKLUS whether the trapping this location was current or historic.

As indicated above, the AOPFN AKLUS identified trapping in the AKLUS study area in Algonquin Park, which is significantly beyond the Regional Study Area for the NPD Closure Project used by CNL, but is within the Regional Study Area for the AOPFN AKLUS.

As noted in the Socio-economic TSD, trapping may also be occurring by landowners on private land adjacent to the Federal lands owned by AECL as trapping on private lands is permitted. This trapping on private land may or may not be undertaken by Indigenous peoples.

8.9.2.4 Hunting

Hunting continues to be practiced by Indigenous peoples in the Ottawa Valley (the Ottawa Valley Forest is the provincial Crown land that surrounds the NPD site). Hunting today includes moose, elk, white-tailed deer (and possibly also black bear), small game (including partridge) and waterfowl. Hunting in both the AOO and AOPFN AKLUSs is generally described as a “Wildlife Harvesting Area”. The AOO and AOPFN AKLUSs confirmed that the targeted species were primarily moose and deer (also referred to as monz and wawashkeshi in the AOPFN AKLUS) but also included small game such as grouse, partridge, bears, frogs and rabbits (SVS, AOO, 2020; SVS, AOPFN, 2020).

As indicated in both the AKLUSs harvesting activities such as hunting or fishing hold great significance for the Algonquins beyond the activity or sport:

> “harvesting for many participants is not about the sport of hunting or fishing, it is a way of life that provides an opportunity to apply teachings from Elders, put healthy and culturally important foods on the table, connect with the spirit of ancestors and reap what the Creator has graciously provided to the Algonquin people”. (SVS, AOPFN 2020, p. 49; SVS, AOO, 2020, p. 58).

The AOO (which includes the AOPFN) prepares an annual Algonquin Harvest Management Plan specifically to address the hunting of larger game including moose, elk and deer (AOO 2016). The harvesting of wildlife is outlined in Section 8.3 of the AOO Agreement-In-Principle. The inclusion of such a chapter indicates the importance of hunting as a cultural activity to the AOO. As already indicated, the AOO received funding from CNSC and CNL for a large AKLUS in the Ottawa Valley that encompasses traditional uses, including hunting, near the NPD site. As shown in Figure 8.9-4 below, the Regional Study Area overlaps Wildlife Management Unit 48. Targets for moose have been identified for Algonquin harvest in WMU 48 (AOO 2016). While there is no elk harvest in this Wildlife Management Unit, it is expected that there is likely harvest of deer, small game and waterfowl in this management unit.

Seven of the eleven participants in the MNO TKLUS have hunted within the 50 km study area, although the mapping demonstrates that most of the use is in the Deux Rivières area, close to 20 km west of the NPD

site (see Figure 3, KnowHistory 2019). The harvest included both large and small game including moose, partridge, grouse, rabbit, deer, duck and goose (KnowHistory 2019). There was only one documented hunting use within 10 km of the NPD site by an MNO citizen and that was use of the hydroelectric transmission corridor from the Des Joachims Hydroelectric Generating Station. As already indicated, the MNO TKLUS represents a sample of MNO citizens and therefore there could be other hunting in proximity to the NPD site. There could be MNO citizens that hunt closer to the NPD site.

KZA's traditional territory covers (see Figure 8.9-3 above) a large area of Quebec and a smaller area of Ontario, generally east of NPD. KZA (2023) and Frenette (1993) discussed the importance of hunting to KZA.

8.9.2.4.1 Site/Local Study Area

Due to restricted access (e.g., there are "no trespassing" signs and gates at roadways) to the site there is no wildlife harvesting permitted on the NPD site or within the boundaries of the AECL property surrounding the NPD site. Therefore, there is no traditional harvesting occurring within the Site Study Area, except that it is possible for harvesters to hunt for waterfowl on the Kichi-Sìbì (Ottawa River) immediately adjacent to the site which could be in the Site Study Area. As noted above, the Local Study Area is largely comprised of Federal lands owned by AECL with some lands in private tenure. As described in the Socio-economic TSD, the Federal lands include an approximate 380 ha Exclusion Zone. It is possible that there is harvesting occurring on adjacent private property (hunting on private land is subject to landowner permission). It is possible that there is waterfowl hunting along the Kichi-Sìbì (Ottawa River) shoreline of the NPD site. Hunting for waterfowl in Ontario commonly occurs along waterways, and there are no restrictions preventing an individual from hunting along the Kichi-Sìbì (Ottawa River). Therefore, it seems reasonable that Indigenous peoples from any and all of the Indigenous organizations and communities may hunt waterfowl along the Kichi-Sìbì (Ottawa River). The AOO AKLUS did not identify any hunting in the site or local study area, but as it represents a sample, it is possible that AOO members might hunt in the Local Study Area.

The AOPFN AKLUS identifies hunting in very close proximity to the NPD site. While it is not possible for hunting to occur within the Site Study Area (except for waterfowl hunting on the Kichi-Sìbì (Ottawa River)) it is possible that hunting is occurring in the Local Study Area or adjacent to it. Based on how the AKLUS was undertaken and how the location data is presented it is not possible to know precisely if hunting is occurring in the Local Study Area but it cannot be ruled out.

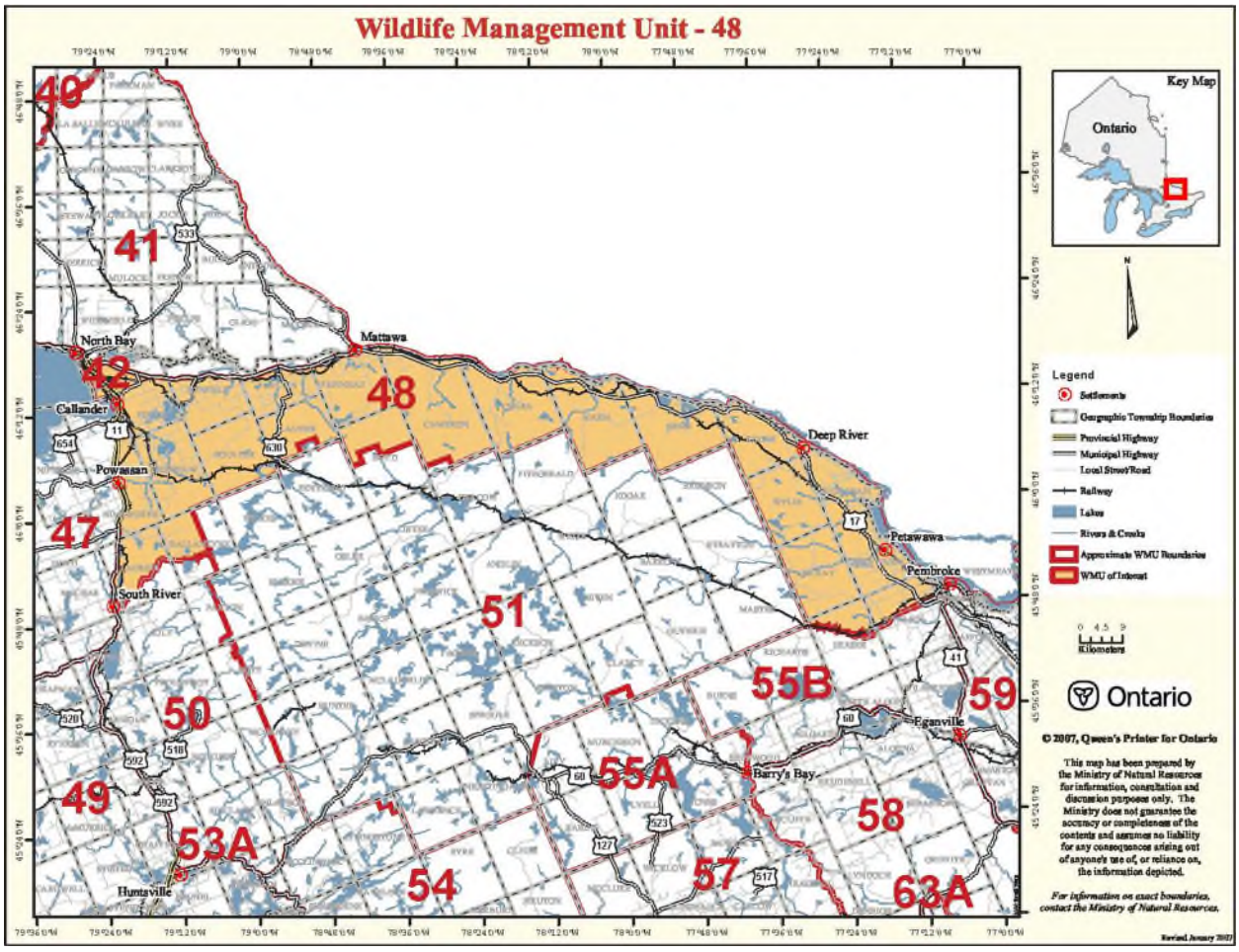
On the Quebec side of the Kichi-Sìbì (Ottawa River), the area is fairly remote (i.e., limited road infrastructure and not easy to get access to) but could be used for traditional hunting. No Indigenous Nation, community or organization has indicated that it is harvesting in the Local Study Area but it is possible some of the Local Study Area outside of the NPD perimeter might be used for traditional hunting. Both the MNO and the AOO have agreements on hunting with the Ontario Ministry of Natural Resources which suggest the majority of their hunting occurs on the Ontario side of the Kichi-Sìbì (Ottawa River).

8.9.2.4.2 Regional Study Area

The Regional Study Area includes provincial, federal and private lands where hunting by Indigenous Nations, communities and organizations has been recorded.

The provincial Wildlife Management Unit that envelops the NPD site is Wildlife Management Unit #48 (Figure 8.9-4) (MNRF 2007).

Figure 8.9-4 Wildlife Management Unit #48



Source: MNRF, 2007

Algonquin harvest in this management unit is known, as targets for moose have been identified for it (AOO 2017b). While there is no elk harvest in this management unit it would be expected that there is likely harvest of deer, small game and waterfowl in this management unit. While it is not confirmed, it is very likely that there is traditional hunting by Indigenous peoples within 5 km of the perimeter of the AECL-owned lands. The AOO AKLUS identified one record of harvest within the regional study area south of Rolphton and the Trans-Canada Highway. As the AOO AKLUS is a sample of uses by AOO members, hunting may

be more extensive than what the study indicated. The AOO AKLUS documents more significant wildlife harvesting or hunting to the south of the NPD site within Algonquin Park.

The AOPFN AKLUS does identify multiple incidents of hunting within the Regional Study Area. As the AOPFN AKLUS is just a sample of uses by AOPFN members, hunting may be more extensive than what the study indicated. The AOPFN AKLUS also documents significant hunting beyond the EIS Regional Study Area but within the AOPFN AKLUS Regional Study Area. In fact, most of the area is hunted. Most of this hunting is located on the Ontario side of the Kichi-Sìbì (Ottawa River) and therefore west and south of the NPD site.

The MNO TKLUS demonstrated that one individual has hunted along the transmission corridor from the Des Joachims Hydroelectric Generating Station.

The traditional hunting that is occurring is likely occurring on provincial Crown lands, as hunting on private land requires landowner permission.

It would be expected that some Indigenous peoples in Quebec also hunt on the Quebec side of the Kichi-Sìbì (Ottawa River). Likely the hunting of animals is similar to Ontario and targets moose, deer, small game and waterfowl.

It is possible that there is waterfowl hunting along the Kichi-Sìbì (Ottawa River) shoreline of the NPD site. Hunting for waterfowl in Ontario commonly occurs along waterways, and there are no restrictions preventing an individual from hunting along the Kichi-Sìbì (Ottawa River). Therefore, it seems reasonable that Indigenous peoples from any and all of the Indigenous Nations, organizations and communities may hunt waterfowl along the Kichi-Sìbì (Ottawa River).

8.9.2.5 Fishing

The importance of the Kichi-Sìbì (Ottawa River) as a major travel and transportation corridor and its overall ecological and cultural importance was mentioned by multiple Indigenous Nations, communities and organizations. Both AKLUSs and information provided by KZA identify the Kichi-Sìbì (Ottawa River) as a major water travel route for Algonquin peoples. Fishing is a traditional and modern-day land and resource activity practiced by Indigenous peoples in the Ottawa Valley. Fish species traditionally targeted have likely included the same type of fish that occur today such as walleye (*Sander vitreus*), smallmouth bass (*Micropterus dolomieu*), and northern pike (*Esox Lucius*) (AECL 2010). Historically, lake sturgeon (*Acipenser fulvescens*), suckers (*Catostomidae* spp.) and American eel (*Anguilla rostrata*) would have also been likely taken. Along with these species, the AKLUS also identified the following other species that have been harvested including: yellow perch (Perca flavescens), catfish (*Ameiurus* spp.) and speckled trout (*Salvelinus fontinalis*), lake trout (*Salvelinus namaycush*), burbot (*Lota* sp.) and muskellunge (*Esox masquinongy*). The AOPFN AKLUS specifically mapped fishing areas for Bass, Lake Trout and Walleye (SVS, AOPFN, 2020). But along with those three species the importance of other species was noted: Brook Trout (also known as Speckled Trout), Burbot, Catfish, Chub, Jackfish/Northern Pike, Lake Sturgeon, Lake Whitefish, Mud Pout (or Brown Bullhead), Muskellunge, Sucker, Sunfish and Yellow Perch. Baitfish were also noted to be important, but the species of baitfish weren't identified. The Report also identified the

importance of Kichi-Sìbì (Ottawa River) to AOPFN for cultural and historic reasons but also for traditional use including fishing (SVS, AOPFN, 2020).

The AOO AKLUS mapped fishing areas for Bass, Brook Trout, Catfish, Mudpout, Jackfish/Northern Pike, Lake Sturgeon, Muskellunge, Pickerel/Walleye, Speckled Trout and Yellow Perch (SVS, AOO, 2020). Along with those species the AOO AKLUS noted the importance of both American Eel, Burbot and Chub as well.

The harvesting of fish is outlined in Section 8.2 of the AOO Agreement-in-Principle (AOO, Government of Ontario, Government of Canada 2015). The inclusion of such a section indicates the importance of fishing as a cultural activity to the AOO.

Fishing is a common activity undertaken by AOPFN harvesters with key species of interest being bass, trout, and pickerel/walleye. While fishing is a common activity some participants of the AOPFN AKLUS did indicate a concern with eating fish near the CNL facilities out of concern of contamination. This was documented clearly in the Diet and Harvest Study (Fediuk *et al.*, 2021). CNL recognizes that it will need to work more with AOPFN and evaluate communication needs and risk concerns and seek solutions with AOPFN. This is a topic of concern to Indigenous peoples as well. CNL is committed to working with the AOPFN on addressing these concerns.

Eight of the eleven participants in the MNO TKLUS have fished in the 50 km study area identified in the KnowHistory (2019) study. This included fishing on the Kichi-Sìbì (Ottawa River) upstream of Rolphton. There was also other MNO fishing in the study area in waterbodies to the west of Kichi-Sìbì (Ottawa River) towards Algonquin Park. Fish species harvested in the MNO study included walleye, trout, bass, northern pike and lake sturgeon. It was also noted that three of the eleven participants participated in a commercial sturgeon fishery as children. It is unclear based on the mapping on Figure 5 of the Know History (2019) study where that fishing occurred, but it appears the closest commercial fishing to the NPD site was approximately 5 kilometers to the west on the Kichi-Sìbì (Ottawa River). It should be noted that there is no longer a commercial sturgeon fishery on the Kichi-Sìbì (Ottawa River).

KZA's traditional territory covers (see Figure 8.9-3 above) a large area of Quebec and a smaller area of Ontario and on the Ottawa River it is situated downstream but in close proximity to NPD. KZA (2023) and Frenette (1993) discussed the importance of fishing to KZA.

There may be Indigenous owned and operated resource-based tourism establishments such as sport fishing or other water-based tourism industries hunting or eco-tourism. CNL is unaware of any such enterprises operating in the study areas but it is possible.

8.9.2.5.1 Site/Local Study Area

Due to the restricted access (e.g., there are "no trespassing" signs and gates at roadways) to the site there is no fishing on the NPD site or within the boundaries of the AECL property surrounding the NPD site. There may be fishing in the Kichi-Sìbì (Ottawa River) adjacent to the site and property which could be in the Site Study Area.

8.9.2.5.2 Regional Study Area

There is fishing by Algonquin people on the Kichi-Sìbì (Ottawa River) in the vicinity of the NPD site. This is not surprising given the significance of the Kichi-Sìbì (Ottawa River) and its importance to Algonquin and other Indigenous peoples.

The AOO AKLUS identified that fishing occurs all along the Kichi-Sìbì (Ottawa River) within the study area (the study area with respect to the Kichi-Sìbì (Ottawa River) is 25 kilometers upstream but 30 kilometers downstream) of the AKLUS including within the Regional Study Area for the NPD Closure Project.

The AOPFN AKLUS identified fishing in the Regional Study Area (SVS, AOPFN, 2020), likely on the Kichi-Sìbì (Ottawa River). While the number of personal fishing areas identified by AOPFN members within the AKLUS was very limited, this likely underrepresents AOPFN fishing use on the Kichi-Sìbì (Ottawa River). In the August 2021 Diet and Harvest Report, eighteen percent of AOPFN survey respondents fished within a zone containing the proposed CNL sites, including the Kichi-Sìbì (Ottawa River). While there are other waterbodies in this zone it seems likely that some of this fishing was in the Kichi-Sìbì (Ottawa River). The eighteen percent figure is significantly less than other areas within AOPFN traditional territory but does demonstrate more use than what was conveyed in solely looking at the AKLUS (as indicated in section 8.9.1.1, the Diet and Harvest Study identifies that this area is harvested less for a number of reasons but including concerns associated with the nuclear facilities). Also, in the Culture and Rights Study AOPFN, participants reported one value related to Harvesting and Traditional Use Rights, specifically fishing sites in each of the three Culture and Rights Study Areas.

Indigenous peoples maintain some commercial fish licenses for inland waters in Ontario. However, there is currently no commercial fishery on the Kichi-Sìbì (Ottawa River). Historically, there likely was a commercial sturgeon fishery on the Kichi-Sìbì (Ottawa River) and members of the MNO in their TKLUS indicated that they had historically participated in a commercial fishery (KnowHistory 2019).

Fishing was not reported in other waterbodies within the 5 km Regional Study Area of the NPD site in any traditional use study, however it seems reasonable that traditional fishing is likely to also occur in lakes that are in proximity to the site such as Tee Lake (see Figure 8.5-1), which is within the Regional Study Area.

In summary, while only one of the traditional use studies reported fishing within the Regional Study Area, it seems very likely that one or all the communities have individuals that fish or have fished along the Kichi-Sìbì (Ottawa River) within the Regional Study Area at some point in time.

8.9.2.6 Gathering

Gathering is a traditional and modern day land and resource use activity practiced by Indigenous peoples in the Ottawa Valley. The gathering of plants, berries, mushrooms, etc. has been for subsistence, medicines, crafts and other purposes. Gathering activities can also have a commercial component to them. The most common example of this is blueberry picking. Other gathering activities that might have a commercial component to them such as gathering other plant materials for food or craft use. In engagement

sessions, documentation, and as demonstrated through the AOO AKLUS has documented the importance of large birch trees for canoe building.

Recent work by the AOPFN in the Diet and Harvest Study has reported that AOPFN survey respondents collect fifteen different kinds of berries and nuts, twenty-six kinds of other plant foods, three kinds of mushrooms and three kinds of plants for medicines throughout AOPFN traditional territory. While there are fewer AOPFN survey respondents who indicated that they eat plant material as compared to fish and mammals, thirty-nine percent reported eating berries and/or nuts, thirty-eight percent other plants foods, twenty-three percent mushrooms and forty-eight percent using plant materials for medicines (Fediuk *et al.*, 2021). According to the Diet and Harvest Study, while there are fewer plant harvesters than hunters and anglers, close to a third of respondents reported collecting plants. While the primary areas for collecting plants were identified in Algonquin Park and in the area south of the Park, the area between North Bay and Pembroke on the south side of the Kichi-Sìbì (Ottawa River) (the area containing NPD and CRL) was used by some plant harvesters (Fediuk *et al.*, 2021).

The AOO (including AOPFN) has indicated the importance of traditional harvest in its Agreement-in-Principle with the Governments of Ontario and Canada. In Chapter 8, it is indicated that: “The Final Agreement will provide that Beneficiaries have the right to Harvest Fish, Wildlife, Migratory Birds and Plants for Domestic Purposes throughout the year within the unceded Algonquin traditional territory as further described in this Chapter.” (AOO, Government of Ontario, Government of Canada 2015). This would include all Crown lands within the unceded Algonquin traditional territory.

The harvesting of plants is outlined in Section 8.5 of the AOO Agreement in Principle (AOO, Government of Ontario, Government of Canada 2016).

The AOO AKLUS identified plant and natural material gathering areas and also documented their importance with respect to them not only as food items but also their importance as medicines and for ceremonial reasons. The plants collected included the following: balsam fir, blueberries, cranberries, raspberries, blackberries, strawberries, reindeer lichen, thorn apple, sumac, pine, pearly everlasting, sumac, sphagnum moss, wintergreen, etc. (SVS, AOO, 2020).

The harvesting of plants by the AOPFN is recognized as a benefit not only in terms of the provision of food but also for medicinal reasons. As well, many of the plants are important for cultural use in terms of ceremonies. The AOPFN AKLUS report notes that it is evident that there are Algonquin species of importance surrounding the proposed project (SVS, AOPFN, 2020).

Both the AOO and AOPFN AKLUSs documented gathering within the 25-kilometer AKLUS study areas.

The MNO TKLUS (KnowHistory 2019) documented that the collection of plants, berries, wood and other natural materials is a practice associated with both historical and modern-day Métis communities. Four of the 11 participants in the MNO TKLUS documented collecting and gathering activities within the 50 km study area. The study noted that gathering can be the main reason for a trip or be a secondary reason. The MNO harvesting in this 50 km study area is generally located closer to Deux Rivières, but there is harvesting closer to the NPD site as it appears harvesting has occurred along and near the Highway 17 corridor. Some

of the plant material that was and is gathered includes berries and fruit (raspberries, blueberries, choke cherries); maple syrup; fiddleheads; medicinal plants; tea plants; and materials for crafts and canoe making. Some gathering activities require a wide diversity of plant species for medicinal purposes, tea making and canoe building.

KZA's traditional territory covers (see Figure 8.9-3 above) a large area of Quebec and a smaller area of Ontario and on the Ottawa River it is situated downstream but in close proximity to NPD. KZA (2023) and Frenette (1993) discussed the importance of gathering to KZA.

8.9.2.6.1 Site/Local Study Area

Due to restricted access (e.g., there are "no trespassing" signs and gates at roadways) to the site, there is no gathering on the NPD site or within the boundaries of the AECL property surrounding the NPD site. It is possible that there may be some gathering activities in the Local Study Area within private lands adjacent to the Federal lands and along the west shore of the Kichi-Sìbì. Results from the MNO TKLUS indicate that traditional gathering has occurred along the Highway 17 Corridor near the site, which is in the Local Study Area.

Through engagement, the Métis have indicated an interest in learning of the possible presence of blueberry. Section 8.6 of the EIS includes low sweet blueberry as a species that has been identified at the NPD site. Providing this ecosite remains following post-construction, this area may become available for future gathering if access is granted.

8.9.2.6.2 Regional Study Area

Results from the AOO AKLUS demonstrated that some plant gathering occurs south of the NPD site and the Trans-Canada Highway.

Results from the AOPFN AKLUS did not identify any gathering within the EIS Regional Study Area but in fairly close proximity to it. As noted above, close to a third of respondents to the AOPFN survey reported collecting plants and the area between North Bay and Pembroke on the south side of the Kichi-Sìbì (Ottawa River) (the area containing NPD and CRL) was used by some plant harvesters. As well, the land near River was noted by at least one AOPFN member as containing plants with stronger medicinal value.

Results from the MNO TKLUS indicate that traditional gathering has occurred along the Highway 17 Corridor near the site, which is in the Regional Study Area. Other Indigenous peoples also likely gather plant materials and other resources on provincial Crown land in the Regional Study Area.

As indicated previously, the traditional use studies represent samples and are not definitive. Given that the Regional Study Area particularly on the Ontario side is relatively well accessed it seems probable that traditional gathering likely occurs on Crown lands within the Regional Study Area.

8.9.3 Cultural Resources and Ceremonies

Indigenous peoples place a high degree of value on specific sites of cultural, historical, spiritual, social or ecological significance. These sites may have broader cultural significance related to the practice of formal or informal ceremonies at or near these sites. The AOO, AOPFN, KZA, KFN, WLFN and MNO have all communicated the importance of the Kichi-Sìbì (Ottawa River) to their Nations, communities, and organizations.

CNL is aware that the entire NPD site has been a restricted area that prevents local Indigenous peoples from practicing any traditional activities including cultural ones on the NPD lands. Some Indigenous Nations, communities and organizations have indicated that concerns about potential contamination likely extending the effect to an even larger area which has been referred to by different groups in different ways but has produced an “alienation” effect to a wider area. Some communities have also expressed that not exercising these traditional activities including ones such as hunting and fishing impacts cultural continuity. The interconnected nature of traditional activities and culture was documented in AOPFNs Culture and Rights Study. CNL does realize that the current baseline environment of the NPD site is one where these activities can’t be currently practiced. Therefore, CNL recognizes that the baseline environment is not one desirable to Indigenous peoples and the desire is to return the lands back to pre-development condition.

The AOO AKLUS documents locations of culturally and/or historically significant sites and refers to them as Algonquin Cultural Sites (SVS, AOO, 2020).

The AOPFN AKLUS report does not identify any known cultural features at the NPD site but aligned with informal communications mentioned above, the Kichi-Sìbì (Ottawa River) itself is recognized as an important cultural/heritage value for multiple reasons by AOPFN AKLUS participants. As already described, hunting and fishing and all traditional uses have cultural aspects to them.

In the MNO TKLUS, interviewees have expressed an important spiritual and cultural connection to the Kichi-Sìbì (Ottawa River) corridor (KnowHistory 2019).

> *Interviewees reported feeling a spiritual and cultural connection to the Ottawa River corridor. They attributed this feeling to their family being present in this area for generations and the historic connection between the Ottawa River and the fur trade. Many participants shared stories about their ancestors which have been passed down from the 19th century. The historic travel routes, burial grounds, religious sites, and gathering places associated with these stories strengthen links to their Métis heritage.* (KnowHistory 2019)

A submission by KZA for the NSDF project also demonstrates the importance of Kichi-Sìbì (Ottawa River) to them.

8.9.3.1 Site Study Area

CNL notes that to date there has been no indication that Indigenous cultural ceremonies occur at the NPD site. However, this issue is discussed in further detail below.

A Stage 1 Archaeological Assessment of the NPD site (Archaeology TSD) was undertaken by Kinickiniick Heritage Consulting and is titled: “Stage 1 Archaeological Assessment of the Nuclear Power Demonstration (NPD) Property Part of Lots 41-45, 48 & Town Plot, Range A & B Rolph Twp. (Geo), Township of Laurentian Hills, Renfrew County”. The Stage 1 Assessment determined that there is no archaeological potential within the decommissioning footprint due to extensive disturbance during facility construction.

As indicated in the Archaeology TSD, historical photographs of NPD under construction clearly show that disturbance throughout the nuclear power plant grounds was deep and extensive, including the shoreline of the Kichi-Sìbì (Ottawa River). There is no archaeological potential within the proposed disturbance footprint for the NPD decommissioning. As required by the OMCTS (2011), the Archaeology TSD assessed beyond the proposed footprint of the project and determined that there is archaeological potential within the rest of the NPD site, both for historical homesteads and pre-(European) contact period. Although it was determined that there is high potential for cultural material to be present outside of the proposed project footprint, the Archaeology TSD did not recommend further archaeological assessment because these areas will not be impacted by the project. It is also noted that there are some registered archaeological sites outside of the NPD site (see Section 3.2.2 of the Archaeology TSD).

The Archaeology TSD provides an overview of the archaeological and historical context around the NPD site spanning many periods. Readers who are interested in this historical context are encouraged to read this TSD.

In summary, there are no known cultural ceremonies that occur at the NPD site at present.

8.9.3.2 Regional Study Area

CNL acknowledges that there are proposed Algonquin land claim settlement lands located near the NPD site (near Tee Lake) that likely are of significance to certain members of the AOO. There may be cultural ceremonies associated with this area, which is situated south of the NPD property. There is also a cultural site that was noted in the AOO AKLUS near the Swisha Dam. This site is not on AECL property but is within the Regional Study Area. In the AOO AKLUS there was some concern expressed about the NPD Closure Project and access to cultural sites. However, as already indicated there are no known cultural sites on the NPD property and the NPD Closure Project is proposed for the NPD site, so there is no potential for a blocking of access or other potential impact to this or other cultural sites.

8.10 Indigenous Socio-economic and Health

This section of the EIS addresses both Indigenous socio-economic and health interests. Please note that that spatial boundaries are different for these two environmental components.

8.10.1 Indigenous Socio-economic

8.10.1.1 Spatial Boundaries

The spatial boundaries with respect to the Indigenous socio-economic environment were determined based on the potential for the project to affect Indigenous Nations, communities and organizations and their proximity to the facility.

The Site Study Area for the Indigenous socio-economic environment is the same as the general Site Study Area defined in Figure 5.2-1.

The Local Study Area has been defined as the Site Study Area plus a 1 km area beyond the Site Study Area, and is the same as that used for traditional land and resource use (see Figure 8.9-1 above) and Socio-economic (Section 8.11.1) environments. Both the Traditional Land and Resource Use and Socio-economic Environmental Components utilized a Regional Study Area that was defined as the Site Study Area and a 5 km radius beyond that.

There are no Indigenous communities such as First Nations reserves within a 5 km radius of the NPD site. The closest Indigenous community to the NPD site is the AOPFN located on Golden Lake, 75 km (measured as a straight line) from the NPD site. It is possible that there are some Indigenous peoples that do live within 5 km of the NPD site.

Negative Indigenous socio-economic effects outside of the 5 km radius of the site are unlikely, however, CNL has identified all the Indigenous Nations, communities and organizations it is engaging with in this section. Detailed information is only provided for Indigenous Nations or communities within 100 km of the NPD site. There are several reasons for this. First, there are a number of AOO and MNO locations within 100 km of the site but except for AOPFN, there are no physical communities that can be found in one specific location such as a First Nation Reserve. Therefore, they have different socio-economic characteristics (i.e. the population is dispersed in a wider area) and they aren't reliant on the same set of infrastructure or decision-making processes, which can be key socio-economic considerations. Second, Statistics Canada Census information can be found for the AOPFN Reserve (and other populated Reserves) but is not available at an organizational level for other AOO or MNO locations. Third, information on all the Indigenous Nations, communities and organizations is provided in the IER TSD. Lastly, First Nation Reserves beyond 100 km were not considered to be potentially affected from a socio-economic perspective except as potential economic beneficiaries. For these reasons, the regional study area for Indigenous socio-economic was defined as an area 100 km.

While not necessary, this section also includes a population estimate of Indigenous peoples within four large census divisions surrounding the NPD site. These include: Renfrew County, Ontario; Nipissing District,

Ontario; Pontiac Regional Municipality, Quebec; and Témiscamingue Regional Municipality, Quebec. Large areas of these four Census Divisions extend beyond 100 km from the NPD site. Note that there are small slivers of three other census divisions just within the 100 km radius, including Haliburton, Hastings and La Vallee-de-la-Gatineau. However, these are all essentially unpopulated rural and park areas.

These Census Divisions are shown in Figure 8.10-1 below. The figure also shows two census subdivisions which are discussed in this section. These are: the AOPFN Reserve; and the Town of Laurentian Hills within which the NPD site is located.

Note that engagement undertaken with Indigenous Nations, communities and organizations suggests an interest in economic opportunities associated with the project. CNL is open to discussing economic opportunities with any of the Indigenous Nations, communities and organizations identified with this project.

8.10.1.2 Site/Local Study Area

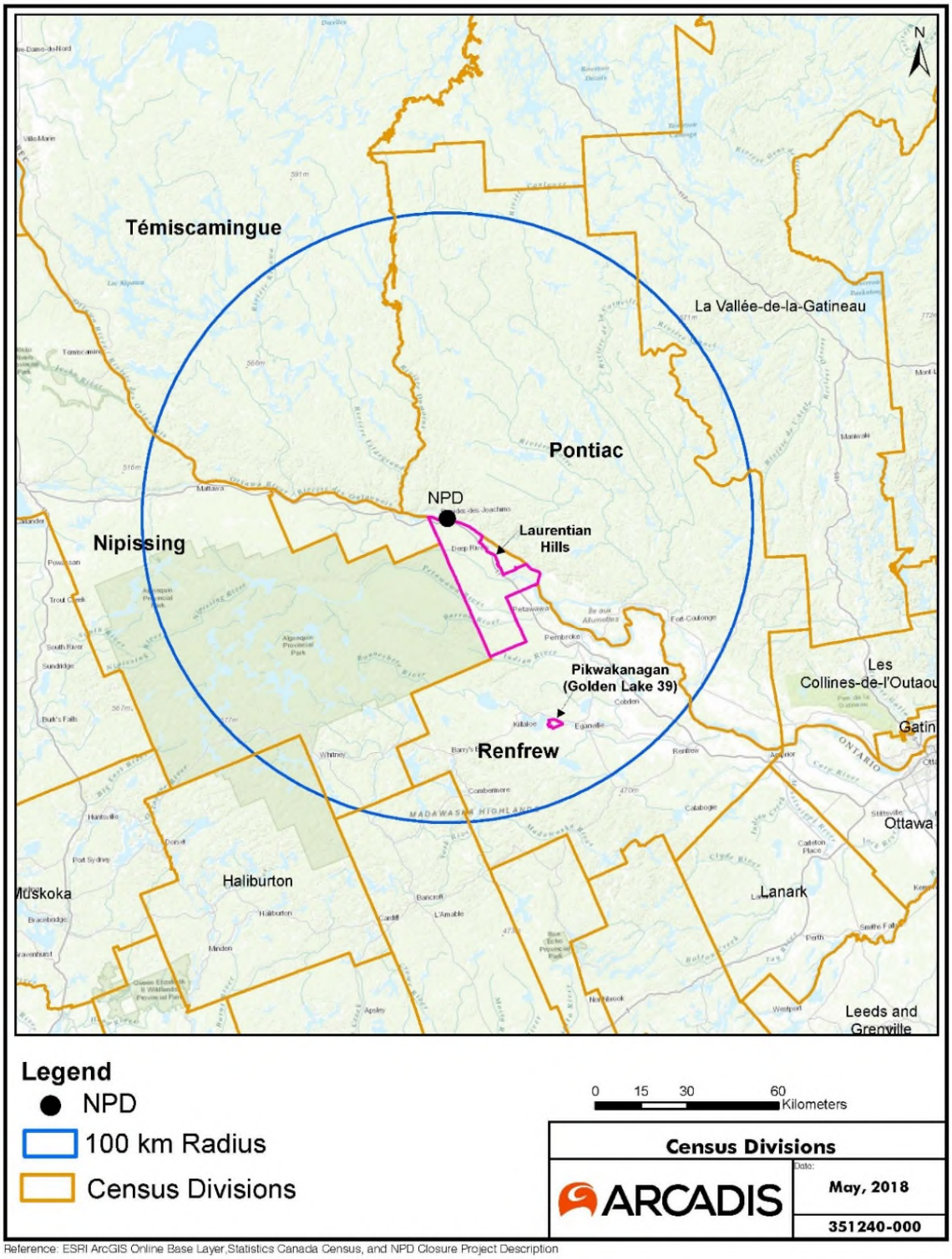
There are no Indigenous Nations, communities and organizations in either the Site or Local Study Areas. There are no Indigenous peoples living in the Site Study Area. There may be Indigenous peoples living in the local study area.

8.10.1.3 Regional Study Area

The IER TSD identifies and describes the wide array of Indigenous peoples, communities and organizations that CNL has been engaging with for the NPD Closure Project. Communities with a potential interest in the project and included in CNL's Indigenous Engagement Program were identified in consultation with the CNSC and through information largely derived from available public sources. As noted in Section 6. above, these include government sources (e.g., the Government of Canada's ATRIS web portal), First Nation community profile information from the INAC website (which is updated semi-annually) and Indigenous Nation, community and organization websites.

A list of Indigenous Nations, communities and organizations with a potential interest in the project is outlined below and explained in more detail in the IER TSD. Table 8.10-1 below identifies and describes each of the Indigenous Nations, communities and organizations in terms of their location, approximate distance to the NPD site, and whether or not the specific Indigenous Nations, communities and organizations is a physical community with one defined location such as a First Nations Reserve. Knowing whether the Indigenous Nations, communities and organizations is located in one physically defined location is helpful in understanding socio-economic information associated with the community (e.g., Census of the Population data potentially available for First Nation communities on Reserves is not available for Indigenous Nations, communities and organizations where there is no singular physical location).

Figure 8.10-1 NPD Site and the Census Divisions of Renfrew, Nipissing, Pontiac and Témiscamingue



Reference: ESRI ArcGIS Online Base Layer,Statistics Canada Census, and NPD Closure Project Description

Table 8.10-1 Indigenous Nations, Communities and Organizations Identified in the NPD Closure Project

Indigenous Nation, Community or Organization	Description	Is this a Community in one Physically Defined Location?	Distance to NPD (measured as a straight line)
Algonquins of Ontario			
Algonquins of Pikwàkanagàn First Nation	• AOO community • Recognized Status First Nation by federal government • Reserve at Golden Lake (Pikwàkanagàn No. 06216)	Yes – Golden Lake	75 km
Antoine Algonquin Nation	• AOO community • No Reserve • Population is generally in Mattawa and area further west	No	84 km
Algonquin Nation Kijicho-Manito Madaouskarini	• AOO community • No Reserve • Population is generally in the Bancroft area	No	127 km
Bonnechere Algonquin First Nation	• AOO community • No Reserve • Population is generally in the Renfrew/Golden Lake area	No	75 km
Algonquins of Greater Golden Lake First Nation	• AOO community • No Reserve • Population is generally in the Golden Lake area	No	75 km
Mattawa-North Bay Algonquin First Nation	• AOO community • No Reserve • Population is generally in the Mattawa – North Bay area	No	84 km
Ottawa Algonquin First Nation	• AOO community • No Reserve • Population is generally in the Ottawa area	No	174 km
Shabot Obaadjiwan First Nation (Sharbot Lake)	• AOO community • No Reserve • Population is generally in the Sharbot Lake area	No	175 km
Snimikobi (Ardoch) (Beaver Creek Algonquin First Nation	• AOO community • No Reserve • Population is generally in the Ardoch and Sharbot Lake area	No	175 km
Whitney Area Algonquins	• AOO community • No Reserve • Population is generally in the Whitney area	No	90 km

Indigenous Nation, Community or Organization	Description	Is this a Community in one Physically Defined Location?	Distance to NPD (measured as a straight line)
Algonquin Anishinabeg Nation			
Kebaowek (formerly known as Eagle Village) First Nation	• Recognized Status First Nation by federal government • Reserve lands associated with this community include the Kebaowek First Nation - Kipawa No. 06140 • Reserve is situated on the shore of Lake Kipawa to the northeast of Témiscamingue, Quebec	Yes – Lake Kipawa	122 km
Kitigan Zibi Anishinabeg	• Recognized Status First Nation by federal government • KZA occupy one area of reserve lands: Kitigan Zibi No. 06100 • Situated to the south-west of the borders of Maniwaki in the Outaouais region of Quebec	Yes – Adjacent to Maniwaki, Quebec	130 km
Métis Nation of Ontario			
MNO Mattawa Métis	• MNO registered citizens generally in the Mattawa area	No	84 km
MNO North Bay	• MNO registered citizens generally in the North Bay area	No	140 km
MNO Sudbury	• MNO registered citizens generally in the Sudbury area	No	256 km
Williams Treaties First Nations			
Alderville First Nation	• Recognized Status First Nation by federal government • Located at Alderville, Ontario near Rice Lake	Yes – Rice Lake	226 km
Beausoleil First Nation	• Recognized Status First Nation by federal government • Located on Christian Island, Georgian Bay	Yes – Christian Island, Georgian Bay	250 km
Chippewas of Georgina Island First Nation	• Recognized Status First Nation by federal government. • Located on Georgina Island, Lake Simcoe.	Yes – Georgina Island, Lake Simcoe	240 km
Chippewas of Rama First Nation	• Recognized Status First Nation by federal government. • Located near Orillia, Ontario	Yes – Rama/Orillia, Ontario	214 km

Indigenous Nation, Community or Organization	Description	Is this a Community in one Physically Defined Location?	Distance to NPD (measured as a straight line)
Curve Lake First Nation	• Recognized Status First Nation by federal government. • Located on Curve Lake, near Peterborough, Ontario	Yes – Curve Lake, near Peterborough, Ontario	199 km
Hiawatha First Nation	• Recognized Status First Nation by federal government. • Located on shore of Rice Lake, Ontario.	Yes – Rice Lake, Ontario	227 km
Mississaugas of Scugog Island First Nation	• Recognized Status First Nation by federal government. • Located on Lake Scugog, near Port Perry, Ontario.	Yes – Lake Scugog, Ontario	242 km

The above Table 8.10-1 demonstrates that there is only one physical Indigenous community within 100 km of the NPD site. That community is the AOPFN. More information on the AOPFN is provided below.

Algonquins of Pikwàkanagàn First Nation

The AOPFN occupy one area of reserve lands: Pikwàkanagàn No. 06216 (Table 3-2 of the IER TSD). Situated on the southeast shore of Golden Lake where it flows in to the Bonnechere River in Renfrew County, Ontario, the reserve covers an area of 688.8 ha. AOPFN has a total registered population of 2,892 (as of September 2019, INAC 2020). Roughly 84 per cent of the registered population resides off reserve lands (2,434).

The reserve was established through a Crown patent in 1873 following several petitions from the community who were known at the time as Golden Lake. The AOPFN voted in favor of the "Algonquins of Pikwàkanagàn Land Code" and "Individual Agreement" with the Government of Canada under the federal *First Nations Lands Management Act* (1999) which provides the First Nation with the authority to develop land laws associated with the reserve lands, resources and the environment, and according to the community, enabling increased opportunity for economic development and the potential addition of lands. The Individual Agreement transfers control over the AOPFN land and resources previously under the *Indian Act* to the AOPFN under their Land Code (AOPFN 2020a).

The AOPFN is governed by an elected council comprised of a Chief and six councillors. The electoral system for this community is a Custom Electoral System and council election occurs every three years through voting members of the First Nation. Several standing committees are present within the First Nation's administration, each of which is represented by at least one council member. These committees provide planning and decision-making processes and include: Health and Social; Education; Finance; Personnel and General Administration; Lands, Estates and Membership; Economic Development, Housing and Archaeology (AOPFN 2020a). The AOPFN is a member Nation of the AOO and is also associated with the Union of Ontario Indians - Southeast Region (Government of Canada 2020; INAC 2020).

The AOPFN is a signatory of the AOO Agreement-in-Principle (2016) described in Section 3.1 of the IER TSD, as well as the earlier issued AOO 1983 Comprehensive Land Claim.

The 2021 Census of the Population provides some detailed information for the population of people that live on the Pikwàkanagàn First Nation Reserve (no other Algonquin community or Métis community will have Census of the Population data as they do not have Reserves). Data including population, demographic, Indigenous identity and language and other characteristics is presented below.

Table 8.10-2 shows the approximate on-reserve population and total private dwellings of the AOPFN. Table 8.10-3 shows the percentage change in population from 2016 to 2021, including the average and median age of the population. The values for Laurentian Hills, Renfrew County and Ontario are also provided for the purpose of comparison.

Table 8.10-2 On-Reserve Population and Total Dwellings – AOPFN

	AOPFN
Population - 2016	440
Population - 2021	490
Total Private Dwellings	191

Source: Statistics Canada 2023.

Table 8.10-3 Population Change and Age of Population On-Reserve – AOPFN

	AOPFN	Laurentian Hills	Renfrew County	Ontario
Percent Change 2016 to 2021	11.4%	1.6%	3.9%	4.60%
Average Age of the Population	38.6	40.6	44.1	41.9
Median Age of the Population	38.4	40.5	45.2	42.4

Source: Statistics Canada 2023.

The Census data shows AOPFN had a total population on-reserve of 490 individuals in 2021, which confirms most of the population lives off-reserve. The average age of the population in 2021 is 38.6, which is slightly younger than the average age for Laurentian Hills, Renfrew County and the province of Ontario.

Information on Indigenous identity and knowledge of Indigenous languages is presented in Table 8.10-4.

Table 8.10-4 Mother Tongue, Knowledge of Languages and Indigenous Identity – AOPFN

	AOPFN
Population - 2021	490
Mother Tongue - Indigenous	5
Language Spoke Most Often at Home	
English	490
Indigenous Languages	0
Knowledge of Languages	
English	480
French	15
Algonquin	0
Indigenous Population	
Total Population	490
Indigenous Identity	415
Indigenous Identity - First Nations	400
Indigenous Identity - Métis	10
Population by Registered or Treaty Indian Status	
Total - Status Indian	385
Total - Non-Status	95

Source: Statistics Canada 2023.

The AOPFN have linguistic traditions in the Algonquin language (AOPFN 2020a) even though only a small percentage of the population identified as having knowledge of the Algonquin language (Table 8.10-4). As shown in Table 8.10-4, most of the individuals that live on reserve in Pikwàkanagàn First Nation are Status Indians and self-identify as First Nations individuals.

Within the community, efforts are being taken to revitalize the language and culture through language programs and the community's Algonquin Way Cultural Centre. The centre is operated by a not-for-profit organization, Omàmiwininì Pimàdjwowin, established by the First Nation's Council to foster and preserve the Algonquin cultural traditions, customs, practices, heritage, language and arts. The organization stewards a collection of approximately 600 historical/cultural objects including ceremonial, hunting and trapping, canoe and water transportation, and military paraphernalia at the centre (AOPFN 2020a and 2020b).

Information on income, employment and labour force status associated with the AOPFN is presented in Table 8.10-5 and Table 8.10-6. Table 8.10-6 also provides a comparison to Laurentian Hills, Renfrew County and Ontario.

Table 8.10-5 Population and Labour Force Status – AOPFN

	AOPFN
Population - 2021	490
Labour Force Status	
Total Population aged 15 years and older	375
In the Labour Force - Employed	175
In the Labour Force - Unemployed	20
Not in the Labour Force	175

Source: Statistics Canada 2023.

Table 8.10-6 Selected Income and Employment Information – AOPFN

	AOPFN	Laurentian Hills	Renfrew County	Ontario
Average Employment Income in 2020 for Full-Time Workers	$28,600	$62,550	$68,800	$82,400
Composition of Total Income				
Market Income (includes employment)	58%	87.2%	79.8%	82.8%
Employment Income	50%	67.7%	62.2%	76.4%
Government Transfers	42%	12.6%	20.2%	17.1%
Median Total Income of Households	$50,000	$82,466	$80,000	$41,200
Average Total Income of Households	$61,600	$75,750	$94,600	$56,350
Average After Tax Income of Households	$59,200	$63,306	$80,700	$4280
Participation in the Economy				
Participation Rate	53.3%	60.4%	57.6%	62.8%
Employment Rate	46.7%	56.1%	52.3%	55.1%
Unemployment Rate	10%	6.1%	9.1%	1.%

Source: Statistics Canada 2023.

As shown in Table 8.10-6, the average total income of households for the AOPFN was $28,600. This is significantly lower than the average total income of households in Laurentian Hills, Renfrew County and Ontario.

The AOPFN also has a higher unemployment rate (10%) than each of the other census areas identified above. Similarly, the participation rate and employment rates are lower than the other three geographies.

Table 8.10-7 presents the highest certificate, diploma or degree obtained by individuals as a general representation of the education/training level attainment.

Table 8.10-7 Highest Certificate, Diploma or Degree Obtained – AOPFN

	AOPFN
Highest Certificate, Diploma or Degree (15 and older)	
Total	375
No Certificate, Diploma or Degree	85
Secondary High School or Equivalent	150
Apprenticeship or trades certificate or diploma	35
Trades certificate or diploma other than Certificate of Apprenticeship or Certificate of Qualification	35
Certificate of Apprenticeship or Certificate of Qualification	10
College, CEGEP or other non-university certificate or diploma	95
University Bachelor's degree	10

Source: Statistics Canada 2023.

Table 8.10-7 shows slightly under one half of the population has some post-secondary school certificate, diploma, degree or qualification and roughly three quarters of the adult population has completed secondary school or equivalent.

Information on housing on the AOPFN is provided in Table 8.10-8 and Table 8.10-9.

Table 8.10-8 Population, Household and Dwelling Characteristics – AOPFN

	AOPFN
Population - 2021	490
Household and Dwelling Characteristics	
Total Occupied Dwellings	185
Single-detached House	175
Other Attached Dwelling	5
Apartment in a Building with Less than 5 Storeys	5

Source: Statistics Canada 2023.

Table 8.10-9 Average Household Size and Average Size of Census Families – AOPFN

	AOPFN	Laurentian Hills	Renfrew County	Ontario
Average Household Size	2.6	2.3	2.3	2.6
Average Size of Census Families	2.9	2.8	2.8	2.9

Source: Statistics Canada 2023.

Table 8.10-8 indicates that the total number of occupied dwellings on-reserve are 185, of which almost all are single detached houses. Table 8.10-9 indicates that the average household size is 2.6 and is therefore similar to Renfrew County and Ontario in general.

Houses on the reserve are serviced by wells and private septic systems. The community has a Public Works Department that is responsible for roads and waste management.

Indigenous peoples in the Region Surrounding the NPD site.

Table 8.10-10 shows the Indigenous population in the surrounding Census Divisions in Ontario and Quebec, specifically Renfrew County, Nipissing District, Témiscamingue and Pontiac Regional Municipalities. Figure 8.10-1 shows all four of these census divisions.

Table 8.10-10 2021 Census of the Population – Indigenous peoples in Surrounding Census Divisions to NPD Site

	Renfrew County CD*	Nipissing District CD*	Témiscamingue MRC** (CD*)	Pontiac MRC** (CD*)	Total	Percent of the Population
Total Population	106,365	84,716	16,132	14,764	221,977	
Mother Tongue - Indigenous Languages	25	185	65	0	275	0.1%
Knowledge of Indigenous Languages	80	530	150	0	760	0.3%
Indigenous Population (Indigenous Identity)	9,045	11,995	2,380	2,420	34,885	15.7%
Indigenous Identity - First Nations	5,095	6,720	1,940	700	14,445	6.5%
Indigenous Identity - Métis	3,540	4,775	395	1,595	10,305	4.6%
Registered or Treaty Indian	2,750	4,805	1,830	375	9,760	4.4%

Source: Statistics Canada 2023.

*CD = census division

**MRC = Municipalité régionale de comté

The 2021 Census of the Population reports that approximately 15.7% of the population of Renfrew County, Nipissing District and the Regional Municipalities of Témiscamingue and Pontiac identified themselves as Indigenous people. Of that 15.7%, 6.5% identified as First Nations individuals and 4.6% as Métis[4]. The MNO has a more involved citizenship test than self-identification. Also, 4.4% of the population identified themselves as a Registered of Treaty Indian (under the *Indian Act*).

[4] It should be noted that the Census of the Population relies on self-identification of Indigenous identity. The MNO requires all of its potential applicants to meet the citizenship requirements of its Registration Policy. Therefore, the population of Métis peoples as represented by the census versus the MNO may be (and likely are) different.

The four combined Census Divisions represent a very large land area stretching in the northwest to include North Bay and Temagami, Ontario, in the northeast beyond Témiscamingue Quebec and southeast to Bristol in Quebec.

Table 8.10-11 Mother Tongue, Knowledge of Languages and Indigenous Identity – Laurentian Hills

	Laurentian Hills
Population - 2021	2,885
Mother Tongue - Indigenous	5
Language Spoke Most Often at Home	
English	2,770
Indigenous Languages	0
Knowledge of Languages	
English	2,880
French	350
Algonquin	0
Indigenous Population	
Total Population	2,885
Indigenous Identity	340
Indigenous Identity - First Nations	230
Indigenous Identity - Métis	90
Population by Registered or Treaty Indian Status	
Total - Status Indian	150
Total - Non-Status	90

Source: Statistics Canada 2023.

The NPD site is located within the Town of Laurentian Hills. Details about the Indigenous population within the Township appear in Table 8.10-11 above. Of a total population of 2,885 it is estimated that there are 340 individuals that self-identify as Indigenous (11.8%). Just less than three-quarters of these (230) self-identify as First Nations in contrast to 90 identified as Métis. The Census revealed that there were 150 Registered or Treaty Indians, which is less than the 340. It is possible that the Census forms were not fully completed or that some of the 340 that self-identified as First Nations are not Registered or Treaty Indians.

Resource Industries

A description of the traditional land and resource use by Indigenous peoples, as relevant for the assessment of the NPD Closure Project, is provided in Section 8.9. This section focuses on resource-based uses that are of a non-commercial nature and undertaken by Indigenous peoples which could be affected by direct changes to the environment. The most typical resource-based use activities undertaken by Indigenous peoples that can have a commercial component to them include trapping and commercial fishing (and

possibly gathering). It is also possible that Indigenous peoples participate in or operate resource-based tourism enterprises that could be potentially affected by changes to the environment.

Trapping is one resource-based activity that has both a traditional and commercial aspect to it. Most Indigenous trappers trap for personal and cultural reasons as well as for the financial benefit of selling the furs. Trapping can produce some income to offset a trapper's costs and time. As previously indicated, the two traplines near the NPD site have not been identified as traplines registered to Indigenous peoples.

Indigenous peoples do maintain some commercial fish licenses for inland waters in Ontario. However, there is currently no commercial fishery on the Kichi-Sìbì (Ottawa River). Historically, there likely was a commercial sturgeon fishery on the Kichi-Sìbì (Ottawa River) and members of the MNO in their TKLUS indicated that they had historically participated in a commercial fishery.

The most common gathering resource that has a commercial component to it is blueberry picking. Other gathering activities might have a commercial component to them such as gathering other plant materials for food or craft use. Gathering is a common activity undertaken by Indigenous peoples. As described in Section 8.9, the Site Study Area is located within the NPD site and gathering in this area would be prohibited by CNL. Gathering could occur within the Local Study Area or Regional Study Area outside of the CNL fenceline. It is possible there may be some gathering along the shoreline of the Kichi-Sìbì (Ottawa River), adjacent to the NPD site. Indigenous peoples may collect plants and other materials on Crown lands and public waterways without restrictions. One individual from the MNO identified gathering plant material along the Highway 17 corridor, potentially in the Local Study Area or Regional Study Area.

Finally, there may be Indigenous-owned and operated resource-based tourism establishments such as sport fishing or hunting or eco-tourism. Such commercial activities would not be rights based but could be operated by Indigenous peoples. CNL is unaware of any such enterprises operating in the study areas but it is possible.

8.10.2 Indigenous Health

8.10.2.1 Spatial Boundaries

The spatial boundaries with respect to the Indigenous Health are the same as employed for Human Health.

The Site and Local Study Areas for human health (and therefore Indigenous Health) are the same as those delineated in Figure 5.2-1 and Figure 5.2-2 respectively. As these areas are all owned by the Federal Government, there are no residents (Indigenous or non-Indigenous) present. Workers are, and will continue to be, present in this area for the duration of the decommissioning, and as such the Site and Local Study Areas will describe baseline worker health. As CNL is encouraging Indigenous employment and contracting opportunities, CNL has assumed that a number of workers may be Indigenous.

The Regional Study Area for the Indigenous Health assessment consists of the Renfrew County and District and Région de l'Outaouais Health Units, illustrated in Figure 8.8-1 and Figure 8.8-2. Renfrew County and

District has a land area of 14,980 km^2 and a population of approximately 103,000. The Région de l'Outaouais has a land area of 30,760 km^2 and a population of approximately 369,000.

8.10.2.2 Site/Local Study Area

As discussed above, there are no residents (Indigenous or non- Indigenous) present within the Site/Local Study Area, as it is owned by the Federal Government. The only people present in the Site/Local Study Area will be workers and visitors. Workers are assumed to live within the Regional Study Area. As such, the results presented for the Regional Study Area are also applicable to the workers at the site. In addition to the information presented for the Regional Study Area, worker health information is also presented in the EIS.

As the description of the existing environment with respect to Indigenous Health is the same as Human Health, the reader is referred to section 8.8.2.

8.10.2.3 Regional Study Area

The description of the existing environment with respect to Indigenous Health in the Regional Study Area is the same as the description under Human Health. There is no Indigenous -specific health information available for the Regional Study Area. The reader is referred to section 8.8.3., specifically 8.8.3.1 (Statistics Canada Health Profiles) and 8.8.3.2 (Childhood Leukemia Around Nuclear Facilities).

Section 8.8.3.3 is titled "Local Food Consumption" and requires more detailed consideration within the context of Indigenous Health. The diets of Indigenous peoples can be different than the general population through the consumption of a higher proportion of country foods obtained through hunting, fishing and gathering activities. Section 8.8.3.3 provides information on the local food consumption characteristics for people living in the Regional Study Area, based on the NPD DRL Study (Chouhan and Scheier 2011). CNL supported a harvest and diet study by AOPFN that provides information to more comprehensively consider how some Indigenous peoples may interact with their environment and correspondingly the effects of the project on Indigenous Health. In addition to higher ingestion rates for country foods, pathways of smoke inhalation (medicinal plants) and rubbing of plants into the skin are also taken into account.

Sections 9.8 and 9.10.2 provide some additional assumptions associated with the lifestyle survey involving local food consumption and consideration of Indigenous and non-Indigenous people.

8.10.2.4 Local Water Use

The majority of people within the Regional Study Area obtain their domestic water (used for ingestion, washing, bathing, and swimming) from groundwater wells. In the region, nearby residential communities such as Point Stewart and Rapides-des-Joachims rely on groundwater wells for their domestic water use.

Table 8.10-12 summarizes the statistics on the groundwater wells as presented in Ontario Ministry of the Environment, Conservation and Parks (MECP) well records.

Table 8.10-12 Summary of MECP Groundwater Well Records in Vicinity of NPD

Well Type	Number of Wells	Well Depths (m)	Static Water Level Depth (m)
Overburden	13	3.0 – 32.6	Not Reported
Bedrock	69	4.7 – 193.5	0.9 – 21.9 with one artesian well

It is noted in the PostSA TSD that these wells draw water from deep aquifers. The farm groups also obtain all of their water from wells, including that used to raise livestock. Most residents of Deep River have access to a municipal water supply, which is pulled from the river. Residents of Deep River and Point Stewart, as well as the cottage group, may also use the Kichi-Sìbì (Ottawa River) for swimming during the summer months (Chouhan and Scheier 2011).

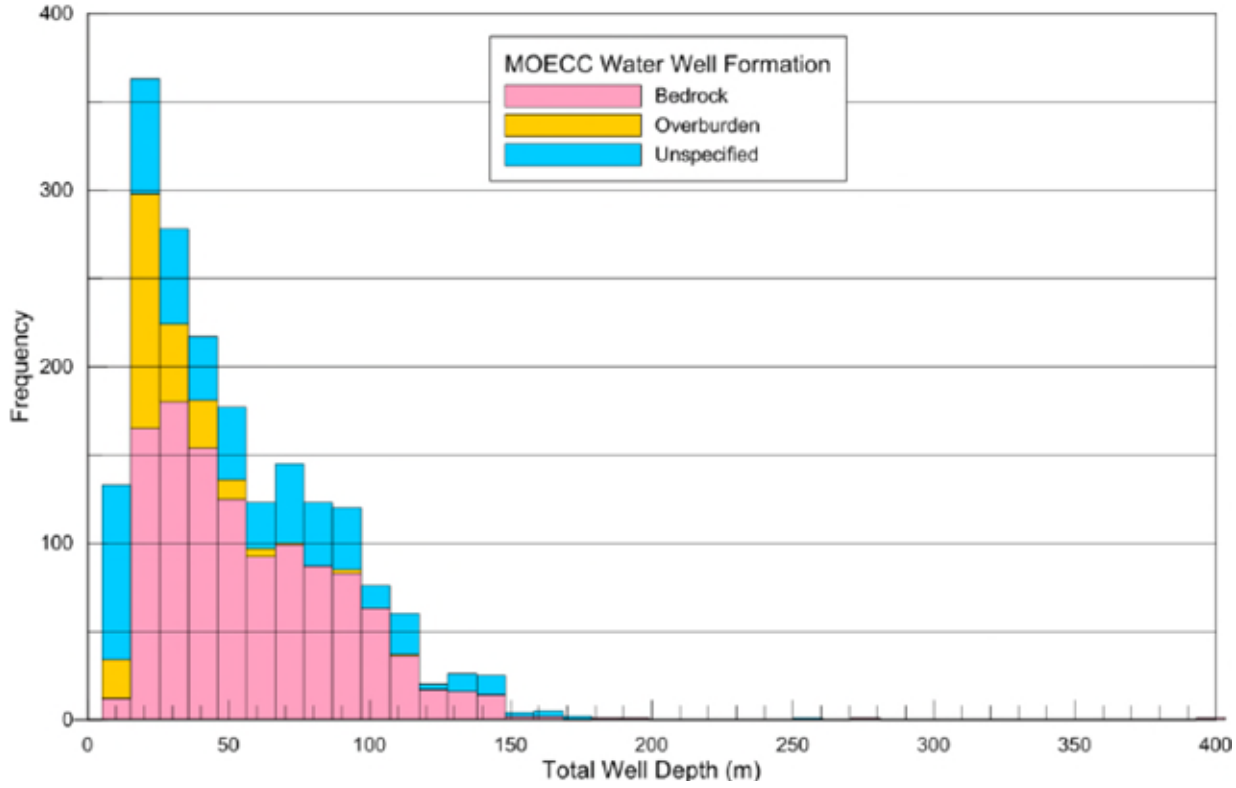
Additionally, the MOECC database of water supply wells (MOECC 2018b) was queried for the region between Rolphton and Pembroke (Killey 2018). The number and depth of the water supply wells, and the formation from which they draw water, are shown in Table 8.10-13. The basic summary statistics for well depths for the unspecified wells are quite similar to the entire dataset, so it's reasonable to assume that the unspecified wells follow a similar distribution between bedrock and overburden.

Table 8.10-13 Numbers of Bedrock, Overburden and Unspecified Wells, and Well Depths (Killey 2018, from MOECC 2018b)

Source Unit	Number of Wells	Depth (m)			
		Average	Median	Min	Max
Bedrock	1151	53.9	45.7	5.5	395.9
Overburden	246	21.7	18.3	1.2	111.6
Unspecified	505	48.5	38.1	1.8	253.0
All Wells	1902	48.3	38.4	1.2	395.9

The database also provides the total depths of the wells. Figure 8.10-2 is a frequency plot of well depths for wells completed in bedrock, in overburden, and for wells where the formation supplying water is unspecified. Information on wells obtained in 2017 from the community survey undertaken by CNL (Moore 2017). However, the well information response in the survey was extremely limited relative to the MOECC database (Killey 2018).

Figure 8.10-2 Total Depth Frequencies for Wells Completed in Overburden, Bedrock, and in Unspecified formations (Killey 2018)



Although it is evident from the MOECC database that there are some shallow water supply wells, if statistical data are used to calculate potential exposures, median well depth (38 m) would be a reasonable selection for residential and farming groups.

It is noted that this MOECC database contains records submitted to the province by licensed water well drilling companies. It is possible that some homes, and more likely some cottages that are used seasonally (and that may have limited or no road access), draw their water supply from hand-driven well points or from hand-dug wells installed by the owner, rather than by a contracted well driller. Such unrecorded installations will be shallow, and almost certainly restricted to overburden. One might reasonably speculate that wells installed by the property owner will be between 5 and 10 m deep. The rates of water production from such manually installed wells will frequently be small, so the numbers of permanent homes using such water sources will also be limited.

8.11 Socio-economic Environment

Information for this section was derived from the Socio-economic Assessment TSD (Socio-economic TSD).

Socio-economic baseline data was collected through a variety of sources. These included Statistics Canada, Municipal corporations, planning documents, tourism boards, and provincial agencies. Data was predominantly derived through desktop review of existing data. Sources of data included:

- planning and land use documents (e.g., Official Plans, municipal zoning documents, forest management plans, provincial agency reports and ZEC profiles);
- government databases (e.g., census profiles; MNRF Crown Land Use Policy Atlas);
- interactive maps (e.g., ZEC and Ministry of Natural Resources and Forestry (MNRF) maps);
- acts and regulations (e.g., regulations overseeing ZEC); and,
- municipal and local websites (e.g. tourism association websites, campground and recreational websites).

8.11.1 Spatial Boundaries

The spatial boundaries with respect to the socio-economic environment were determined based on the potential for the project to affect adjacent communities and their proximity to the facility.

The Site Study Area for the socio-economic environment is the same as the general Site Study Area defined in Figure 5.2-1 above.

The Local Study Area has been defined as the Site Study Area plus a 1 km area beyond the Site Study Area, and is the same as that used for traditional land and resource use (see Figure 8.9-1 above). Within Ontario, this area is limited to the Town of Laurentian Hills. Within Quebec borders, this includes a small portion of the ZEC Rapides-des-Joachims where it abuts the opposite side of the Ottawa River from the Site Study Area.

The Regional Study Area has been defined as the Site Study Area and a 5 km radius beyond the Site Study Area, and is the same as the Regional Study Area outlined for traditional land and resource use (Figure 8.9-2). Within Ontario, this area includes a portion of both the Town of Laurentian Hills and the United Townships of Head, Clara and Maria. The Regional Study Area also covers lands within Quebec. This includes the eastern portion of the island of Rapides-des-Joachims and two ZECs (controlled harvesting zones or zones d'exploitation controlee) across the Ottawa River: ZEC Rapides-des-Joachims (the study area parts of which are situated within the municipalities of Rapides-des-Joachims and Sheenboro) and ZEC Saint-Patrice (the study area portion of which is situated within the municipality of Sheenboro).

8.11.2 Socio-economic Conditions

8.11.2.1 Site/Local Study Area

Municipalities

Renfrew County

The Site Study Area falls entirely within Renfrew County in eastern Ontario at the northern end of County boundaries. Spanning an area of approximately 7,358 km^2 (Statistics Canada 2023), Renfrew County comprises twelve townships (Admaston/Bromley; Bonnechere Valley; Brudenell, Lyndoch and Raglan; Greater Madawaska; Head, Clara and Maria; Horton; Killaloe-Hagarty-Richards; Laurentian Valley; McNab/Braeside; Madawaska Valley; North Algona Wilberforce; Whitewater Region) and five towns (Arnprior; Deep River; Laurentian Hills; Petawawa; Renfrew). Renfrew County has an estimated population of 106,365 in 2021, a 3.9 percent increase from the 2016 population of 102,394. The majority of growth in the County is anticipated to occur within urban areas, with the five towns accounting for nearly half the County total population in 2011 (Baird 2016; Renfrew County 2013). Approximately 150 km northwest of Ottawa, the independent City of Pembroke is located within Renfrew County. The City of Pembroke borders along the Ottawa River and has an estimated population of 14,364 in 2023, a 3.5 per cent increase from the 2016 population of 13,882 (Statistics Canada 2023). Pembroke is the largest commercial and service centre between North Bay and Ottawa, and development activities are closely linked to those occurring within the neighbouring County (City of Pembroke 2014). Renfrew County has a median age of 45.2 (Statistics Canada 2023).

Key employers within Renfrew County include Garrison Petawawa, CNL, Renfrew County District School Board and Renfrew County itself. Economic activities generally include forestry, resource mining, agriculture, retail, service, manufacturing and government activities, with some high-tech industry expanding into the area more recently also (Renfrew County 2016a and 2016b).

Town of Laurentian Hills

The Town of Laurentian Hills is a lower tier municipality. The Site Study Area is located within the Town boundaries. The Town spans an amalgamated area of the Townships of Rolph, Buchanan, Wylie and McKay and the Village of Chalk River, covering an area of approximately 634 km^2. The Site Study Area is limited to its most northerly border. The Town has an estimated population of 2,885 in 2021.This has decreased 2.6 percent from 2,961 in 2016 (Statistics Canada 2023). The median age is 42. Chalk River (approximately 1,500 (Batten 2016a)), Rolphton and Point Alexander comprise the settlement areas for the majority of residents, with some settlement also occurring along the periphery of the Town of Deep River and along the Highway 17 corridor (Town of Laurentian Hills 2010).

Approximately 25 km downstream of the Site Study Area, CRL serves as the primary source of employment in the area (Batten 2016a; Town of Laurentian Hills 2016). Garrison Petawawa provides another key source of employment to the Town. Within the municipality, Chalk River comprises the primary source of public services to the community. The Town shares a landfill on the border of Chalk River with Town of Deep

River. Highway 17 serves as the primary transportation route through the Town (Batten 2016a; Town of Laurentian Hills 2016).

Assets

Hunting, Trapping and Fishing

The vast majority of lands within the Ontario portion of the Local Study Area are Federal lands owned by AECL. The remaining lands are in private tenure. Therefore, there is no provincial land upon which to undertake hunting. It is possible that one of the private landowners may hunt on their property. The entire Local Study Area is identified as Deer Wintering Area and Bear Management Area (MNRF 2010a, 2010c and 2016). The small portion of ZEC Rapides-des-Joachims situated within the Local Study Area may have some seasonal hunting activity.

White-tailed Deer (*Odocoileus virginianus*)

Provincial trap lines are based on provincial land. One of the designated Trap Line Areas intersects a small portion of the Local Study Area (MRNF 2010b), beyond the Exclusion Zone, where trapping may occur. It is possible that a landowner may trap on the private land adjacent to the Federal lands owned by AECL. Some trapping may occur in the small portion of ZEC Rapides-des-Joachims that falls within the Local Study Area.

Sport and subsistence fishing is feasible within the Ottawa River, particularly along the near and far shorelines. The Ottawa River provides a major draw for boaters and anglers (OVF 2011b). There is no commercial fishing in the Local Study Area.

Recreation

Within Ontario, there are no formal tourism operations in the Local Study Area. Tourists visiting the ZEC territories come from across Ontario and beyond. ZEC Rapides-Des-Joachims estimates thousands of visitors annually (Rivet 2016).

There are no designated hiking or snowmobile trails present on the Ontario side of the Local Study Area. Hiking is feasible within ZEC Rapides-des-Joachims, although this portion of the ZEC is steep and could be difficult to access despite numerous trails throughout.

No official boat launches are situated within the Local Study Area. An unofficial boat launch exists off Cutler Lane which was previously used by local residents. However, access to the launch has been restricted by CNL. Boating can occur within the portion of the Ottawa River that falls within this area between Ontario and Quebec. The presence of watercourses for recreational canoeing within the small area of ZEC Rapides-des-Joachims is extremely limited with one small portion of a watercourse included in the area (ZEC Rapides-des-Joachims 2016).

Resources

Gravel and sand are used commercially and also for the construction and maintenance of forest access roads within the County (OVF 2016a). A portion of a MTO aggregate pit is situated within the Local Study Area. The pit occupies a MTO permitted area of 4.6 ha and is located north of Highway 17 near Cutler Lane, along the edge of the 1 km boundary. Access to the pit is available from Highway 17. The site has unlimited annual extraction (MNRF 2016a).

The Local Study Area also intersects a privately operated Class A licence pit and quarry occupying a 25 ha area. The majority of the site is situated south of the MTO pit and on the south side of Highway 17. A portion of this site is adjacent to the MTO pit although the majority is situated to the south of Highway 17, with access from the highway. Extraction at this site is permitted to a maximum of approximately 54,500 tonnes annually (MNRF 2016a).

There are no active mine claims within the Local Study Area (MNDM 2016).

Residential

Fewer than ten residential properties fall within the Local Study Area. Given the size of the exclusion zone, these are located along the extremities of the area but generally situated along Highway 17 and Cutler Lane.

Other

Two inactive landfills are located within the Exclusion Zone. According to CNL, both are located in two former gravel pits. Landfill 1 situated along the main access road to the station southwest of the guardhouse was used for conventional purposes such as office waste and has a certificate of approval (A413107) from the Ontario MOECC acknowledging its closure. Landfill 2 was located northwest of the facility as a lay down area during construction of the original facility.

8.11.2.2 Regional Study Area

Municipalities

Head, Clara and Maria

To the west of the Site Study Area is the United Townships of Head, Clara and Maria which intersect the Regional Study Area. The Townships span approximately 719 km^2 and are situated at the northernmost boundary of Renfrew County and include four small hamlets along the Ottawa River: Mackey, Stonecliffe, Bissett Creek, Deux-Rivières (Townships of Head, Clara and Maria 2016). Approximately 85 to 90 per cent of the Townships are government (mainly provincial) land. The estimated population of the Townships is 267 in 2021, a 7.7 per cent increase from 248 in 2016. The median age in the Townships is 60 (Statistics Canada 2023). The Townships include five key campgrounds (including Driftwood Provincial Park) that provide a source of tourism and recreation in the area. Logging has typically been the primary industry in the Townships with activities managed by the Algonquin Forestry Authority and two key family-owned operations operating with seasonal hires. The Townships rely heavily on public and commercial services

provided through other communities such as the Town of Deep River (Gibson, Jim 2016; Townships of Head, Clara and Maria 2016).

Rapides-des-Joachims

The nearest population centre to the Site Study Area is Rapides-des-Joachims, in Aberdeen Township, Pontiac County, Quebec. The village of Rapides-des-Joachims (also known as “Swisha”) occupies an island in the Ottawa River, just beyond the Quebec border to the west of the Site Study Area. The approximate 2.5 km by 5.5 km island comprises a portion of the municipality of Rapides-des-Joachims, shared with the ZEC Rapides-des-Joachims which is located immediately to the north of the island abutting the Ottawa River (discussed further below). The island is connected to Ontario via an interprovincial bridge and County Road 635 which intersects at Highway 17 near the hamlet of Rolphton. Another bridge on the north side of the island crosses to mainland Quebec and also serves as an entrance to the remainder of the municipality (e.g. within ZEC Rapides-des-Joachims). Two dams are located at either end of the island: a Hydroelectric Dam (Des Joachims Generating Station, operated by Ontario Power Generation (OPG)) at the southeastern end which connects between the island and Ontario, and McConnell Lake Control Dam at the western end connecting between the island and mainland Quebec (Gibson, James 2016; Rapides-des-Joachims 2016).

The population across the municipality of Rapides-des-Joachims was 141 in 2021, a 9.6 per cent decrease from 2016. The decrease in population may be attributed to a limited influx of permanent residents and an aging community (the median age of the community is 56 in 2021 (Statistics Canada 2023)). The municipality relies heavily upon surrounding communities (particularly Deep River) for public services (e.g. schools, shopping, banking, police, etc.) as it is geographically isolated from Quebec communities beyond its ZEC. Other sources of employment are found in Deep River and Pembroke. Several residents were employed by the Commonwealth Plywood at the local mill which has been closed for several years now with the downturn in the logging industry (Gibson, James 2016).

Deep River

The Town of Deep River is situated approximately 17 km southwest of the Site Study Area, along the Ottawa River, spanning an area of about 51 km^2. The Town does not directly intersect the Site Study Area, Local Study Area or Regional Study Area. Deep River was included due to the heavy reliance of the surrounding communities on its economic, social and health related services and provides a more comprehensive understanding of the community interactions across municipal boundaries.

The estimated population in Deep River was 4,175 in 2021. This has increased by 1.6 percent from 4,109 in 2016. The median age was 47.6 (Statistics Canada 2023). While it is not situated within the Regional Study Area, the Town provides for the majority of public health, service and commercial resources of the communities surrounding the Site Study Area and as such is included here. Deep River is the hub of the surrounding communities providing: medical services (hospital, doctors, dental), schools (k-12), shopping, sports activities (arena, hockey, and swimming pool), recreation (marina, boating, beaches, boating, snowmobiling, and cross-country skiing), community services (seniors, adults, and youth programs), weekly newspaper, library, and the arts (symphony, live theatre, art exhibits, potters guild etc.) (Lougheed 2016; Town of Deep River 2012 and 2016).

The Town was originally established as a residential community for employees and their families of what was to become the Chalk River Nuclear Laboratories (now the CRL of CNL) and houses many CNL and Garrison Petawawa employees. Deep River is almost entirely dependent on Garrison Petawawa, CNL, and local commercial business for employment. Approximately 3,300 people were employed with CNL in 2021 and Garrison Petawawa personnel have become an increasingly important source of new residents for the community. Many former CNL employees have chosen to stay and 33 percent of the population are seniors (Lougheed 2016; Town of Deep River 2016). According to the municipality, the Town has been static for some time with little growth occurring and economic activities such as logging surrounding the area have been on the decline. The original closure of the NPDNGS in the 1980's had a large impact on the economy and community in Deep River (Town of Deep River 2016) and CNL activities continue to have a strong influence on the community (Lougheed 2016).

Assets

Hunting, Trapping and Fishing

The majority of hunting within the Regional Study Area within Ontario occurs on provincial land and species generally include deer and moose (Batten 2016a). A large portion of the Regional Study Area is identified as Deer Wintering Area (MNRF 2010c). While deer move across both public and private lands, typically more deer hunting in the OVF occurs on provincial land. Within Renfrew County in 2005, approximately 12,348 of the deer hunters were residents and approximately 100 came from beyond the municipality.

Moose Aquatic Feeding Area is also present. Tagging and an increase in the number of moose in the OVF has resulted in an increase in moose hunting since 2005. One of three identified moose hunting areas in the Ottawa Valley forest (OVF) occurs within the northern portion of Renfrew County (part of Wildlife Management Unit 48) and intersects the Regional Study Area (MNRF 2007; OVF 2011b). In 2009, moose hunters in the OVF comprised approximately 1,206 residents of Renfrew County and 11 tag holders from tourist outfitter camps which are established on private lands but that hunt on provincial land (OVF 2011b).

One of the 18 Bear Hunting Areas within the OVF intersects much of the Regional Study Area. Such areas include an area of provincial land which is licensed to a tourist operator for bear hunting services, with an average of two people working up to two months annually. Local residents comprised 1,201 bear hunters in 2009 and are generally increasing in number over the last five years. Dropping in number over the past five years, 157 tourists hunted through tourist outfitters. Similar to moose hunting establishments, bear hunting outfitters conduct activities on provincial land despite being established on private land (OVF 2011b).

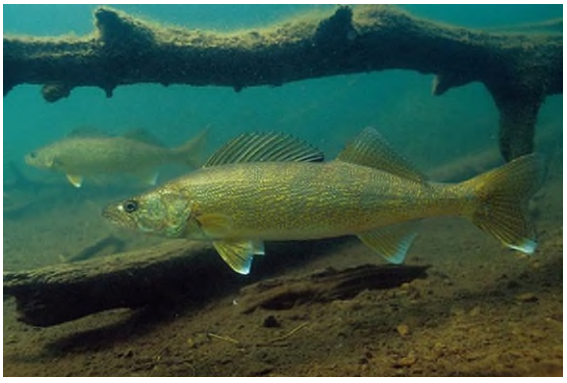
Raptor and Heron Nesting sites are also present within the Regional Study Area (MNRF 2010c).

Seasonal hunting within the two ZEC territories that intersect the Regional Study Area is permitted. Modes of hunting generally include: firearm, bow, or crossbow. Species hunted include moose, Virginia deer, black bear, ruffed grouse, and hare (Rivet 2016; Réseau ZEC 2016). In ZEC Saint-Patrice, species generally include moose, Virginia deer, black bear, ruffed grouse, hare, and wild turkey (Réseau ZEC 2016). Information on hunting, transport of carcasses through the region and regulations are provided on the ZEC

websites for visitors. Wildlife protection officers are present on site within the ZECs to monitor and regulate hunting activities (Réseau ZEC 2016).

Approximately fifty registered trap lines are present on provincial land within the OVF area. For about six months of the year, an average of two people work each trap line area (OVF 2011b). Two designated Trap Line Areas intersect the Regional Study Area (MRNF 2010b) although trapping is limited and generally includes beaver (Batten 2016a). A downturn in the demand for fur has had a negative impact on the trapping industry in this area and beaver populations have been on the rise. In the 2009 trapping season, approximately 2,122 beavers were harvested. Further, trappers in the OVF have noted some of the implication of forest management on trapping, based on changes to furbearing habitat and the lack of harvest to the shore adjacent to beaver ponds, and the loss of martin and martin habitat. (OVF 2011b).

Within the ZEC territories trapping is common and generally includes species such as beaver, lynx, wolf, and raccoon (Rivet 2016; Réseau ZEC 2016).



Walleye (*Sander vitreus*)

Commercial fishing is also absent within the Regional Study Area. Most recreational fishing occurs along the Ottawa River (Town of Laurentian Hills 2016). A larger expanse of the Ottawa River accommodates greater opportunities for sport and subsistence fishing, particularly with proximity to the Island of Rapides-des-Joachims. A spawning ground is present along the length of the island's north side from its eastern tip to the McConnel Control Dam. Popular fish include: walleye, catfish, pike and sturgeon. Recreational fishing includes locals, cottagers and tourists (Rapides-des-Joachims 2016). Several waterbodies are present within the Regional Study Area that provide potential for sport fishing as many of the coldwater lakes in Renfrew County are annually stocked with brook trout, lake trout, rainbow trout, brown trout and splake (OVF 2011b).

Numerous lakes and rivers provide fishing opportunities within the ZEC territories although fishing is closely monitored and regulated. The ZEC websites provide information on species stocking of lakes, historical catches, and information on planning, rules and regulations (Réseau ZEC 2016). Typical fish species within ZEC Rapides-des-Joachims include bass, pike, whitefish, walleye, muskellunge, brook trout, perch, lake trout, and splake. In ZEC Saint-Patrice fish species generally include bass, pike, whitefish, walleye, brook trout, Atlantic salmon, perch, lake trout, and splake (Réseau ZEC 2016).

Recreation

Tourism in the Regional Study Area is largely resource based (e.g. hunting, fishing and recreation) and comprised largely of drive-in resource use with tourism activities occurring predominantly on private land (OVF 2011a). Rapides-des-Joachims is working toward boosting its economic profile and attracting more residents and tourists within its borders. Initiatives include (Gibson, James 2016):

- developing the municipally operated McConnell campground through expansion of sites and increasing amperage to accommodate a trend of larger trailers. Only a few of the sites at this camp still use tents.
- by adding new docks that can accommodate overnight parking, boat traffic should increase, particularly with the draw of the nearby Dumoine River in ZEC Dumoine to the west of ZEC. Rapides-des-Joachims. The Dumoine River is popularly known for its multi-day canoeing trips.
- working toward increased control over the land use on the island to better facilitate redevelopment of the area, and increasing boutiques and local crafts operations, thus drawing in more permanent and seasonal residents, driving development further. Redevelopment of the area would assist in marketing the island as the 'gateway' to the Dumoine River.

The Town of Laurentian Hills contains trails used for hiking and several ATV and snowmobile trails maintained by local associations, some of which intersect the Regional Study Area such as the Pembroke/North Bay TOP snowmobile trail that forms a portion of the Round Algonquin Park snowmobile trail loop (SCSA 2016; NRSA 2016). There is also the possibility of future use of a discontinued stretch of Canadian Pacific (CP) Railway system that crosses the Town and several other municipalities (comprising about 218 km across Renfrew County) traveling from Smiths Falls to Mattawa. The County of Renfrew has acquired the corridor which could provide an attractive source of hiking, snowmobiling and cross-country skiing (Renfrew County 2016b; Batten 2016b). This abandoned railway corridor, named the Ottawa Valley Recreational Trail, intersects the Regional Study Area and could serve as a tourist draw to the area.

There are no official boat launches in the Town of Laurentian Hills (Batten 2016a). There are two launches on the Island of Rapides-des-Joachims: one on the south side near the Hydro Dam, and the other across from the municipal office on the north-east end of the island. Free daily docking is provided by the municipality of Rapides-des-Joachims. A private operation also offers boat transport across the island as a means of navigating the Hydro Dam and McConnell Control Dam (Gibson, James 2016; Rivet 2016). There are three boat launches in the Townships of Head, Clara and Maria, although none are located within the Regional Study Area. Boating generally occurs around the campground sites although an approximate 69 km stretch of the Ottawa River is available for boating between the Hydro Dam at Rapides-des-Joachims and at Mattawa. Canoe traffic also occurs down the Dumoine River in Quebec which reaches the Ottawa River across from the Townships of Head, Clara and Maria (Gibson, Jim 2016). While it is located outside the Regional Study Area, a boat launch in Deep River also serves as a resource for boating along the Ottawa River.

Resources

In addition to the two aggregate sites identified in the Local Study Area, the Regional Study Area includes a third site southeast of Rolphton. This privately operated pit with a Class B licenced area of 16.5 ha is located west of Tee Lake and along the east side of Old Moore Lake Road. Extraction at this site is permitted to a maximum of 20,000 tons annually (MNRF 2016a).

There are active mine claims within the Regional Study Area, however they represent a very small portion of the Study Area and are located on the western edge of the area boundary within Township of Head, Clara and Maria (MNDM 2016).

Residences

Numerous properties are identified within the Regional Study Area. Residential properties generally cluster in areas following the Highway 17 corridor, and in the village of Rapides-des-Joachims whose residential area is concentrated on the eastern side of the island. Some cottages appear on the waterfront of the island, while others are scattered along the south side of the Ottawa River.

Other

Within the Regional Study Area is the OPG's Des Joachims Generating Station. The hydro dam is situated at the southeast end of the Rapides-des-Joachims and has a generating capacity of 429 megawatts. It is the largest of OPG's developments along the Ottawa River (OPG 2016).

8.11.3 Land Use

Information for this section was derived from the Socio-economic TSD. For the purpose of this EIS, the discussion of land use is limited to formal considerations i.e., planning regimes and designations.

The presence of large areas of provincial land within the area present numerous opportunities for activities such as forestry, hunting, fishing recreation and tourism. Nearly half of the land area of Renfrew County is provincial and federal land. The provincial land is dominated by resource uses such as forestry, mineral exploration, fishing and hunting, etc. and is open to the public. The federal land is reserved for specific uses such as Garrison Petawawa and CNL which are Restricted Access areas. Numerous lakes, river systems and other natural features provide opportunities for recreational and tourist activities. As well, a large stretch of the County's border abuts Algonquin Provincial Park in the west and northwest and the Ottawa River along its full northeast extent providing further access to extensive tracts of recreational opportunity beyond County limits (Renfrew County 2016a).

The Town of Laurentian Hills is comprised predominantly of provincial and federal lands with a smaller area allocated to privately owned property (Renfrew County 2016b). Provincial lands are distributed across the north and south of the Town of Laurentian Hills and are generally used for recreational uses including: fishing, hunting, cross-country skiing, swimming, boating, and snowmobiling (Batten 2016a; Town of Laurentian Hills 2016). Key features that traverse the area are the Temiskawawa Waterway and Pembroke/North Bay Trans Ontario Provincial (TOP) snowmobile Trails (Town of Laurentian Hills 2016). The Trans Canada Energy East pipeline also traverses the Regional Study Area. Within the town, federal lands are designated for use by the Petawawa Military Reserve, given its proximity to the Canadian Forces Garrison Petawawa in Petawawa. Predominant resources in the Town include managed forest and agricultural land (livestock) (Batten 2016a).

ZEC Rapides-des-Joachims includes the remainder of the municipality of Rapides-des-Joachims. ZECs are controlled zones set aside by the Quebec government for the purposes of developing, harvesting and conserving wildlife and wildlife species. They are also used for recreational purposes by local municipal residents. The vast majority of the ZEC are Quebec public land similar to provincial and federal public use land in Ontario.

The study area portion of ZEC Saint-Patrice is immediately to the east of ZEC Rapides-des-Joachims within the municipality of Sheenboro, Pontiac County and accounts only for a small area of the ZEC at the ZEC's most southwesterly corner. The ZEC is managed similarly to Rapides-des-Joachims.

8.11.3.1 Site/Local Study Area

A limited number of land uses occur within the Local Study Area. The majority of the area is comprised predominantly of federal land. The Site Study Area and Exclusion Zone are situated entirely on federal land within property attributed to AECL, a federal corporation (Figure 3.1-3). As well, a few privately owned properties intersect the Local Study Area, and are attributed largely to residential properties, with a few areas of aggregate extraction, occurring along the Highway 17 corridor.

Municipal planning documents permit the following land uses within the Ontario portion of the Local Study Area: Crown Land, Rural Land, Lakes and Rivers, Permanent Wetland, Mineral Aggregate Resources, Hydro Line, Provincial Highway (i.e. Highway 17), Municipal Maintained Road (i.e. Cutler Lane).

According to the Town of Laurentian Hills Zoning By-Law (2012), the land use intent of this area includes three types:

- Rural (RU) comprises a mixture of land uses appropriate to rural areas including low density residence, farms and forestry. This designation regulates the use of land or the use, erection or alteration of any building/structure. Permitted uses include: Agriculture; Camp; Cemetery; Commercial Greenhouse; Dwellings (duplex, seasonal, semi- and single-detached); Equestrian Establishment (minimum 2 ha lot area); Farm Produce Outlet; Forestry uses; Group Homes (with restriction); Log Hauling Operation; Marine Facility; Park; Parking Area; Portable Asphalt/Concrete Plant; Private Club; Public Service use (with restriction); Public Utility (with restriction); Wayside Quarry; Wayside Pit; Accessory Dwellings; Bed and Breakfasts; Home Industry (with restriction); Home Occupation (with restriction); and, Sleep Cabin (with restriction).
- Mineral Aggregate Resources Pit recognizes/regulates the extraction of sand and gravel and associated extractive industrial manufacturing and processing uses. It generally restricts the use, erecting or alteration of any building/structure in the zone. Permitted uses include: Accessory uses, Buildings or Structures (with restriction) (e.g. crushing and screening facilities, stock piles, asphalt and concrete plants, administration facilities, weigh stations, security kiosk etc.); Agriculture use (not including buildings and structures); Camp in Mineral Aggregate Resources Reserve (EMR) Zones, Conservation use; Existing Residential Building and Accessory uses; Farm Produce Outlet; Forestry use (not including buildings and structures); Outdoor Recreation uses (not including buildings and structures); Pit within Mineral Aggregate Resources Pit Zone; Portable Asphalt/Concrete Plant in Mineral Aggregate Resources Pit and Mineral Aggregate Resources Quarry (EMQ) Zones; any activities associated with the progressive rehabilitation of the lands in

Mineral Aggregate Resources Pit and EMQ Zones; Public Utility (with restriction); Quarry in EMQ Zones; Wayside Pit; and, Wayside Quarry.

- Environmental Protection (EP) Zone regulates development in areas subject to natural hazards and/or have environments sensitive to development (i.e. floodplain, steep or slippery slopes, and wetlands). It generally restricts the use or erection of any building or structure in the EP. Permitted Uses include: Accessory uses, Buildings or Structures; Conservation use; Forestry use; Existing Dwelling; Existing Agricultural Use; Outdoor Recreational uses (active and passive); and Structures for flood or erosion control or slope stabilization.

The By-Law also stipulates that Crown lands are not subject to the provisions of the By-Law or the Town's Zoning Schedules. As such, the land use intent identified above for the Local Study Area only apply to non-Crown land areas.

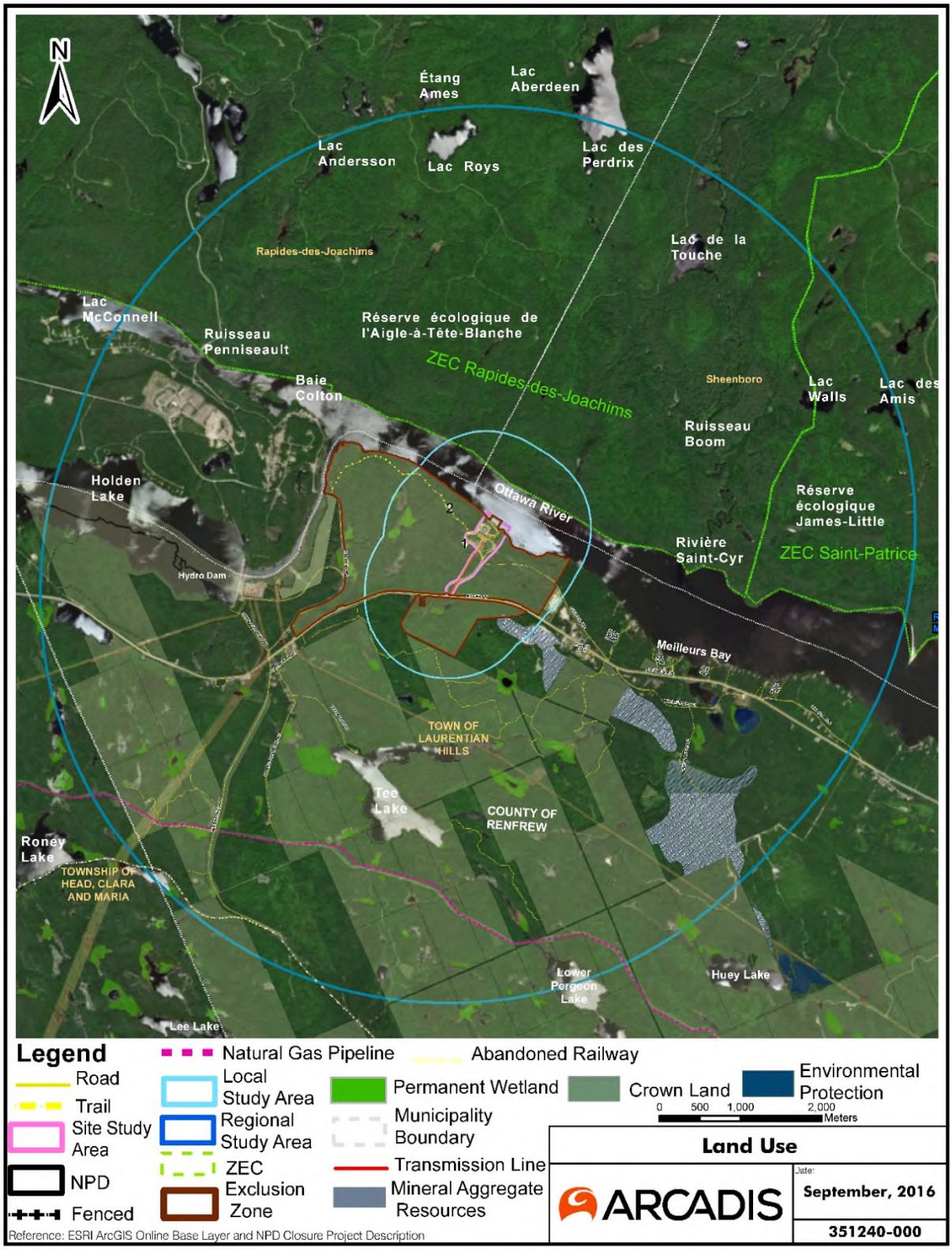
The Ottawa River intersects the Local Study Area and across the river within Quebec the area includes forested public lands situated within the ZEC Rapides-des-Joachims. The ZEC is a controlled exploitation area intended to manage and preserve wildlife located within its borders. It is used predominantly as a hunting and fishing location. Access to the ZEC is limited to seasonal time periods (generally May through October) and registration and access fees are compulsory. Specific guidelines and quotas are applied to hunting and fishing of species within the territory and are enforced upon entry and exit from the territory. Additional permitted uses include trapping, camping, hiking, boating and snowmobiling (Rivet 2016; Réseau ZEC 2016).

8.11.3.2 Regional Study Area

The majority of the Regional Study Area intersects an area of provincial land-use designation known as "Multiple Natural Resource Use" (Figure 8.11-1). According to the Ministry of Natural Resources and Forestry (MNRF 1983) Pembroke District Land Use Guidelines for this designation, the Land Use Intent of this area is:

> "*Within this area, resource management will be directed to multiple use management. Standard management practices combined with the concept of sequential use will enable MNR to take full advantage of the potential of the natural resource.*
>
> *Management of this area is also governed by the general policies contained in the Pembroke District Land Use Guidelines (1983).*"

Figure 8.11-1 Land Use



Permitted activities in this provincial land use designation vary widely. Permitted activities include: Aggregate Extraction; Bait Fishing; Commercial Fishing; Commercial Fur Harvesting; Commercial Hydro Development; Commercial Power Generation Development; Commercial Timber Harvest; Existing Commercial Tourism (Services and/or Facilities); Mineral Exploration and Development; Peat Extraction; Wild Rice Harvesting; Existing and New Road Development and Maintenance; Crown Land Recreation; Hunting; Existing and New Road Use (public); and, Sport Fishing. Non-permitted activities include: Cottaging Crown Land Disposition (as no new cottage lots on provincial land are permitted); and, Existing Crown Land Disposition, Seasonal Recreation Camp. As well, no new hunt camps are permitted with respect to Hunting activities. Crown Land Disposition is a potentially permitted activity, although this is subject to MNRF planning and approval policies and procedures and significant restrictions on land disposition on designated trout lakes exist.

Also within the Regional Study Area and situated on the Ottawa River shoreline, immediately across from the island of Rapides-des-Joachims southern shore, a 'Recommended Provincial Park' (Ottawa River Provincial Park) would span an area of 10,359 ha westward from the OPG hydro dam at Rolphton. This area is recognized for several scenic and recreational values, including stands of white pine reflecting the areas logging history and a proposed Ottawa to New Liskard recreational boating route. Lakes designated for lake trout management are situated within this area (MNRF 2016a). The Regional Study Area intersects the southeasterly portion of this recommended park.

Several additional land use designations are identified within the Regional Study Area, including those outlined above in Section 8.11.3.1. A large portion of the Ontario land use is attributed to provincial land. Other municipal land use designations include Environmental Protection, Inactive Waste Disposal (i.e. southwest of Rolphton), Contaminated Site (i.e. southwest of Rolphton), and Hamlet Settlement Area (i.e. Rolphton). Additional features include Crown Road, Private Lane and Natural Gas Pipeline (i.e. TransCanada high pressure pipeline).

The Town of Laurentian Hills Zoning By-Law, identifies land use intent for the Regional Study Area to include the following zones:

- Residential
    - Residential One (R1)
    - Limited Service Residential (LSR)
    - Mobile Home Park Residential (MHP)
- Commercial
    - General Commercial (GC)
    - Recreational Commercial (RC)
- Industrial
    - Mineral Aggregate Resources Reserve (EMR)
    - Mineral Aggregate Resources Pit
    - Waste Disposal (DMW)
- Institutional and Open Space
    - Open Space (OS)
    - Community Facility (CF)

- Other
    - Rural (RU)
    - Environmental Protection (EP)

Within Ontario, Rural (RU) accounts for the dominant land use within the area. Other permitted activities are distributed sparsely across the land base. As noted in Section 8.11.3.1, the land use intent identified within the By-Law only apply to non-federal or provincial land areas.

Within Quebec, in addition to ZEC Rapides-des-Joachims, the Regional Study Area also intersects ZEC Saint-Patrice (at its most south westerly border) across the Ottawa River and the eastern portion of the island of Rapides-Des-Joachims.

8.11.4 Archaeology

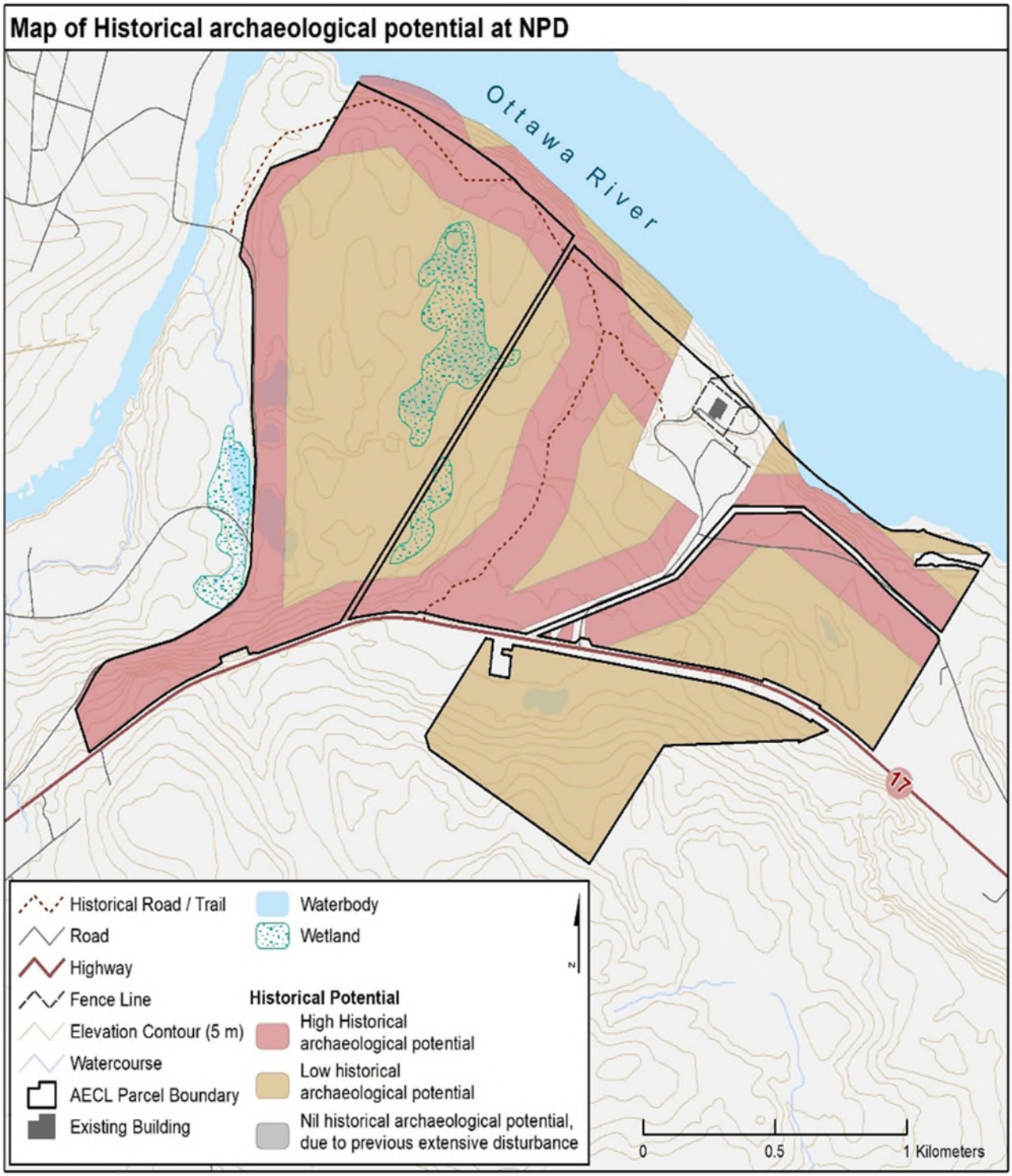
This environmental component includes the archaeology and built heritage resources of the Ottawa River and the NPD site vicinity.

In October 2016, a Stage 1 archaeological assessment was conducted for the NPD property. The objective of a Stage 1 archaeological assessment is to provide background information about the geography, history, land use, previous archaeological fieldwork and existing archaeological sites in the vicinity; and current condition of the property and setting. These data are used to evaluate pre-contact and historical archaeological potential on the site.

8.11.4.1 Site/Local Study Area

As described in the Archaeology TSD, there are no known existing archaeological sites in the Site Study Area (i.e., area that decommissioning activities are proposed to occur). Historical photographs of NPD under construction clearly show that disturbance throughout the nuclear power plant grounds was deep and extensive, including the river shore. The Site Study Area has nil archaeological potential (Figure 8.11-2). However, areas of high historical archaeological potential exist in the Local Study Area. These areas of high potential are based on the proximity to historical roads. Historical research detailed in the Archaeology TSD clearly shows there were generations of settlers on the NPD property, raising families and constructing buildings and docks.

Figure 8.11-2 Map of Historical Archaeological Potential in the Local Study Area

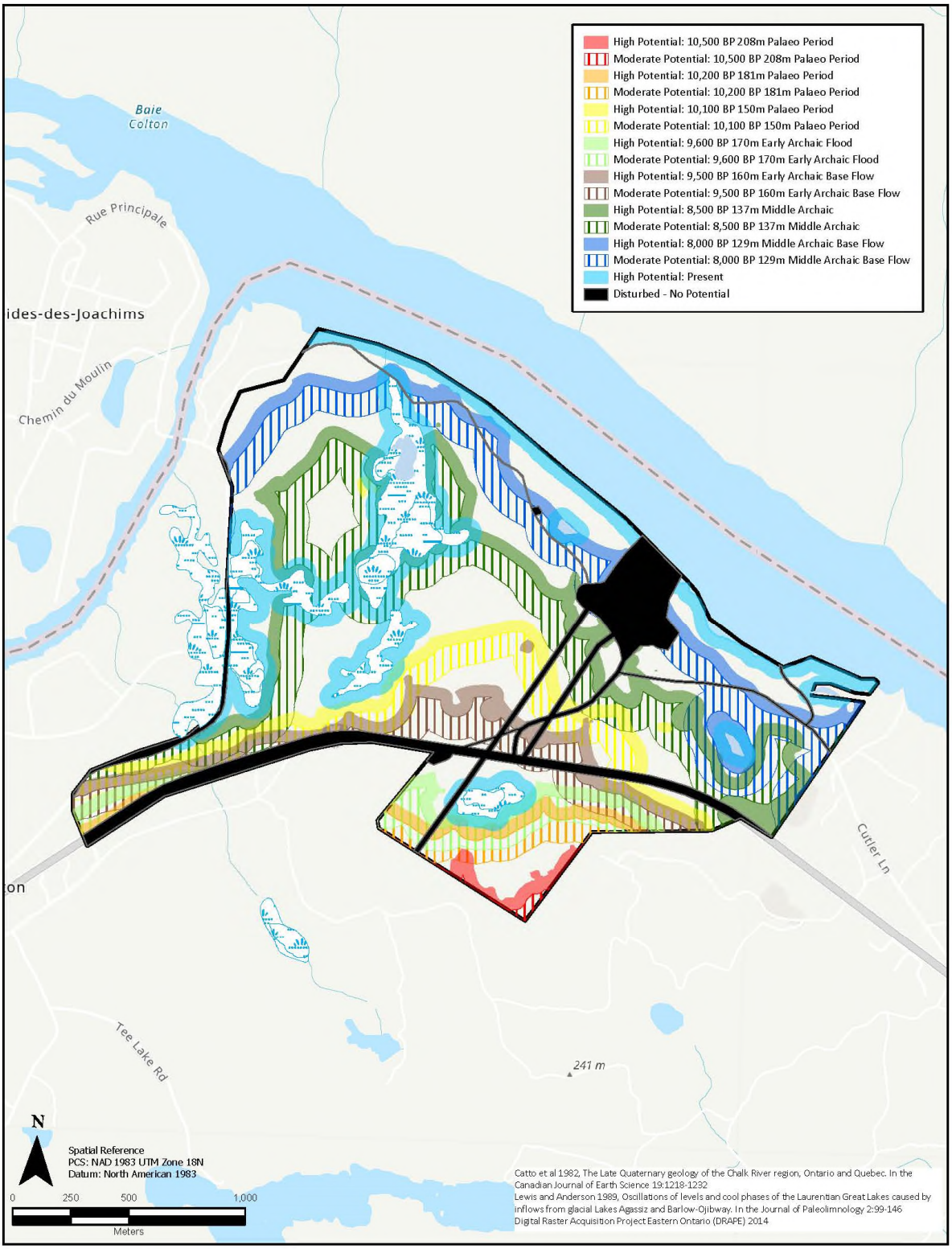


The NPD property has 95 m relief and the slopes are steep, although there is an area of lower rock knobs and muskeg in the former Town Plot that drains into the Ottawa River near a small sandy point called “Hydro Beach”. The Town Plot wetland terrain would have been a complex kaleidoscope of islands and channels during the Middle Archaic period. The land on both sides of the entrance road, between the plant and the highway, were active shorelines during the Early Archaic and Late Palaeo-Indian periods. The high terrain south of the highway were shorelines during the Champlain Sea maximum, during the Palaeo-Indian period.

Given that pre-contact archaeological potential is predicted primarily by proximity to water, and given that every elevation of the NPD property was once an active river shoreline, the whole property between 200 m and the modern waterline is one big relic shoreline and therefore, it all has archaeological potential. Nevertheless, there were times of shoreline stasis—sometimes for millennia, sometimes a few centuries or generations—where human activity would have been concentrated and artefacts more likely to be deposited.

The pre-contact archaeological predictive model for the NPD property takes these longer-lived shorelines into account and maps them in distinctive colours. Furthermore, in the NPD model, the full 150 m width is considered to have high archaeological potential and the areas in between have been given moderate archaeological potential, instead of low potential as the standards allow. In these respects, the NPD model of pre-contact archaeological potential is more rigorous than the Ministry of Culture standards and guidelines require. The map of archaeological potential presented is in Figure 8.11-3.

Figure 8.11-3 Map of Pre-Contact Archaeological Potential



8.11.4.2 Regional Study Area

NPD is in the CbGj and CbGk Borden Blocks. The Borden system is a standardized co-ordinate system that uses upper- and lower-case letters; each block is ten degrees latitude by ten degrees longitude. The CbGj and CbGk Borden Blocks extend beyond the Regional Study Area defined for the socio-economic environment.

As previously stated, there are no archaeological sites on the NPD property; however, there are several beyond the NPD property boundary, namely: the Meilleur Bay (CbGj-3) site excavated by Clyde Kennedy in 1957; Boom Creek (CbGj-1) and Fraser Bay (CbGj-2) recorded by Barry Mitchell in 1984; and Postes des Rapides-des-Joachims (CbGk-1), which has archaeological material spanning the 19th century that relates to the local Indigenous Peoples.

8.12 Natural Disasters

8.12.1 Spatial Boundaries

The Site and Local Study Areas for natural disasters consist of the general Site and Local Study Areas delineated in Figure 5.2-1 and Figure 5.2-2 respectively. Due to the differences in the nature of different natural disasters, a general Regional Study area has not been defined here. Natural disasters are discussed on the appropriate spatial scales below.

8.12.2 Seismicity

8.12.2.1 Site/Local Study Area

Although seismicity does not vary greatly over the scale of the Site/Local Study Area, this section discusses more site-specific potential for impacts. The baseline seismicity for the Site/Local Study Areas is the same as that described for the Regional Study Area (discussed below).

Slope stability concerns and earthquake-induced liquefaction potential of the overburden can be assessed based on topography, the interpreted site stratigraphy and inferred compactness conditions from drilling investigations. Based on an estimated maximum ground slope of 33% (see topography section), the well-vegetated slope conditions, and well-draining soils, there is low potential for slope stability issues, even under earthquake loading. Earthquake-induced liquefaction potential at the NPD site is considered to be low given the reported soil compaction (i.e. compact to very dense), well-drained granular material, and the heterogeneous non-uniform grain size of the saturated soils which include silt, sand, gravel and boulders in glacial till and fluvial sand and gravel units.

The NPDWF building is founded in bedrock. Although this bedrock is sparsely to highly fractured, it is suitable as a foundation for the building (Canadian General Electric Company Ltd. 1962). Bearing capacity is not a concern for the building foundations.

Given the location of the NPD within the central part of the stable North American plate - far removed from active plate margins, and the time scale of orogenic events, there is no possibility of geological disturbance due to orogenies or craton building over time frames relevant to safety of the NPDDF.

McCrank (2016b) concluded for the CRL site, that significant disturbances and reactivation to existing structures was unlikely to occur due to future neotectonism and earthquakes. Geofirma (2019) deemed this conclusion relevant to the NPD site.

8.12.2.2 Regional Study Area

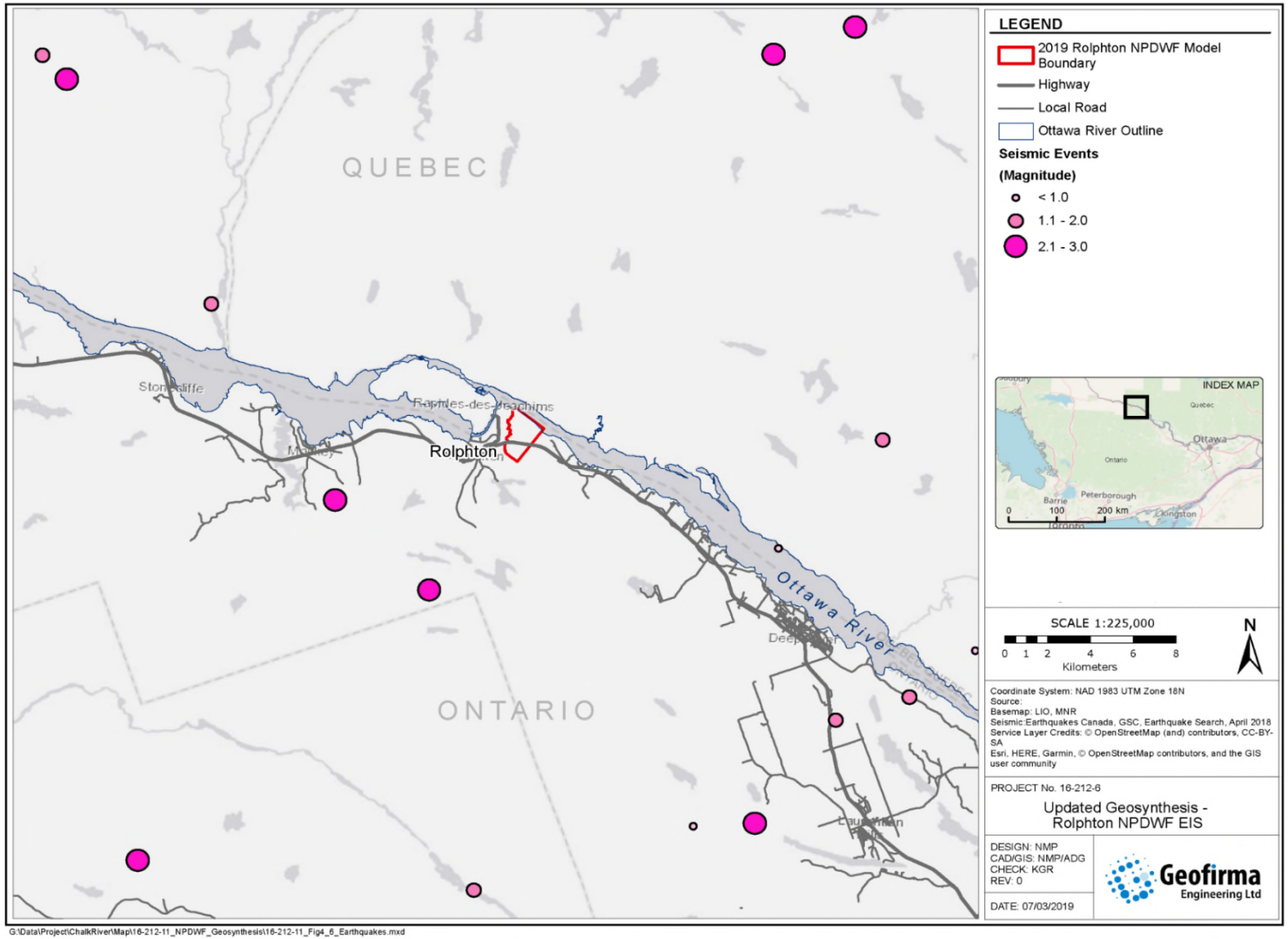
The NPD site lies on the western edge of the Ottawa-Bonnechere Graben, an ancient rift valley in the Canadian Shield of Northeastern Ontario and Quebec. This Graben was formed from the movement of two major fault zones known as the Mattawa and Petawawa faults. These faults are still active and are the source of earthquakes, such as the 1935 Timiskaming earthquake and the 2000 Kipawa earthquake. The length of the Ottawa-Bonnechere Graben is about 700 km, and runs from the Montreal area on the east to near Sudbury and Lake Nipissing on the west (Athauda-Arachchige 2015).

Seismicity in Ontario is characterized by diffuse patterns of activity, ranging from low to moderate level of seismicity. The NPD site lies within a broad belt of seismicity in the eastern part of the province. Most seismic events in this region have been small to moderate in magnitude, but there have been a few significant larger earthquakes. Based on a probabilistic estimate of seismic disturbances for the next 100 years, the magnitude of peak horizontal velocity and peak horizontal acceleration have been shown to be quite low (Athauda-Arachchige 2015).

Figure 8.12-1 shows the 1985-2018 record of earthquakes for the immediate vicinity of the NPDWF site as maintained by Earthquakes Canada (Natural Resources Canada, 2018a). The maximum recorded earthquake was a Nuttli Magnitude 2.9 event that occurred March 11, 1995 about 10 km southwest of the NPDWF site. In 1985 the Natural Resources Canada seismic monitoring network for eastern Canada was upgraded to provide detection of earthquakes with Magnitude of about 2.0 or more. This detection limit was reduced further to <1 in the area of the NPDWF site with installation of a microseismic monitoring station consisting of a Short-Period station installed at the town of Chalk River, Ontario in 1994, and two portable broadband stations installed at Pembroke and Algonquin Park in 2002.

There is no apparent clustering or alignment of recorded seismic events shown on Figure 8.12-1 for the local NPD area with the Mattawa Fault or other OGS-mapped faults in the vicinity of the NPD.

Figure 8.12-1 Historical Earthquakes in the Vicinity of the NPDWF, 1985-2018

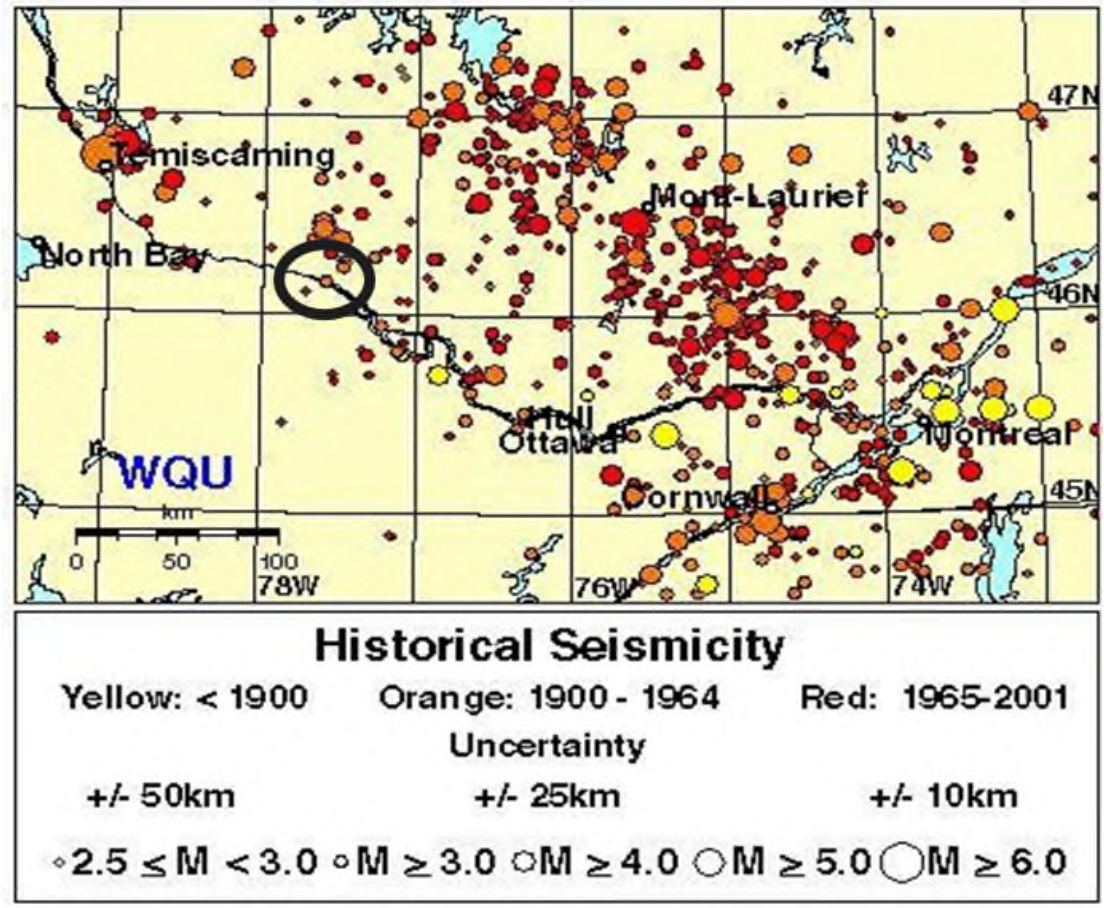


A number of earthquakes have occurred in the vicinity of the NPD site. Of most relevance to NPDWF is the magnitude 5.0 Val-des-Bois, Quebec earthquake of 2010 June 23. This earthquake occurred in a region of moderate earthquake activity known as the West Quebec seismic zone. The largest historically damaging earthquakes in the region include a magnitude 6.0 near Montreal (Quebec) in 1732, a magnitude 6.2 near Timiskaming (Quebec) in 1935 November and a magnitude 5.8 near Cornwall (New York) in 1944 September. Two moderate earthquakes have occurred near Timiskaming (Quebec) in 2000 January of magnitude 5.2, and Plattsburgh (New York) in 2002 of magnitude 5.1. Like the Val-des-Bois event, both of these moderate sized earthquakes were widely felt in Ontario, Quebec and the northern United States. Two moderate earthquakes occurred near the Ontario-Quebec border of magnitude 5.2 and magnitude 4.1 aftershock (near Shawville, Quebec) on 2013 May 17 were felt in both provinces (Athauda-Arachchige 2015).

A magnitude 4.0 earthquake, occurring about 30 km from Chalk River in 1963, would also have been strongly felt. The strongest shaking of the site in the last 100 years was caused by the Timiskaming earthquake in 1935 (Athauda-Arachchige 2015).

Examination of the seismic data since 1661 indicates some significant earthquakes have occurred in the region at greater distances from the NPD: in 1732 near Montreal (estimated magnitude of 6.0), 1816 near Montreal (estimated magnitude of 5.5 to 6), in 1929 at Attica, New York State (magnitude of 5.2), in 1983 in the Adirondacks of northern New York State (magnitude of 5.6), and in 1988 south of Chicoutimi, Quebec (magnitude of 6.0). Figure 8.12-2 shows the seismic events and relative size in the Western Quebec seismic zone (WQU) (Athauda-Arachchige 2015); the circle identifies the area around the NPD site.

Figure 8.12-2 Historical Seismicity (Modified from: (Athauda-Arachchige 2015))



8.12.3 Tornadoes

8.12.3.1 Site/Local Study Area

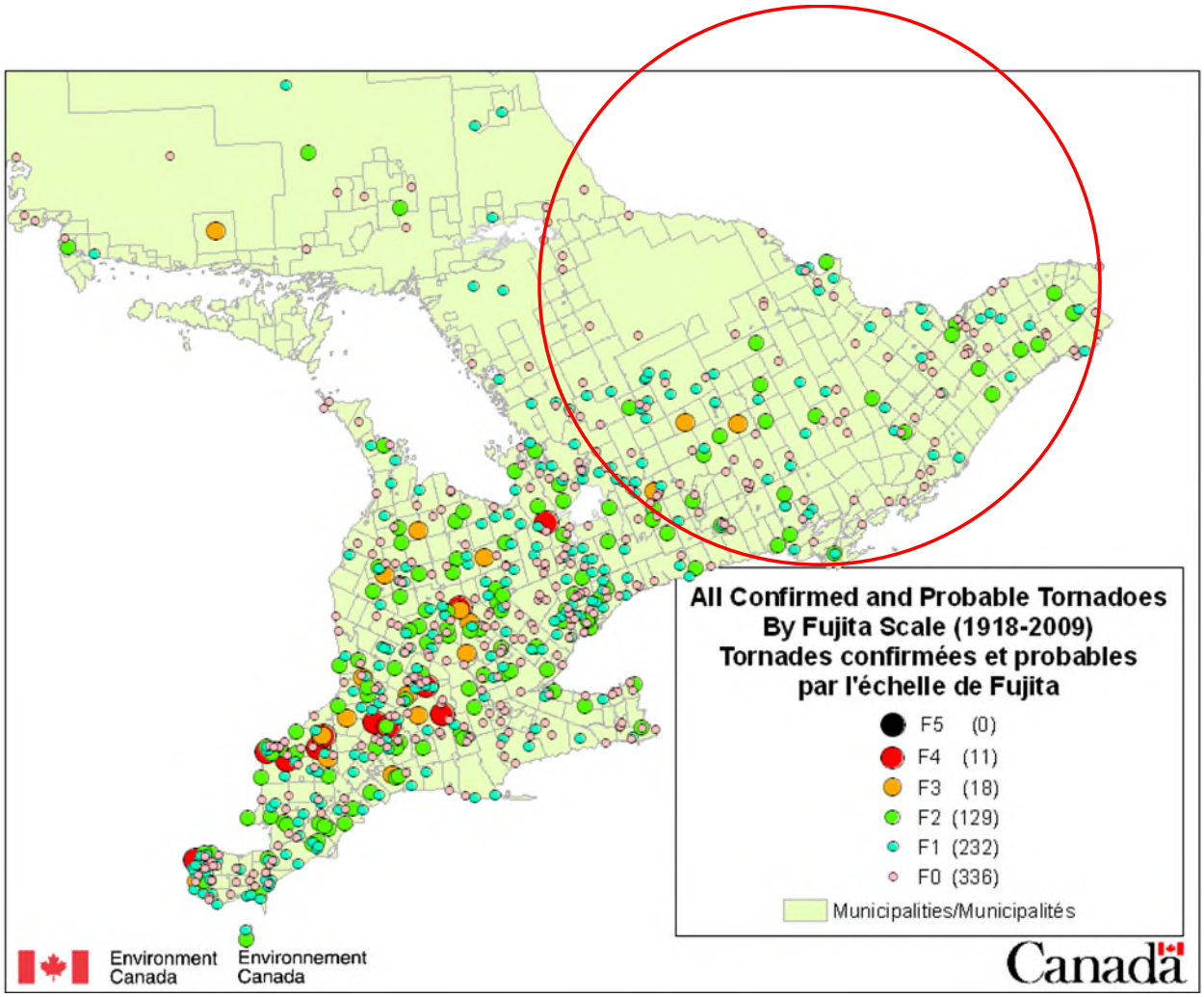
The baseline frequency and severity of tornadoes for the Site/Local Study areas will be the same as that described for the Regional Study Area (below), as this does not vary greatly across such a small distance (the size of the Local Study Area).

8.12.3.2 Regional Study Area

On Friday September 21, 2018, six tornadoes touched down in the eastern Ontario and western Quebec areas. The tornadoes ranged in intensity from EF-1 (with winds up to 175 km/h) (Enhanced Fujita) to EF-3 with speeds up to 265km/h (ECCC 2018, CBC 2018). The system that produced these tornadoes resulted in high winds, fallen trees and hydro poles and power outages in the Rolphton area. The storm caused a Class IV power outage at the NPDWF (CNL 2019a) but there was no damage to the facility.

The occurrence of tornadoes within a distance of 200 km of the NPD site was assessed using data obtained from the Emergency Management Ontario (EMO 2016). The area within 200 km of the NPD site is shown with a red circle on Figure 8.12-3. Information from prior to 1918 may not be complete, and may cause an underestimation of the annual frequency of the occurrence of tornadoes.

Figure 8.12-3 Confirmed and Probable Tornadoes between 1918 and 2009 in Ontario (EMO 2016)



The number of confirmed and probable tornadoes from 1976 to 2015 in Southern Ontario is shown in Table 8.12-1 below. The Southern Ontario tornado inventory over the 40 years from 1976 to 2015 yields approximately 4.8 tornadoes per 100,000 km^2 per year or 0.6 EF2 and higher tornadoes per 100,000 km^2 per year (EMO 2016).

Table 8.12-1 Number of Confirmed and Probable Tornadoes from 1974 to 2015 in Southern Ontario (EMO 2016)

F / EF Number	Number of Tornadoes
0	157
1	73
2	25
3	5
4	2
5	0
Total	**262**

The wind speed associated with Fujita and enhanced Fujita scales are shown in Table 8.12-2. The enhanced F-scale is still an estimate of wind speed (not measurements) based on damage.

Table 8.12-2 Wind Speed for Fujita and Enhanced Fujita Scales

Fujita Scale			Derived Enhanced Fujita Scale		Operational Enhanced Fujita Scale	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85	0	65-85
1	73-112	79-117	1	86-109	1	86-110
2	113-157	118-161	2	110-137	2	111-135
3	158-207	162-209	3	138-167	3	136-165
4	208-260	210-261	4	168-199	4	166-200
5	261-318	262-317	5	200-234	5	Over 200

According to an article in the North Renfrew Times on 1984 July 15, a tornado touched down in the area between Deep River and Rolphton causing one death, many injuries and extensive damage along the Upper Ottawa Valley and Quebec (Athauda-Arachchige 2015).

This tornado lasted about 10 minutes, and the trees were flattened in the path of the tornado along the Ottawa River to just north of the Ontario Highway 17. The damage seemed to be limited to an area about 2 km wide. The estimate of property damage was low, and the damage was confirmed mainly to outbuildings and a personal vehicle (Athauda-Arachchige 2015).

8.12.4 Floods

8.12.4.1 Site/Local Study Area

In the spring of 2019, the Ottawa River flooded to a level of 113.69 mASL measured at Pembroke, higher than the previous historic peak level measured in the spring of 1960 (ORRPB 2020). There was no impact to the NPDWF from the flood.

The baseline frequency and severity of flooding for the Site and Local Study Areas are expected to be the same as those described for the Regional Study Area (described below).

8.12.4.2 Regional Study Area

Flooding of the NPD site could occur due to:

- Flooding from the Ottawa River (i.e. river level rise);
- Heavy precipitation; or,
- Failure of the dams on the Ottawa Rover upstream of the site.

Flooding from the Ottawa River (High-Water Flooding)

The probability of flooding by river water is not considered likely because control of the river water is exercised by Ontario Power Generation's (OPG's) Des Joachims Generating Station, located approximately 3 km upstream from NPD (Athauda-Arachchige 2015). The highest recorded level of the Ottawa River at NPD is 114 mASL. Seasonal fluctuations in the level of the river, between 110 m and 114 mASL, do not affect NPD. The only possibility for the river water to enter the nuclear portion of the facility would be for the river level to rise above 118 m and enter the process drainage pipe; this would mean a rise of 4 m above its maximum level.

Flooding from Heavy Precipitation

The facility Safety Analysis Report (Athauda-Arachchige 2015) mentions that heavy precipitation could occur mostly in the summertime. The highest rainfall recorded at CRL (about 25 km from NPDWMF) in a 24-hour period (since 1963), was 70.2 mm in the 24 hours of 2002 June 11. Other significant events occurred on 1999 July 05 when 60.8 mm was recorded in six hours and on 1999 September 29 when 25.5 mm was recorded in three hours. The National Building Code Design Rainfall data for Deep River area are: 15 minutes rainfall of 23 mm, one-day rainfall of 92 mm, and annual total precipitation of 850 mm (NRC 2022).

In the facility Safety Analysis Report (Athauda-Arachchige 2015), localized flooding due to surface run-off of meteorological extremes and or spring thaw conditions was identified as extremely unlikely because of the good drainage provided by the site topography. The landscape diverts heavy precipitation from the NPDWF to the Ottawa River. Several engineered drainage features, such as ditches, drainage slopes and berms, are present around the facility to increase drainage. The building foundation also extends above ground level, preventing surface runoff from draining into the facility's below-grade areas.

Due to the topography of the site, the drainage features present, the surface runoff protection offered by the foundation walls, and the short period in time in which the facility roof will be down, the DecomSA TSD considers the likelihood of the facility flooding from heavy precipitation to be very low, and assigned a frequency rating of "rare" ($3x10^{-2}$ to 10^{-4}).

Flooding from dam failure

Based on the findings of the *Ottawa River Dam Break and Inundation Mapping Study* performed by OPG (1999), Athauda-Arachchige (2015) reports that a probable maximum precipitation event combined with a 100-year snow-pack condition gives rise to the highest estimated flood level (i.e. the river study's worse-case flood scenario). The results show that the Des Joachims dam would be capable of generating dam-break flood waves. Probable maximum flood flows would be several times greater than the normal river flows and, the flood volumes would exceed the storage capacity of the reservoir, causing significant flooding.

In the event the failure of the Timiskaming dam (about 193 km northwest of the NPD site) were to occur, the flood wave resulting from this dam failure would fill the Otto Holden dam (about 145 km northwest of the NPD site) and Des Joachims dam (about 3 km northwest of the NPD site) reservoirs causing overtopping and potential failure of the Otto Holden and Des Joachims dams. In the event of the failure of these main three dams, the river basin has to drain the flows from its tributaries as well as additional large and abrupt flows due to failure of dams. If sufficient time elapses between the dam failure event and the time when outflows from the basin begins to exceed the inflows, the water in the basin may back up all the way to the NPD site causing severe flooding at the facility.

As reported in the DecomSA TSD, the frequency of flooding by dam failure is considered to be negligible compared with the frequency of a flood from heavy precipitation on site.

8.12.4.3 The Effect of Climate Change on Precipitation at the NPD Site

8.12.4.3.1 Global Climate Change Trends

The world's climate is changing due to a combination of natural and anthropogenic factors, and the changes over the 20th century can largely be attributed to human activities (AMAP 2011; IPCC 2021; Bush and Lemmen 2019). Human activities affect climate by changing the land surface and altering the composition of the atmosphere. Human influence on the climate system has resulted in an increase in global surface temperatures ranging from 0.8°C to 1.3°C with a best estimate of 1.07°C from 1850-1900 to 2010-2019. (IPCC 2021). Over the Canadian landmass the annual average surface air temperature warmed 1.7°C between 1948 and 2016 (Bush and Lemmen 2019). Also, Canada has generally become wetter in recent decades with an increase in annual precipitation of about 20% over the period from 1948 to 2012 (Vincent *et al*., 2015). Even if considerable measures to reduce greenhouse gas emissions are introduced today, it is projected that climate change will continue to have an environmental effect for centuries. It is recognized that these effects will not occur uniformly across the country, but will vary regionally (Bush and Lemmen 2019).

Climate change projections are provided by mathematical models based on the physical laws governing the behaviour of the climate. Climate change scenarios, as summarized by the Intergovernmental Panel on Climate Change (IPCC), predict that mean global temperatures are likely to increase by 1.0°C to 5.7°C for the period of 2081 to 2100 as compared to the reference period from 1986 to 2005 (IPCC 2021). The IPCC

is generally considered to be the definitive source of information related to past and future climate change, as well as climate science.

Temperature changes by the end of the 21st century in Canada are predicted to range from around 4°C to 10°C. The largest changes are seen in northern regions, particularly over the Arctic Archipelago, where changes are around 10°C. The smallest changes in Canada are seen on the southwest coast of British Columbia and the Atlantic Provinces, (CCCS 2019). This warming is expected to vary on a seasonal basis, being greater in the winter than the other seasons, and nights warming more than days. As warm air can hold more moisture, changes in precipitation patterns and shifts in the frequency and intensity of extreme climate events are expected to accompany this warming (CSA 2019c). Mean results for Canada show that even under lowered emission scenarios, summer and winter temperatures by the middle of the century are anticipated to warm by about 1.5°C to 2.5°C and 3°C to 7°C, respectively (NRCAN 2014).

8.12.4.3.2 Current Climate Trends

The current climate is based on available long-term daily meteorological observations from a climate station in the vicinity of the NPD Closure Project. In general, the current climate normals and trends indicate a current climate that has likely become warmer and wetter over time. The analysis of climate station data shows that temperatures are increasing, with the exception of spring, and the total seasonal precipitation show increasing trends for all seasons (Golder 2017c, IPCC 2013b).

An analysis of the Chalk River (CHALK RIVER AECL; Climate ID 6101335; ECCC 2023) climate station data was completed illustrating:

- increasing trend in total precipitation;
- increasing trend in spring total precipitation;
- increasing trend in summer total precipitation;
- increasing trend in winter total precipitation;
- increasing trend in total rainfall;
- increasing trend in the number of days with greater than 20 mm of rainfall; and
- increasing trend in average fall temperatures.

8.12.4.3.3 Future Climate Conditions

The projected future climate conditions provided within this section reflect the most recent available climate projections. These climate projections are provided to support the climate change resilience assessment, which is summarized in Section 9.14.2.2.3.

The key climate variables include identifying changes to temperature and precipitation, along with associated indices, were derived from Climate Data for a Resilient Canada (ClimateData 2021) for the NPD site. The Climate Change Risk Identification focuses on risk for the RCP 4.5 and RCP 8.5 scenarios. Two future time periods are used to estimate projected changes relative to a current period of 1991 through 2020, as recommended by the World Meteorological Organization (WMO 2017). The median projected

future climate values were averaged for two 30-year periods: 2021-2050 and 2051-2080 for each scenario. The Mid Term (2021 through 2050) represents near the beginning of the Institutional Controls phase (2028 onwards) and the Far Term (2051 through 2080) represents the continuation of the Post-Institutional Controls phase. Climate projections were also considered for the Long-Term (2100 through 3000) described using publicly available literature (Golder 2017c).

The projected changes in temperature and precipitation for the Near Term and the Far Term, are compared to the 1971-2000 modelled historical values and the climate normals. Both temperature and precipitation are projected to increase in the Mid Term and Far Term, compared to the current conditions (1971-2000, as represented in the climate models), as shown in Table 8.12-3 below.

Table 8.12-3 Historical and Future Climate for the NPD Site, Ontario

Climate Parameter	Modelled Historical Value (1971-2000)	Climate Normals (1981-2010)	Future Modelled Value			
			RCP 8.5 (2021-2050)	RCP 4.5 (2021-2050)	RCP 8.5 (2051-2080)	RCP 4.5 (2051-2080)
Temperature						
Mean minimum temperature January (°C)	-18.5	-17.55	-15.0	-15.2	-11.3	-13.8
Mean maximum July temperature (°C)	25.6	26.31	28.2	27.8	30.6	28.9
Hottest Day per year (°C)	33.4	34.0	36.1	35.6	38.3	36.8
Heating Degree Days <18°C per year	5129	4911	4447	4528	3867	4256
Cooling Degree Days >18°C per year	157	175.16	319	280	526	365
Precipitation						
Total annual precipitation (mm)	876	894.69	926	917	959	952
Maximum 1-day total precipitation (mm)	36	92.0	39	38	41	41

For the Long-Term, based on Representative Concentration Pathways described in IPCC's fifth assessment report, global temperatures are predicted to rise between 0.6°C and 7.8°C by the year 3000 (see Table 8.12-4) (CNL 2021b). The majority of the warming will occur before 2300. Changes in precipitation distribution and variability are anticipated to increase after 2100, with an estimated increase in global precipitation of 1% to 3% per degree Celsius of increase in temperature over the period from 2100 to 3000 (IPCC 2013b).

Table 8.12-4 Projected Global Climate for the Mid Term, Far Term and Long-Term

Period	Temperature (°C)	Precipitation
Current Climate Normal (1981 – 2010)	5.6	859.3 mm
Mid Term Projected Change (2021 – 2050)[a]	2.4	6.3 mm
Far Term Projected Change (2051 – 2080)[a]	5.8	37.7 mm
Long-Term Projected Changes (2101 – 3000)[b]	0.6 to 7.8[b]	1 to 3% /°C [c]

a) Projected changes represent changes above the current climate normal (1991 – 2020) for the project region.
b) Projected changes represent the changes above the reference period of 1986 – 2005 and are global values. Project-specific information is not available.
c) Absolute change not provided by literature. Projected change in precipitation is dependent on the projected warming experienced.

Projected changes in climate extremes of temperature and precipitation can result in climate change effects on the NPD Closure Project and are an important consideration in a climate change resilience assessment. Projected changes in climate extreme indices were obtained from ClimateData (2021), and have been extracted for the NPD Closure Project location. Each of the climate extreme indices are described in Table 8.12-5 with projected changes for the Mid Term and Far Term periods relative to the modelled baseline presented in Table 8.12-6. The climate extreme indices considered in this assessment are important as they can be associated with climate events such as extreme temperature and precipitation events, growing season length, forest fires, and drought, which can have potential impacts on the NPD Closure Project. Evaluation of climate extreme indices require daily climate projections which are not available beyond 2100 from ClimateData (2021). Beyond 2100, the degree of uncertainty prevents reasonable projections for climate extreme indices.

Table 8.12-5 Model Projected and Reference Mean Climate Extreme Indices

Climate Extreme Indices	Description	Units
Very Cold Days	Annual count of days where daily minimum temperature is less than -25°C.	Days
Very Hot Days	Annual count of days where daily maximum temperature is greater than 30°C.	Days
Growing Degree Days (Base 5°C)	Annual (1st Jan to 31st Dec in the northern hemisphere) count between first span of at least 6 days with ground temperatures greater than 5°C and first span after July 1 of 6 days with ground temperatures less than 5°C.	Days
Heavy Precipitation Days (10mm)	Annual count of days when precipitation is greater than or equal to 10 mm).	Days
Freeze-Thaw Cycles	Annual count of days when the air temperature fluctuates between freezing (less than or equal to 0°C) and non-freezing (greater than 0°C) temperatures.	Days
Frost Days	Annual count when the daily minimum temperature is less than 0°C.	Days
Ice Days	Annual count when the daily maximum temperature is less than 0°C.	Days
Warmest Maximum Temperature	The highest temperature of the year.	°C
Coldest Minimum Temperature	The very coldest temperature of the year.	°C
Summer Days	Annual count when the daily maximum temperature is greater than 25°C.	Days
Wet Days	Annual count of days where the daily precipitation is greater than or equal to 1 mm.	Days
Consecutive Dry Days	Maximum number of consecutive days with daily precipitation amount less than 1 mm.	Days
Max 1-Day Precipitation	Annual maximum 1-day precipitation.	mm
Max 5-Day Precipitation	Annual maximum consecutive 5-day precipitation.	mm

Table 8.12-6 Model Projected and Reference Climate Extreme Indices for the NPD Site

		Median Projected Changes			
		RCP 8.5 (2021-2050)	RCP 4.5 (2021-2050)	RCP 8.5 (2051-2080)	RCP 4.5 (2051-2080)
Very Cold Days (Days) for	18 (17 – 19)	8 (6-12)	9 (6-13)	3 (1-5)	6 (2-10)
Very Hot Days (Days)	10 (9-11)	28 (20-31)	24 (18-30)	49 (36-61)	33 (22-42)
Growing Degree Days (Base 5°C) (Days)	1796 (1763-1831)	2249 (2120-2429)	2182 (2062-2347)	2643 (2504-3025)	2366 (2183-2653)
Heavy Precipitation Days (10mm) (Days)	24.5 (15-34)	27.5 (17-38)	27 (18-36)	29 (19-39)	27.5 (18-37)
Freeze-Thaw Cycles (Days)	77 (74-78)	72 (61-76)	73 (65-77)	68 (56-75)	71 (61-77)
Frost Days (Days)	179 (177-182)	157 (148-166)	160 (147-167)	133 (120-149)	150 (136-160)
Ice Days (Days)	90 (88-92)	75 (64-79)	75 (64-80)	56 (44-66)	67 (53-75)
Warmest Maximum Temperature (°C)	33.5 (33.1-34.1)	36.2 (34.8-37.0)	35.7 (34.4-36.8)	38.4 (36.8-40.0)	36.9 (35.1-38.3)
Coldest Minimum Temperature (°C)	-35.1 (-36.1–-34.6)	-31.4 (-33.1 – -28.9)	-31.9 (-33.6 – -28.6)	-26.8 (-28.7 –-22.6)	-29.7 (-31.3 –-25.3)
Summer Days (Days)	55 (33-77)	80 (50-110)	78 (44-102)	97 (67-130)	86 (56-116)
Wet Days (Days)	141 (140-143)	143 (140-146)	143 (140-146)	143 (137-147)	143 (140-147)
Consecutive Dry Days (Days)	14 (13-16)	14 (13-15)	14 (14-16)	14 (13-15)	14 (13-16)
Max 1-Day Precipitation (mm)	36 (33-38)	40 (36-43)	39 (36-43)	42 (39-45)	41 (35-44)
Max 5-Day Precipitation (mm)	63 (59-68)	68 (64-74)	67 (63-74)	71 (66-78)	70 (66-77)

Notes:

Values before parentheses are the average across all available projections for the selected time period. Values within the parentheses provide the lowest and highest available values to capture the range of available projections from ClimateData (2021).

The projected changes in climate extreme indices are consistent with projected changes in mean temperature and precipitation (Table 8.12-6), in that future climate at the NPD Closure Project location is projected to become warmer and wetter, while also indicating the potential for more frequent and extreme precipitation and temperature events in the future. This is illustrated by fewer very cold days, freeze-thaw cycles, frost and ice days, greater warmest and coldest temperatures, and more summer days, along with more heavy precipitation and wet days, fewer consecutive dry days, and greater maximum 1- and 5-day precipitation depths. Projected changes in extreme climate indices could impact the NPD Closure Project through increased physical damage to infrastructure components and impacts to on-site water management and revegetation. Impacts to the project due to climate change are further described in Section 9.14.2.2.3.

8.12.5 Potential for Natural Fires or Explosions

8.12.5.1 Site/Local Study Area

The Site Study Area is unlikely to have a forest fire (specifically in the boundary of the Site Study Area), as it is mostly previously disturbed land, and much of the space has been cleared for roads, buildings, and fire breaks. Firebreaks have been cut through forests in the Local Study Area to minimize the risk of the spread of fire and to facilitate the fighting of a forest fire. Additionally, no spontaneous combustion sources remain on the Site Study Area. Electrically energized systems consist of physical security and fire detection equipment, lighting circuits, power supply to sump pumps, nuclear-area ventilation fans, unit heaters in the static state control area and the emergency diesel generator. All accessible redundant electrical circuits have been removed from the facility. De-energized wiring and cable remains in the former nuclear-area of the building (Dunfield and Glennie 2012). The bulk of the cable trays have been stripped of cables. There is a low probability of cable insulation fires in the reactor building. In addition, combustible materials have been removed from the building and stored outside in sea containers (Athauda-Arachchige 2015).

The Local Study Area consists of a large wooded area, and as such it is susceptible to natural forest fires. It is expected that the Local Study Area will behave similarly to the Regional Study Area, which is described below.

8.12.5.2 Regional Study Area

The Regional Study Area contains large areas of forest interspersed with some cleared towns and roads. Forest fires may result from extremely dry conditions, lightning or human activities (e.g., campfires). Some pests, such as pine beetle, damage and kill trees, which increase the amount of dry, dead organic matter that can provide fuel for a fire. According to Environment and Climate Change Canada (2016a), within Canada, lightning is most frequent in southern Ontario. The lightning flashes per year are calculated as the average number per 100 km^2 (i.e. the area covered by a square of 10 km by 10 km). Lightning flashes per year per 100 km^2 for Ottawa is 90 and for Thunder Bay is 36 (Jones 2018). (Athauda-Arachchige 2015).

Section 9.6.1 of the DecomSA TSD estimates the frequency of fires caused by lightning strikes using data presented in Wotton and Martell (2005). Wotton and Martell (2005) indicates that there were 622 reported lightning caused fires in Ecoregion 5E (the Ecoregion where NPD is located (Crins *et al*., 2009)) over the 9-year period 1992–2001 (excluding 1999). This is equivalent to an annual average of 69 lightning-caused fires. The range of annual observed fires during this time period was 17 to 167.

Using the average annual number of lightning-caused fires (i.e., 69) and the area of Ecoregion 5E (i.e., 74,500 km^2), the annual frequency of observed fires due to lightning strikes is 9.3 $x10^{-4}$ per square kilometer in Ecoregion 5E. Based on the data in Wotton and Martell (2005), the annual frequency of observed fires due to lightning strikes ranges from 2.3$x10^{-4}$ to 2.2$x10^{-3}$ per square kilometer.

The forest of Barron Township in Algonquin Park, 30 km southwest of NPD, has a natural fire rotation of 70 years, i.e., it takes 70 years to burn an area equivalent of the area studied without fire suppression (Cwynar 1977). While anthropogenic sources account for roughly half of all forest fires in Barron Township, the area of forest fires decreases with fire suppression. Since effective fire suppression has been in practice, there have been no major (>50% of township) fires in the township, the most recent having occurred in 1875 (Cwynar 1977).

9 ASSESSMENT & MITIGATION OF ENVIRONMENTAL EFFECTS

9.1 Effects Assessment Approach

9.1.1 Background

CEAA (2012) defines environmental effects as:

5 (1) For the purposes of this Act, the environmental effects that are to be taken into account in relation to an act or thing, a physical activity, a designated project or a project are:

(a) a change that may be caused to the following components of the environment that are within the legislative authority of Parliament:

(i) fish and fish habitat as defined in subsection 2(1) of the Fisheries Act,

(ii) aquatic species as defined in subsection 2(1) of the Species at Risk Act,

(iii) migratory birds as defined in subsection 2(1) of the Migratory Birds Convention Act, 1994, and

(iv) any other component of the environment that is set out in Schedule 2;

(b) a change that may be caused to the environment that would occur:

(i) on federal lands,

(ii) in a province other than the one in which the act or thing is done or where the physical activity, the designated project or the project is being carried out, or

(iii) outside Canada; and

(c) with respect to Aboriginal Peoples, an effect occurring in Canada of any change that may be caused to the environment on:

(i) health and socio-economic conditions,

(ii) physical and cultural heritage,

(iii) the current use of lands and resources for traditional purposes, or

(iv) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

Exercise of power or performance of duty or function by federal authority

(2) However, if the carrying out of the physical activity, the designated project or the project requires a federal authority to exercise a power or perform a duty or function conferred on it under any Act of Parliament other than this Act, the following environmental effects are also to be taken into account:

(a) a change, other than those referred to in paragraphs (1)(a) and (b), that may be caused to the environment and that is directly linked or necessarily incidental to a federal authority's exercise of

a power or performance of a duty or function that would permit the carrying out, in whole or in part, of the physical activity, the designated project or the project; and

(b) an effect, other than those referred to in paragraph (1)(c), of any change referred to in paragraph (a) on:

(i) health and socio-economic conditions,

(ii) physical and cultural heritage, or

(iii) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

The EIS Guidelines (CNSC 2016a) state that predicted changes to the environment are to be considered in relation to each phase of the project (i.e., Decommissioning Execution, Institutional Controls and Post-Institutional Controls) and are to be described in terms of magnitude, geographic extent, timing, frequency, duration and reversibility. The CNSC provides similar criteria for assessment of effects, in its REGDOC-2.9.1 on *Environmental Principles, Assessments and Protection Measures* (CNSC 2020a), which are used in this EIS for the assessment of effects:

- Magnitude of the effect – The size or degree of the effect compared against baseline conditions or thresholds.
- Spatial extent of the effect – The geographic area over or throughout which the effects will be measurable.
- Duration and frequency of the effect – The time period over which the effect will last, and the rate of recurrence of the effect (or conditions causing the effect).
- Degree to which the effect can be reversed or mitigated – The degree to which the effect can be prevented, reduced or reversed (typically measured by the time it will take to restore the environmental attribute or resource).
- Ecological importance – The importance of the environmental attribute or resource to ecosystem health and function.

In addition to the above criteria, the assessment of effects on human health was also considered:

- Human Health – The degree to which the physical aspects of human health may be affected.

9.1.1.1 Supporting Documents

The assessment of environmental effects in this EIS often relies upon TSDs and other documents for the prediction of potential environmental effects in a number of environmental components for each project phase. The DecomSA, PostSA and EcoRA TSDs support the effects assessments in Sections 9.4, 9.6, 9.8, 9.10.2, 9.12 and 9.14. The information provided by these TSDs is presented graphically in Figure 9.1-1. The centre segments represent the various assessment components, whereas the middle ring indicates the TSDs in which they are documented. The outer ring represents that all information is incorporated in the EIS.

Figure 9.1-1 Illustration of Information Presented in TSDs

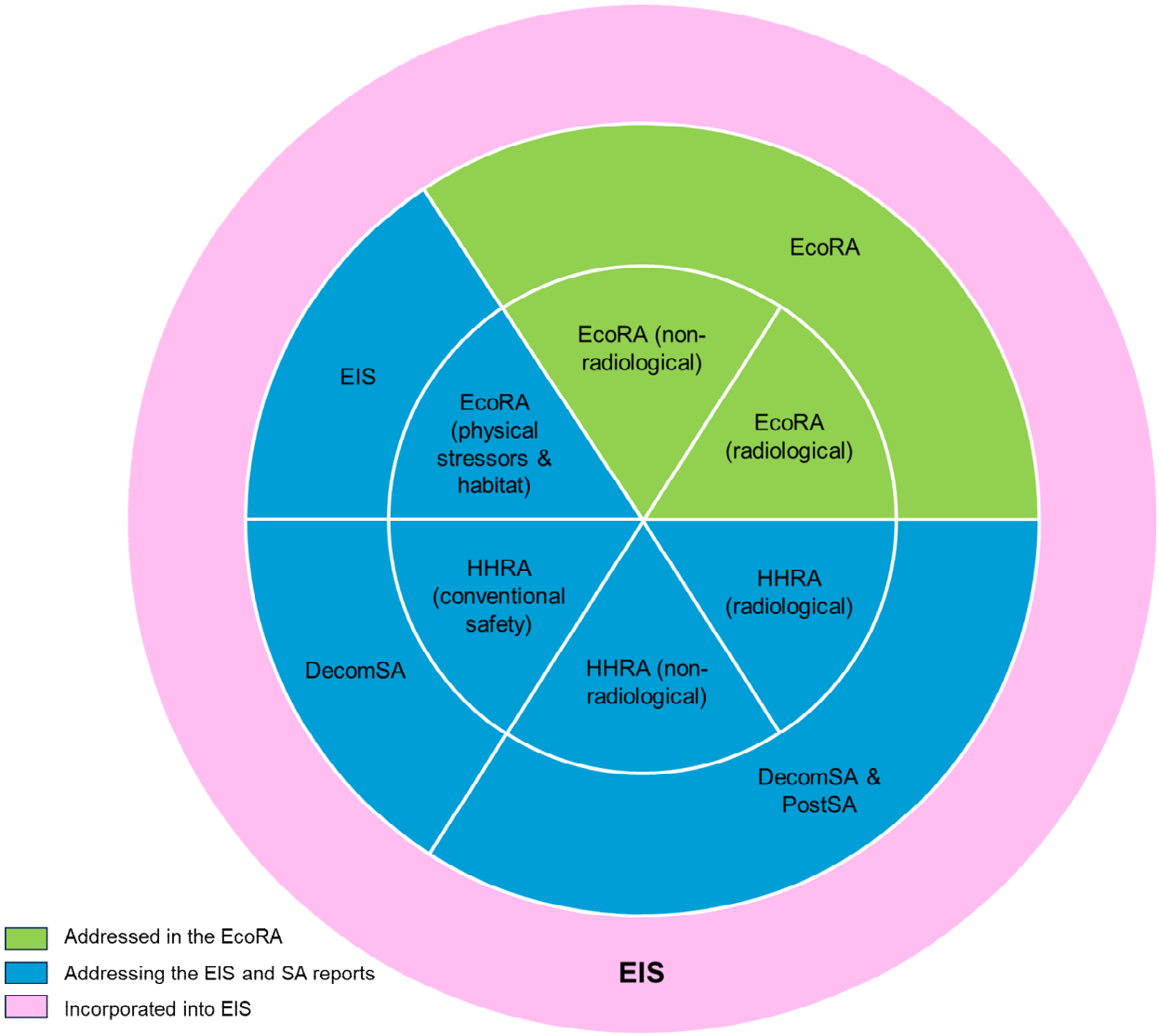
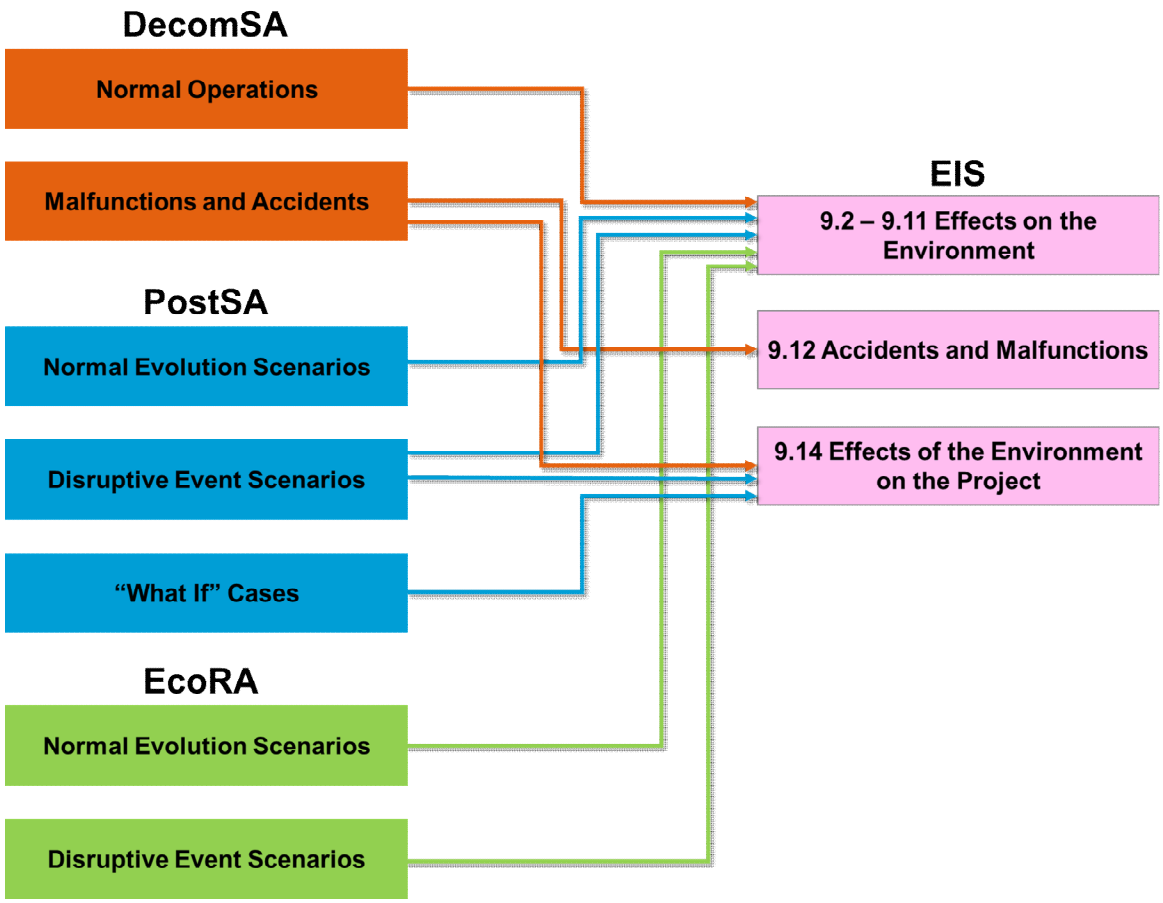


Figure 9.1-2 illustrates how the results from the DecomSA, PostSA and EcoRA TSDs have been incorporated into the effects assessment in this EIS.

Figure 9.1-2 DecomSA, PostSA and EcoRA Effects Integration into EIS



The DecomSA, EcoRA and PostSA TSDs cover the following time frames:

- Decommissioning Execution phase – DecomSA TSD and EcoRA TSD.
- Institutional Controls and Post-Institutional Controls phases –PostSA TSD and EcoRA TSD.

In this EIS, the reader is often referred directly to these documents for details. In other cases, relevant sections of the TSDs are copied into the EIS. To provide context, a general background of the relevant TSDs is provided as follows.

Decommissioning Safety Assessment (DecomSA TSD)

The DecomSA TSD assesses the safety of human receptors (i.e., workers and members of the public) from normal operations and accidents as part of the Decommissioning Execution phase. Exposure for workers during the Institutional Controls phase is not expected to be any greater than the current ambient dose rate (< 0.0005 mSv/hr). The DecomSA TSD focuses on assessing safety to members of the public and workers from exposure to radiological and chemical contaminants, as well as conventional accidents (e.g., direct injuries) resulting specifically from the NPD Closure Project. The DecomSA TSD also provides information

on project-related releases to the environment under normal activities and other credible scenarios (i.e., accidents and malfunctions, effects of the environment on the project). The normal activities are discussed within each relevant environmental component (Sections 9.2-9.11 below). The DecomSA TSD also considers the following bounding scenarios, which are discussed in Section 9.12 Accidents and Malfunctions and Section 9.14 Effects of the Environment on the project:

1) **Forest Fire and Release of Radioactivity** – release of radioactivity due to fire spreading to the building and subsequently mobilizing and releasing radionuclides;
2) **Forest Fire and Release of Chemical Contaminants** – release of chemicals (e.g., mercury, combustion by-products) due to fire spreading to the building and subsequently mobilizing and releasing chemicals;
3) **Tornado and Release of Radioactivity** – release of radioactivity due to damage to the building and subsequently mobilizing and releasing radionuclides;
4) **Tornado and Release of Chemical Contaminants** – release of chemicals due to damage to the building and subsequently mobilizing and releasing chemicals;
5) **Major Flood and Release of Radioactivity** – release of radioactivity due to water ingress and subsequently mobilizing and releasing radioactivity;
6) **Accidental Exposure to Radioactivity** – unanticipated radiological dose during demolition of walls, and cutting holes, vessels and pipes;
7) **Accidental Exposure to Chemicals** – unanticipated exposure to chemicals during demolition of walls, and cutting holes, vessels and pipes;
8) **Underground (Indoor) Fire and Release of Radioactivity** – airborne release of radionuclides and subsequent exposure;
9) **Underground (Indoor) Fire and Release of Chemicals** – airborne release of fire by-products (smoke and chemicals), as well as chemicals involved in the fire and subsequent exposure;
10) **Stack Collapse and Release of Radioactivity** – release of radioactivity and exposure.

Postclosure Safety Analysis (PostSA TSD)

The PostSA TSD is used to analyze long-term implications (i.e., during the Institutional Controls and Post-Institutional Controls phases) of the project. The purpose of the PostSA TSD is:

- To undertake a quantitative assessment of the postclosure radiological and non-radiological safety of the in-situ disposal of the NPD according to CNL's reference strategy;
- To identify those uncertainties that have the greatest potential effect on the long-term performance of the disposal facility; and
- To provide necessary information to support an EA which will address the requirements of *CEAA* (2012) and REGDOC-2.11.1 Vol III (CNSC 2021a).

Evaluating postclosure safety requires projections of the future condition of the NPDDF and its environment and how people might interact with it. Approaches have been developed to undertake such evaluations, centred on a "system analysis" method. This involves representing the NPDDF, the facility inventory present, and all potentially relevant media, with mathematical models to represent the key processes that may occur (e.g. corrosion of wastes, dissolution into groundwater, uptake by plants). It is essential that the

model is relevant, well-grounded and auditable. This is achieved through a systematic approach to safety assessment. The international community has developed best practice guidance on the process, which is documented in a report of the International Atomic Energy Agency's (IAEA) Improving Safety Assessment Methodologies (ISAM) programme (IAEA 2004) and incorporated into a more recent safety guide (IAEA 2012). This process has been applied internationally since its publication, is consistent with REGDOC-2.11.1 Vol III (CNSC 2021a) and underpins the PostSA analysis.

The PostSA TSD uses the best available information on the NPDWF and its environment to form the basis of the mathematical models developed specifically to represent the system. These have been used to calculate results that can be compared with relevant Canadian criteria and standards, as well as inform on uncertainties and identify the most important aspects of the system. These uncertainties and important aspects are captured using a number of scenarios, which are summarized in Section 4.1 of the PostSA TSD, and within the groupings below.

- Normal Evolution Scenario;
- Sensitivity Calculations;
- Disruptive Event Scenarios;
- Defence-in-Depth Cases; and
- "What If" Cases.

The normal evolution scenario starts immediately following the Decommissioning Execution phase to capture the entire postclosure period (i.e., Institutional Controls and Post-Institutional Controls phase). Other scenarios (discussed below) are assessed following the Institutional Controls phase, since if such a scenario were to take place during the IC phase, CNL would take corrective mitigation measures to prevent any residual effects.

Normal Evolution Scenario

In this scenario, the facility is assumed to be closed as planned, with no unforeseen events. Parts of the NPDDF that lie below the water table will gradually resaturate. It is expected that resaturation may take several decades to complete. Once saturated, the soluble contaminants in the facility will begin to be released into the groundwater. When the concrete cap and engineered cover begin to degrade, rainfall and snowmelt will percolate down through the facility towards the water table.

Groundwater contact with the facility structure and grout will gradually degrade it as the cement constituents are slowly leached. As it degrades, the pH of the cement will fall, and its porosity will increase. Over thousands of years, the cement and concrete will gradually lose strength and may begin to crack and fracture, e.g., as a result of corrosion of rebar. Close to the surface, freeze-thaw effects will degrade the cap and concrete cover.

Groundwater flows in the vicinity of the NPDDF are assumed to be dominantly through the base of the overburden but with a significant component of flow in the bedrock.

The primary point of potential contaminant release into the biosphere is taken to be the riverbed close to the shore of the Ottawa River. In the aquatic environment, the contaminants may sorb to sediments or be taken up by aquatic flora and fauna. The dominant process will, however, be advection, dispersion and subsequent dilution in the water. River water is also used by people in many cases; for example, Deep River obtains its water from the Ottawa River.

Sensitivity Calculations

Sensitivity calculations address uncertainty in model parameters (sorption, hydraulic gradient, resaturation and inventory). Therefore, most of these scenarios are not relevant for the EIS effects assessment. One exceptional case is the Indigenous receptor, which considers a self-sufficient Indigenous receptor group, intended to represent a traditional lifestyle.

Disruptive Event Scenarios

Disruptive Event scenarios represent the effect of an instantaneous change in conditions affecting the NPDDF which has consequences for its postclosure safety performance. The underlying conceptual model is in most cases the same, but different values are selected for scenario-related parameters or there are some limited modifications to the model structure. The following disruptive event scenarios were assessed in the PostSA:

- Site investigation (human intrusion): this scenario assesses the potential of humans drilling, extracting and examining a core sample from the facility, potentially leading to internal or external exposures.
- Surface Erosion: this scenario assesses the potential impacts of an erosion event removing the overburden soil layers.
- Extreme degradation of engineered barriers: this scenario assesses the potential impacts of the engineered barriers (structural concrete and grout) becoming extremely degraded; it captures, among other things, the potential impacts of the facility experiencing a much more severe earthquake than that considered under Normal Evolution. This is assumed to correspond to a 1-in-50,000-year seismic event. Cautiously, this scenario is assumed to occur only 1,000 years after closure.
- Fault Zone Activation: this scenario assesses the potential impacts of an extreme seismic event occurring, damaging the facility (in the same manner as the extreme degradation case above), and creating a fracture zone in the bedrock.
- Excavation of the Above-Bedrock Facility: this scenario assesses the potential impacts of the above-bedrock portion of the facility being excavated and mixed into the surrounding soil. The same receptors used in Normal Evolution are assessed.
- Overburden Well: this scenario assesses the potential impacts of the site resident exposure group having a well installed. The well is assumed to be in a location that intercepts groundwater releases from the facility which travel through the overburden.

- Bedrock Well: this scenario assesses the potential impacts of the site resident exposure group having a well installed. The well is assumed to be in a location that intercepts groundwater releases from the facility which travel through the bedrock.

"What If" Cases

"What if" cases represent a deliberately extreme set of assumptions that can be used to understand the absolute limits of safety performance. These have been identified as potentially of interest in the same way as other scenarios, but discounted from the main set of assessment calculations on the basis that they are of very low or negligible likelihood. Nevertheless, they inform on the underlying bounds to postclosure safety and, as such, provide valuable perspective. However, due to their very low likelihood they are not included in consideration for the identification and assessment of residual effects.

- Mass excavation: This case examines the complete disruption and excavation of the NPDDF, providing a basic perspective on the intrinsic hazard of the radioactive material in the facility. It is assumed that the entire inventory is dispersed in surface soils that are subsequently used e.g., for cultivating foods by the site resident.
- River level fall: This case examines the consequences of a fall in the river level of several metres, sufficient to permit groundwater to be released directly to the surface (i.e., to shoreline sediment).
- Undetected Fracture Zone: this scenario assesses the potential impacts of an undetected fracture zone being present, despite the many investigations performed by CNL (see for example, the Geosynthesis TSD).

As listed above, the PostSA TSD also considers other types of cases, including Defence-in-Depth Cases. These cases serve to illustrate the importance of grout in the facility and address uncertainty in model parameters (sorption, hydraulic gradient, resaturation and inventory). Thus, these scenarios are not relevant for the EIS effects assessment. For the results of all scenarios, please see the PostSA TSD.

The PostSA TSD considers several potentially exposed groups, including for example:

- Site resident family: A highly conservative group that maximizes potential exposures. This is reflected by a small household (comprising two adults, a child and an infant) residing directly over the disposal facility and maximizing use of local resources through a reasonably self-sufficient lifestyle. This includes use of potentially contaminated river water for domestic and agricultural purposes.
- A hunting/recreational group: represented by a small number of adults and children making hunting and/or recreational use of the river and the area surrounding the NPDDF.
- An Indigenous receptor characterized using information from a dietary study completed by the AOPFN.
- A self-sufficient Indigenous receptor group: represented by adults and children using the area around the NPDDF, including the Ottawa River, for hunting and gathering, following a traditional lifestyle.

- An offsite resident receptor group: represented by two households (adults and children) that reside alongside the Ottawa River at Deep River and Ottawa/Gatineau. These households are assumed to use river water from the Ottawa River for domestic use and as drinking water, and to use the Ottawa River for recreational swimming.

In the site investigation disruptive event scenario, an additional potentially exposed group is considered:

- Driller: a person involved in drilling into the NPDDF is assumed to be directly exposed to a sample of contaminated material, retrieved from the reactor vault.

Ecological Risk Assessment (EcoRA TSD)

The EcoRA TSD assesses the effects of radiological and chemical contaminants on non-human biota during the Decommissioning Execution, Institutional Controls and Post-Institutional Controls phases. This assessment is also carried forward into the EIS. Other stressors associated with the project (e.g., noise, dust, changes in habitat) are assessed directly within the EIS. The EcoRA TSD incorporates contaminant concentration data in various environmental media, from the DecomSA (for the Decommissioning Execution phase) and PostSA (for the Institutional Controls and Post-Institutional Controls phases) TSDs to assess ecological risk.

In the EcoRA, the ecological receptors for the site were selected based on the list of VCs identified for the site in this EIS (Section 5.2.4), as well as selection criteria outlined in CSA N288.6-12 (CSA 2012). Ecological receptors are used as assessment endpoints, which are expressions of the actual environmental values to be protected. In general, the assessment endpoints selected in this study were healthy populations of the identified indicator species within the study area. SARs were considered on an individual level. The results of the EcoRA are summarized in Sections 9.4 (Aquatic Environment) and 9.6 (Terrestrial Environment) below.

In the EcoRA, the screening process and sources of screening criteria for the radiological contaminants were consistent with CSA N288.6-12 (CSA 2012 Clauses 7.2.5.2.1 and 7.2.5.3.3). The following environmental criteria were applied for the screening of radiological contaminants in order of availability:

- Environmental Effect Concentration levels developed for the CRL site (EcoMetrix and AECL 2013; CNL 2019b).
- Environmental Media Concentrations (EMCs) from the ERICA Tool (2019).
- Biota Concentration Guides (BCGs) from U.S. DOE (2019).
- No-Effect Concentrations (NECs) from SENES (2008).

It should be noted that the above screening criteria were adjusted as needed to be consistent with a derivation based on UNSCEAR (2008) dose benchmarks.

Consistent with CSA N288.6-12 (CSA 2012 Clause 7.4.2) guidance, radiological benchmarks for terrestrial biota from UNSCEAR (2008) were adopted for use in the EcoRA. As part of the Ottawa River is located in the Province of Quebec, which has a radiological benchmark for aquatic biota (10 µGy/hr or 0.24 mGy/d) 40 times lower than that recommended by CSA N288.6-12 (CSA 2012), the more restrictive Quebec

benchmark of 0.24 mGy/d was applied to aquatic biota (MELCC 2020). It is noted that some of the aquatic biota in the EcoRA are actually assessed as terrestrial VCs in the EIS.

In the screening process for radiological contaminants, for each scenario, if the maximum concentration of a radionuclide was below the screening criterion in all relevant environmental media, then the radionuclide was "screened out" or excluded from the assessment. If the maximum radionuclide concentration was greater than the screening criterion in at least one environmental medium and a dose coefficient was available, then the radionuclide was "screened in" or included for assessment; if a dose coefficient was not available, then the radionuclide was "screened out". If a screening criterion was not available but a dose coefficient was available, then the radionuclide was automatically "screened in". In addition, a sum of fractions analysis was also completed as part of the screening process following U.S. DOE (2019) methodology to identify additional potential risks resulting from the total radiological dose associated with aquatic and terrestrial pathways in each scenario (see EcoRA TSD for details).

In the screening process for chemical contaminants, for each scenario, total contaminant concentrations consisting of the maximum concentration predicted in each affected environmental medium summed with the background concentration were screened against applicable criteria. Contaminants were "screened in" for the scenario and assessed in the EcoRA if an exceedance of the most conservative criterion from MECP or CCME was noted in at least one environmental medium and a toxicity reference value (TRV) was available. This screening approach is consistent with N288.6-12 (CSA 2012).

The same screening procedure using maximum contaminant concentrations was used for both the decommissioning and postclosure periods. However, for the decommissioning phase, contaminant concentrations were predicted only in soil, accounting for deposition from air, and the receptor location with the maximum radiological or chemical concentration was assessed in the screening process for each scenario. For the Post-Institutional Controls phase, the maximum radiological or chemical concentration predicted in each environmental medium (i.e., soil, groundwater, river sediments, river water, spring water) over the entire postclosure assessment period (i.e., 10,000 years) was assessed in the screening process for each scenario.

The following supporting documents are also used for the assessment and mitigation of potential environmental effects:

- Greenhouse Gas Emissions Associated with the NPD Closure Project TSD (Greenhouse Gas TSD);
- Chimney Swift TSD;
- Archaeology TSD; and,
- Socio-economic TSD.

9.1.2 Approach

The effects section of the EIS is divided into project-related effects by environmental compartment (Sections 9.2 to 9.10), accidents and malfunctions (Section 9.11), cumulative effects (Section 9.12) and effects of the environment on the project (Section 9.13). The approaches for assessing accidents and malfunctions, cumulative effects and effects of the environment on the project are discussed in Sections 9.11, 9.12 and 9.13 respectively.

The approach for assessment of project-related effects (i.e., Sections 9.2 to 9.10) is presented below. It has been carried out using the general approach, as prescribed in CNSC (2020a) REGDOC-2.9.1 on *Environmental Principles, Assessments and Protection Measures* and the EIS Guidelines (CNSC 2016a). These steps have been carried out for each environmental compartment, based on the VCs and spatial and temporal assessment boundaries selected earlier in this EIS.

9.1.2.1 Identification of Residual Effects

Each project-environment interaction that was identified in the Interactions Matrix (see Section 5.2.2), was evaluated further to identify the likely effect of the change on a VC in the relevant environmental component or on a pathway to VCs in other environmental components. To determine whether an interaction has the potential to result in a residual effect, baseline conditions, the findings of various TSDs, input from technical experts, mitigation measures, and the CNSC criteria for the assessment of effects (in Section 9.1.1 above) were considered. As shown in the Interactions Matrix (Table 5.2-1), potential effects can be beneficial or adverse. Only potential adverse effects are carried forward for assessment.

Effects that are likely to occur after the use of mitigation measures are identified as residual effects. By assessing residual effects, consideration was given to the benefit of in-design mitigation measures in preventing or reducing environmental effects. In-design mitigation measures are features included in the project design for the purpose of pre-empting possible environmental effects, based on good practice and CNL experience. For example, the use of grout to fill the structure is expected to slow down the release of contaminants to groundwater and subsequently to the Ottawa River, and allow more time for radioactive decay. In-design mitigation measures are described in Section 3 (System Description) of the PostSA TSD and are summarized in Section 4.1 above.

Monitoring and follow-up measures may also be identified for effects that were not identified as adverse residual effects, in order to confirm the predictions of the effects assessment, ensure that the planned mitigation measures are being carried out, and ensure that those measures are effective.

9.1.2.2 Assessment of Residual Effects

Each of the adverse residual effects identified in the above steps were subjected to an analysis of significance, and classified into one of the following significance levels:

- Minor Adverse Effect: The adverse residual effect is minor or insignificant; or
- Significant Adverse Effect: The adverse residual effect is significant. Additional or more effective mitigation to reduce the effect of the effect is not considered possible.

The methodology used to classify residual adverse effects as minor or significant was developed from a similar approach used by the CNSC in its Environmental Assessment Screening Report for the Pickering B Refurbishment and Continued Operation project (CNSC 2007, Section 11.1). This methodology was also utilized for the New Nuclear – Darlington Environmental Assessment.

Each adverse residual effect was evaluated based on the criteria from CNSC REGDOC-2.9.1 on *Environmental Principles, Assessments and Protection Measures* (CNSC 2020a), as outlined in Table 9.1-1 below. For each of the criteria below, a rating of Low, Moderate or High was assigned.

Table 9.1-1 Criteria for Classification of Residual Effects

Effects Criteria	Effects Level Definition		
Level of Effect	**Low**	**Moderate**	**High**
Magnitude	Effect exceeds baseline conditions; however, is less than reference criteria or guideline values.	Effect will likely exceed reference criteria or guideline values but has little or no effect on VC or pathways to VC.	Effect will likely exceed reference criteria or guideline values and may cause an effect on VC or pathway to VC.
Spatial (Geographic) Extent of Effect	Effect limited to Site Study Area or immediate surroundings.	Effect limited to Local Study Area.	Effect extends into or beyond Regional Study Area.
Duration/ Timing of Effect	Effects is limited to short-term events.	Effect is limited to Decommissioning Execution and Institutional Controls period.	Effect extends into the Post-Institutional Controls phase.
Frequency/ probability of conditions causing effect	Conditions or phenomena causing the effect are unlikely and/or infrequent.	Conditions or phenomena causing the effect likely an infrequent occurrence.	Conditions or phenomena causing the effect to occur at regular and/or frequent intervals.
Reversibility Risk	Effect ceases once source/stressor is removed.	Effect persists for some time after source/stressor is removed.	Effect is not readily reversible.
Effect on Human Health	Effect exceeds baseline conditions; however, is less than reference criteria or guideline values.	Effect will likely exceed reference criteria or guideline values but has little or no effect on human health or pathway to human health.	Effect will likely exceed reference criteria or guideline values and may cause an effect on human health or pathway to human health.
Ecological Importance (of VC)	The VC being affected is common and abundant within the Local Study Area.	The VC being affected is less common and of limited abundance within the Local Study Area.	The VC being affected is recognized as being at risk either provincially or nationally.

Once the rating was complete, a two-step process was applied by the respective EA specialists to determine significance of the adverse residual effects, based on their criteria ratings. The potential for a re-assessment of an adverse residual effect was also incorporated into the process.

Step 1: If a Moderate or High rating is assigned to all of the criteria dealing with the nature or extent of the effect (as follows):

- magnitude;
- spatial (geographic) extent;

- duration/timing;
- frequency/probability; and
- reversibility.

then proceed to Step 2. If a Low rating is assigned to any of the Step 1 criteria, the effect is deemed a minor residual adverse effect (i.e., not significant), and no further assessment is required.

Step 2: If a Moderate or High rating is assigned to at least one of the criteria dealing with the environmental and/or social implications of the effect (as follows):

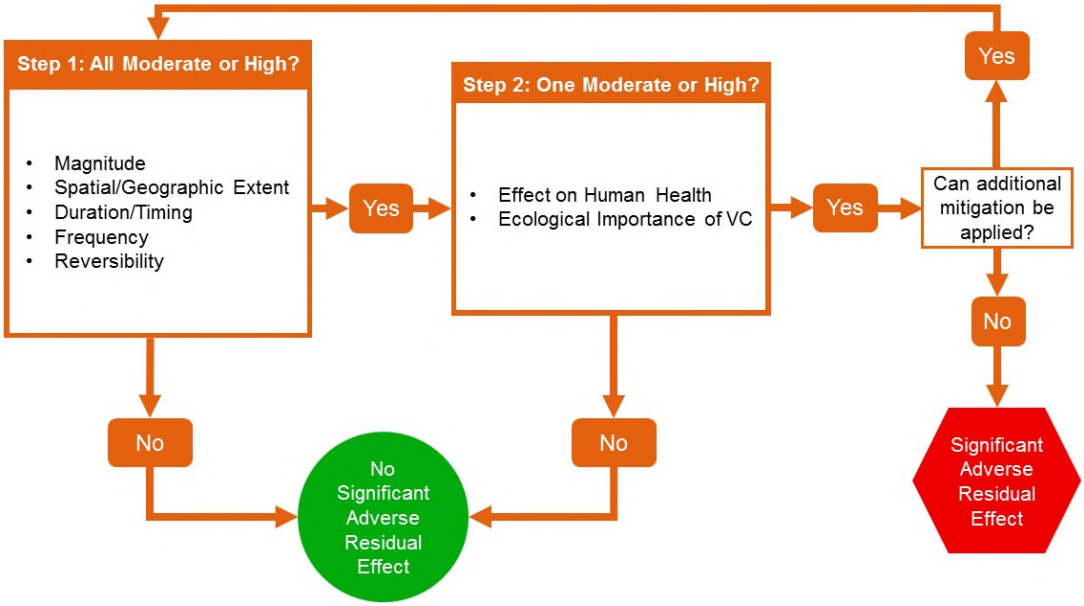
- effect on human health; or,
- ecological importance of VC,

then the effect is forwarded for an assessment of the possibility of applying additional mitigation measures.

If additional mitigation measures cannot be applied to the residual adverse effect, then the effect is deemed a significant residual adverse effect. If additional mitigation can be applied, then the residual adverse effect is sent back to Step 1 for re-assessment. If all Step 2 criteria are assigned a Low rating, the effect is deemed a minor residual adverse effect (i.e., not significant).

This methodology is shown graphically in Figure 9.1-3.

Figure 9.1-3 Methodology for Determination of Significance



For Step 1, the criteria ratings were established such that any residual adverse effect rated as “low” in any of the criteria would necessarily be a residual adverse effect that was so minimal that it could not be significant, regardless of the ratings of the other criteria used in Step 1 or Step 2. In Step 2, the criteria ratings were established such that any adverse residual effect that achieves at least one “medium” or “high” rating would be considered significant.

9.1.2.3 Monitoring and Follow-up Activities

CEAA, 2012 requires that the EIS include a framework or preliminary program upon which EA follow-up actions will be managed throughout the life of the project (which in this case, applies until the end of the Institutional Controls phase).

The NPD Closure Project has developed a proposed follow-up monitoring program, or EA Follow-up Program, in accordance with relevant CSA N288 standards for effluent, environmental and groundwater monitoring. The draft program was submitted to the CNSC in 2018 October (64-CNNO-18-0026-E and 64-CNNO-18-0027-E). These documents are available upon request.

The EA Follow-up Program will provide data to support future stages of the project, i.e., the initiation of the Post-Institutional Controls phase. The program includes regular reporting, review, and audits. It will be adjusted on regular basis in order to account for evolving site conditions, outcomes of stakeholder and Indigenous engagement, and any feedback from the monitoring program. Regulatory license conditions may also stipulate additional monitoring not related to the EA Follow-up Program, but if this occurs, data will be shared to meet the collective requirements.

The proposed follow-up monitoring program will continue to be improved and refined based throughout the NPD Closure Project EA process. In accordance with Section 12 of the Generic Guidelines for Preparation of an EIS, the NPD Closure Project is seeking to incorporate input from Indigenous Nations, communities and organizations, the public and stakeholders.

The proposed follow-up monitoring program was developed for the Decommissioning Execution and Institutional Controls phases of the project. It will address the monitoring of radioactive and non-radioactive contaminants present in the environment and in effluent, as well as physical stressors and VCs, helping to verify the environmental effect predictions made by the EIS and its TSDs. The monitoring program was developed following a systematic informed planning process based on CSA guidance.

Although the monitoring program has identified different objectives from CSA and CNL company-wide objectives, at a minimum, the program will follow the objectives specified in REGDOC-2.9.1 (CNSC 2020a) and *CEAA* (2012):

- verify the accuracy of EA predictions;
- determine the effectiveness of any measures implemented to mitigate potential adverse environmental effects.

Evaluation criteria are developed for each environmental media, location and parameter identified. These criteria are used as a framework for evaluating the monitoring data and determining the appropriate response, and are based on the following:

- Site-specific baseline data;
- Environmental concentrations predicted as part of the EIS and TSDs; and,
- Relevant guidelines (e.g., CCME Water Quality Guidelines, Health Canada Guidelines for Drinking Water Quality).

The data evaluation criteria allow for interpretation of monitoring data and provides a tiered system to increase or decrease monitoring based on the results. The responses to these exceedances are commensurate with the level of risk associated with that respective tier. In general, exceedances are to be addressed by at least one of the suggested methods as follows:

- Tier 1 exceedances:
  - Data review (e.g., trend evaluation, secondary sampling to confirm exceedance);
  - Investigate source of exceedance;
  - Consider increased monitoring frequency.
- Tier 2 exceedances:
  - Data review (e.g., trend evaluation, secondary sampling to confirm exceedance);
  - Investigate source of exceedance;
  - Apply additional mitigation measures, consider remediation (if applicable);
  - Consider stop work;
  - Increase monitoring (e.g., increased frequency, additional parameters, additional locations).

It is noted that the CNSC verifies and monitors all EA follow-up activities through the CNSC licensing and compliance process.

The detailed design of the proposed follow-up monitoring program has been summarized within each relevant environmental component below, as well as in Section 12 of this EIS.

9.2 Atmospheric Environment

9.2.1 Selection of VCs

As outlined in Section 5.2.4, the atmospheric environment (i.e. air quality and noise) represents features that can be affected by the project and as such would be pathways or mechanisms for transfer of an effect to another environmental component (e.g. terrestrial environment, human health). As such, no VCs have been selected in the atmospheric environment. The effects of changes in atmospheric conditions will be considered in the applicable environmental components. Although air quality is not a VC, it is still monitored and changes in monitoring results would trigger further monitoring.

Table 9.2-1 VC Selection for the Atmospheric Environment

Environmental Component	Pathway	Rationale
Atmospheric Environment	Pathway to human health	The effects on humans associated with changes in atmospheric conditions (radiological and chemical releases and concentrations) will be considered in the Human Health component.
	Pathway to non-human biota health	The effects on non-human biota associated with changes in atmospheric conditions (radiological and chemical releases and concentrations) will be considered on Terrestrial Environment VCs.
	Pathway to VCs in other environmental components	The effects on VCs in other environmental components associated with changes in atmospheric conditions (noise) will be considered in the applicable environmental components. These will include effects in the Socio-economic Environment and Traditional Land and Resource Use.

9.2.1.1 Indigenous Engagement Feedback – Key Interests and Concerns related to Atmospheric Environment VCs

This section describes how the input from Indigenous engagement activities influenced the scope of the atmospheric environment assessment. Table 9.2-2 summarizes the key interests and concerns raised by Indigenous peoples related to the evaluation of potential effects to the atmospheric environment (based on Table 6.3-1 above), and demonstrates how the interest or concern has been addressed in the present assessment.

Table 9.2-2 Summary of Interests and Concerns Raised During Indigenous Engagement Activities that Influenced the Scope of the Atmospheric Environment Assessment

Interest or Concern	How the Interest Was Included in the Assessment
Dust and noise emissions	The EIS discusses effects from dust and noise emissions in nearly every environmental compartment: atmospheric, surface water, aquatic, geological, terrestrial, human health, traditional land and resource use, Indigenous socio-economic and health, and socio-economic environment (Sections 9.2.3.2 to 9.11.3.2).

Notes:

The table above provides a summary of the concerns expressed by multiple Indigenous Nations, communities and organizations. See Table 6.3-1 for a more detailed listing of key interests and concerns from each Indigenous Nation, community and organization.

9.2.2 Assessment Boundaries

9.2.2.1 Spatial Boundaries

Similar to the atmospheric environment baseline characterization in Section 8.2 above, the Site and Local Study Areas for this assessment are consistent with the general spatial boundaries outlined in Section 5.2.1.1. The Regional Study Area for the atmospheric environment is outlined in Figure 8.2-1 above.

9.2.2.2 Temporal Boundaries

The temporal boundaries for this assessment are the standard temporal boundaries outlined in Section 5.2.1.2 of this EIS.

9.2.3 Identification of Residual Effects

9.2.3.1 Project-Environment Interactions

As shown in Table 5.2-1, potential effects to the atmospheric environment may occur as a result of interactions associated with operations and activities in the Decommissioning Execution, Institutional Controls and Post-Institutional Controls phases, in particular:

- Grout batch mixing plant;
- Grouting of below grade structures;
- Removal of above grade structures;
- Installation of concrete cap and engineered cover;
- Final site restoration;
- Facility performance during the Institutional Controls phase; and
- Facility performance during the Post-Institutional Controls phase.

The rationale for these interactions is included in Table 9.2-3 below.

Table 9.2-3 Project-Environment Interactions in the Atmospheric Environment

		Project Works and Activities	Potential Interaction
Decommissioning Execution	**1**	**Grout Batch Mixing Plant**	
	1.1	Designate footprint, create access, temporary fencing (east side of main building).	Creating access will generate dust and noise.
	1.2	Assign storage area for raw materials, ship in sand. Likely east side of licensed area.	Trucking and storage of materials will result in typical greenhouse gas (GHG) emissions, combustion and dust releases and noise.
	1.4	Truck in necessary water supply or source water directly from river.	Operation of trucks will result in GHG emissions, combustion and dust releases and noise.
	1.5	Provide slip pipe access to reactor side.	Providing slip pipe access will involve creating openings in walls – GHG emissions, combustion and dust releases and noise.
	1.6	Construct washout pit. Lined excavation with water transfer. Likely near grout batch mixing station.	Construction of the washout pit will involve earth-moving machinery, resulting in GHG emissions, combustion and dust releases and noise.
	1.7	Level area for pumper.	Levelling area for the pumper may involve earth-moving machinery, resulting in GHG emissions, combustion and dust releases and noise.
	1.8	Mix grout to required formula.	Mixing grout is expected to result in GHG emissions, combustion and dust releases and noise.
	1.9a	Truck grout to pumping station (20 trips per day).	Operation of trucks will GHG emissions, combustion and dust releases and noise.
	1.11	Sample and dewater the cleaning pit. Emplace sediments into voids in condenser room.	Pumping out water and removing sediment will likely involve heavy machinery – resulting in GHG emissions, combustion and dust releases and noise.[5]
Decommissioning Execution	1.12	Demobilize grout batch mixing plant after cap pour.	Removing equipment from site will involve the operation of trucks – resulting in GHG emissions, combustion and dust releases and noise.
	2	**Grouting of Below Grade Structure**	
	2.3	Grout Fill Nuclear Area.	Mixing and pumping grout is expected to result in GHG emissions, combustion and dust releases and noise. Grouting will displace air containing tritium, lead and asbestos from the facility.
	3	**Removal of Above Grade Structure**	
	3.1	Conventional heavy equipment knockdown of reactor hall.	Demolition will result in GHG emissions, combustion, surface contamination and dust releases and noise.
	3.2	Sizing of material such as cutting steel beams or crushing masonry for fitting into void areas.	Cutting steel and crushing masonry will result in GHG emissions, combustion, surface contamination and dust releases and noise.

[5] Handled as a non-routine discharge following approved CNL Environmental Protection processes (Matasich 2021)

		Project Works and Activities	Potential Interaction
Decommissioning Execution	3.3	Set up laydown area and perform clearance surveys on materials for possible recycle.	Transportation of materials will involve trucking/machinery, resulting in GHG emissions, combustion and dust releases and noise.
	3.4/	Steel and rubble emplaced in condenser room.	Transportation of materials will involve trucking/machinery, resulting in GHG emissions, combustion and dust releases and noise. Emplacement will displace air containing tritium, lead and asbestos from the facility.
	3.5	Grout first level of demolition material in condenser room.	Mixing and pumping grout is expected to result in GHG emissions, combustion and dust releases and noise. Grouting will displace air containing tritium, lead and asbestos from the facility.
	3.6	Steel and rubble emplaced in condenser pit.	Transportation of materials will involve trucking/machinery, resulting in GHG emissions, combustion and dust releases and noise. Emplacement will displace air containing tritium, lead and asbestos from the facility.
	3.7	Grout second level of demolition material in condenser pit.	Mixing and pumping grout is expected to result in GHG, combustion and dust emissions and noise. Grouting will displace air containing tritium, lead and asbestos from the facility.
	3.8	Steel and rubble in condenser pit.	Transportation of materials will involve trucking/machinery, resulting in GHG emissions, combustion and dust releases and noise. Emplacement will displace air containing tritium, lead and asbestos from the facility.
	3.9	Grout third level of demolition material in condenser pit.	Mixing and pumping grout is expected to result in GHG emissions, combustion and dust releases and noise. Grouting will displace air containing tritium, lead and asbestos from the facility.
	3.10	Demolish block walls and inside walls around control room and change rooms.	Demolition will result in GHG, combustion, surface contamination and dust emissions and noise.
	3.11	Collapse ceilings of furnace room and adjacent rooms.	Demolition will result in GHG emissions, combustion, surface contamination and dust releases and noise.
	3.12	Emplace block wall rubble in furnace room or condenser room.	Transportation of materials will involve trucking/machinery, resulting in GHG emissions, combustion and dust releases and noise. Emplacement will displace air containing tritium, lead and asbestos from the facility.
	3.13	Remove recyclables from guard house.	Removal of recyclables (i.e. metal and wiring) will result in noise.
	3.14	Demolish guard house and emplace in furnace room and adjacent rooms.	Demolition will result in GHG emissions, combustion, surface contamination and dust releases and noise.

		Project Works and Activities	Potential Interaction
	3.15	Grout furnace room and adjacent areas to ground level.	Mixing and pumping grout is expected to result in GHG emissions, combustion and dust releases and noise. Grouting will displace air containing tritium, lead and asbestos from the facility.
	3.16	Demolish above grade portion of pressure relief pit. Fill with grout.	Demolition will result in GHG emissions, combustion, surface contamination and dust releases and noise.
	4	**Install Concrete Cap and Engineered Cover**	
	4.1	Concrete Cap (construct forms, install rebar, and pour, level and slope concrete).	Mixing and pumping concrete is expected to result in GHG emissions, combustion and dust releases and noise.
	4.2	Engineered Cover (ship in materials, layer and shape mound, install geotextile layer, grade property, install remaining earth layers and seed).	Operation of trucks and earth-moving equipment will result in GHG emissions, combustion and dust releases and noise.
	5	**Final Site Restoration**	
	5.1	Site Restoration (install fencing, install monitoring wells if required, remediate areas affected by previous operations or decommissioning activities, washout pit, complete closure surveys).	Will involve earth-moving equipment and other equipment which will result in GHG emissions, combustion and dust releases and noise.
	5.2	Demobilize Site (Remove temporary facilities, decontaminate equipment, remove power upgrades, poles and lines, return transformers).	Will involve trucking and heavy machinery, GHG emissions, combustion and dust releases and noise.
IC*	**6**	**Long-Term Care and Maintenance**	
	6.7	Facility performance during the Institutional Controls phase.	Potential releases of volatilized radioactivity to air through the cap system.
PIC**	**7**	**Postclosure**	
	7.1	Facility performance during the Post-Institutional Controls phase.	Potential releases of volatilized radioactivity to air through the cap system.

Notes:

* - IC: Institutional Controls phase.
** - PIC: Post-Institutional Controls phase.
Since the site access road is short, and the roads and parking lots are paved, road dust and tailpipe emissions from brief activities such as dropping off and assembling equipment and infrastructure (mobile office trailers, portable bathrooms, grout batch mixing plant equipment) are considered negligible.

9.2.3.2 Proposed Mitigation Measures

The mitigation measures presented below are preliminary and have been developed based on the current understanding of the project. As the project approaches detailed work planning, details will be refined, and additional mitigation measures may be developed as required.

Air

In addition to the in-design mitigation measures identified in Section 4.1 above, where applicable and possible, industry best management practices, such as those identified in CNL's Land and Habitat Procedure (Hawkins 2024), CNL's Management and Monitoring of Effluents and Emissions (Lambert 2022), CNL's Radiation Protection Program, Cheminfo Services Inc. (2005) Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities, will be employed, including the following:

- regular maintenance of machinery to efficiently reduce emissions;
- water misting for dust suppression to reduce resuspension;
- temporary local ventilation with HEPA filtration, as required;
- haulage trucks covered to minimize dust emissions;
- minimization of dust generation through planning and site layout;
- dust suppression (e.g., wet methodologies) during demolition and material sizing activities;
- cover storage piles (stockpiles) when not in use, prior to workers leaving the site, and during heavy rainstorms;
- compaction of disturbed soil after completion of activities;
- minimization of drop heights of materials;
- barriers to prevent dispersion of materials;
- safe work practices for loading debris;
- avoidance of prolonged storage of debris;
- proper techniques for the use and handling of chemicals;
- limit idling of vehicles/equipment on-site to minimize emissions (Lambert 2022); and,
- post speed limits on-site (see Section 9.6.3.2) to minimize dust emissions.

Noise

Noise-specific mitigation measures include:

- operation of grout batch mixing plant restricted to between 7 am and 7 pm only to be allowed outside this period in exceptional circumstances (e.g., to complete a critical grout fill step that cannot be interrupted to ensure the safety of the structure or integrity of the grout);

- activities to take place during the daytime, with the exception of emergency situations such as power outages which would require standby generator operation;
- sequencing of work such that the simultaneous operation of noisy equipment is minimized, where possible;
- location of the grout batch mixing plant at least 1 km from all nearby residences;
- direct piping of grout into the facility rather than delivery by truck, where reasonable. This would reduce the on-site truck movement noise;
- trucks operating at the project site are well maintained and are equipped with appropriate mufflers;
- placement of the generator in an acoustically treated enclosure to reduce noise (if required);
- maintenance of noise levels in compliance with CNL's Occupational Health & Safety Program requirements;
- post speed limits on-site (see Section 9.6.3.2); and,
- maintenance of on-site truck route in good condition in order to prevent truck tray noise caused by driving over uneven roadway.

9.2.3.3 Effects After Mitigation

Decommissioning Execution

Activities in the Decommissioning Execution phase will produce GHG emissions such as methane (CH_4), carbon dioxide (CO_2), and nitrous oxide (N_2O), combustion emissions (including NO_x, SO_2 and carbon monoxide), particulate matter (TSP, PM_{10} and $PM_{2.5}$), VOCs, lead and asbestos emissions, radiological emissions (C-14, Gross Beta and HTO) and noise. These radioactive and non-radioactive emissions are assessed for normal operations in Section 8 of the DecomSA TSD, and the results are discussed below for each spatial boundary.

Of the hazardous substances considered in the EIS COPC screening, only asbestos, lead, mercury and PCBs were identified as COPCs. PAHs were screened out based on remediation of previously contaminated areas, as well as current measurements at the site.

With respect to PCBs, all PCB-containing light ballasts will be removed before decommissioning begins. CNL sampled the paint and caulking in the NPDWF for PCBs, and all samples contained less than the regulated level of 50 mg/kg of PCBs in solids McVeigh (2018a). As such, PCB-containing paint and caulking do not warrant further assessment. Due to the nature and waste form of PCBs, as well as anticipated project activities, PCB releases to air are not expected (DecomSA TSD).

Similarly, due to the waste form of mercury (residual contamination), mercury releases to air are not expected (DecomSA TSD).

Asbestos and lead releases are assessed in the DecomSA TSD, which makes use of baseline industrial hygiene information, as part of its normal operation scenario by conservatively using the highest available

measured concentrations for lead and asbestos. It is a conservative assumption because it overestimates the average lead and asbestos concentrations in air within the facility.

The effects of noise in the Site and Local Study Area are assessed qualitatively. Due to the nature of the work, quantity and nature of equipment on site, and proximity to Highway 17, no noise effects are expected. However, since the atmospheric environment is a pathway to VCs in other environmental components (e.g., terrestrial environment, traditional land and resource use, and the socio-economic environment), the project's potential effects on noise are assessed with respect to the VCs in those environmental components (see Sections 9.6.4, 9.9.4 and 9.11.4 respectively).

Recognizing people's interest in understanding and participating in decisions that affect them, CNL will proactively seek, engage and support meaningful discussion on issues and opportunities related to the NPD Closure Project as part of the Public Information Program. The Public Information Program includes specific communications to stakeholders and public access to information related to routine activities as well as projects such as the NPD Closure Project. Accordingly, CNL will notify local communities of the start of the NPD Closure Project's decommissioning activities. These measures are meant to mitigate questions and complaints regarding CNL activities, as well as ensure community input is sought, received and action is taken to respond to these inputs.

The Public Information Program also provides a platform for the public to voice their concerns related to NPD Closure Project activities and for CNL to address and develop resolutions to these concerns; the process includes:

- Corporate Communications receives issues and concerns through the formal feedback submission on the CNL website (https://www.cnl.ca/contact us), emails (ERMstakeholder@cnl.ca), phone calls (1-800-364-6989), and social media platforms (e.g., Facebook and Twitter);
- All NPD Closure Project-related issues and concerns (including complaints about noise disturbances) received are forwarded to the NPD Closure Project for resolution;
- The NPD Closure Project address and resolve concerns about the project on a case-by-case basis and resolution may include further mitigation of NPD site activities;
- Throughout this process, CNL will maintain two-way dialogue between the stakeholder and the NPD Closure Project team until the issue is resolved;
- All inquiries are tracked and resolution or responses are recorded once completed.

CNL will continually evaluate both the process and the outcome of the ongoing engagement and communication activities to address and manage issues as they arise. The level and nature of engagement with the communities will depend on feedback received.

Site/Local Study Area

Non-Radiological

In the Site and Local Study Areas, project-related generation of NO_2, SO_2, VOCs (represented by acrolein), CO, TSP, PM_{10} and $PM_{2.5}$ were assessed in Section 8 of the DecomSA. It was conservatively assumed

that all project activities will occur simultaneously with respect to these contaminants. The predicted incremental concentrations of NO_2, SO_2, TSP, PM_{10} and $PM_{2.5}$ at nearby residences and at Point Stewart are well within normal measured variability and the difference in air quality is not considered measurable. Further consideration of these emissions is not required.

It is noted that CO, NO_x, SPM, PM_{10}, $PM_{2.5}$ and VOCs (Total) are considered Criteria Air Contaminants in ECCC's NPRI program. If emissions of these contaminants exceed the reporting threshold, then they must be reported under NPRI. The air quality assessment (summarized in the DecomSA TSD) estimated that the annual emissions of all of the above contaminants will be below the NPRI reporting thresholds (all are below 1 kg per year, compared to the thresholds ranging from 0.3 to 20 tonnes per year). Reporting to NPRI will not be required. The VOC emission estimates are also well below the reporting thresholds under the Canada-U.S. Air Quality Agreement, which requires reporting of annual emissions greater than 1 tonne.

GHG emissions associated with the project were also assessed in the GHG TSD. The GHG TSD follows the general methodology described in the Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment (FPTCCCEA) (2003) General Guide for Practitioners on incorporating GHG emissions in an EA. The emissions assessed include direct and indirect (i.e., upstream) emissions. Upstream emissions consist of raw material extraction and transport, binder production (including pyroprocessing), and transport of grout materials to the grout batch mixing plant. The direct emissions for the Decommissioning Execution phase of the project are estimated to be 0.35 tons of CO_2-eq. The indirect emissions from the project are estimated at 8,202 tonnes CO_2-eq. The project's GHG emissions (direct and indirect combined) are negligible in comparison to Ontario's total GHG emissions (i.e., less than 0.005%) and are approximately 0.3% of the Ontario total for cement production.

Grouting of the below grade facility will displace contaminants found in the air within the facility, and demolition will also release surface contamination in air. This air is expected to contain lead and asbestos. The project may meet the criteria for reporting lead and asbestos releases under NPRI due to the amount of lead and asbestos being disposed of in the facility as disposal is captured under the NPRI definition of "otherwise use". If disposal quantities meet the NPRI reporting threshold, all site releases will need to be reported. In this case, lead and asbestos releases will be monitored by CNL (see Section 9.2.5). The release of lead and asbestos through air displacement was assessed in Section 8.5.2 of the DecomSA TSD. The potential effects of these COPC releases on workers, the public and non-human biota are considered in Sections 9.6.3, 9.8.3 and 9.10.3 of this EIS.

Radiological

Demolition may release volatile radionuclides from surface contamination in the facility to the air. The potential effects of these releases (i.e., tritium and C-14) on workers, the public and non-human biota are discussed in Sections 9.6.3, 9.8.3 and 9.10.3 of this EIS.

Grouting of the below grade facility will displace air that is currently in the facility. This air contains low levels of tritium. The release of tritium through air displacement was assessed in Section 8.5.2 of the DecomSA TSD. This TSD presents dose calculations to verify whether these radioactive emissions cause effects. The potential effects of tritium releases on workers, the public and non-human biota are discussed in Sections 9.6.3, 9.8.3 and 9.10.3 of this EIS.

Regional Study Area

Non-Radiological

The potential effects of transportation on the atmospheric environment in the Regional Study Area is considered in the DecomSA in a bounding scenario with all other activities (i.e., in the Site and Local Study Area) that produce NO_2, SO_2, TSP, PM_{10} and $PM_{2.5}$. Similarly, GHGs are considered for the project as a whole. Since no effects are expected with respect to these in the Site and Local Study Areas, no effects are expected in the Regional Study Area during the Decommissioning Execution phase. Further consideration of these emissions is not required.

Grouting of the below grade facility will displace contaminants found in the air within the facility, and demolition will also release surface contamination in air. This air is expected to contain lead and asbestos. The release of lead and asbestos through air displacement was assessed in Section 8.5.2 of the DecomSA TSD. The potential effects of these COPC releases on the public and non-human biota are discussed in Sections 9.6.3, 9.8.3 and 9.10.3 of this EIS.

Radiological

The release of tritium through air displacement was assessed in Section 8.5.2 of the DecomSA TSD. The potential effects of tritium releases from air displacement on the public and non-human biota in the Regional Study Area are discussed in Sections 9.6.3, 9.8.3 and 9.10.3 of this EIS.

Institutional Controls and Post-Institutional Controls

As shown in Table 9.2-3, no noise interactions are expected during the Institutional Controls or Post-Institutional Controls phases. Some vehicle-related emissions to air may occur during the Institutional Controls phase (e.g., combustible gases for vehicles used for groundwater sampling or vegetation removal activities); however, the level of activity associated with long-term care and maintenance activities during is bounded by current maintenance undertaken at the NPD site as part of SwS, which meet criteria and are much less than reporting thresholds. Furthermore, CNL will continue to follow, where applicable and possible, industry best practices (to minimize, prevent and mitigate potential airborne emissions), as outlined in Section 9.2.3.2.

The PostSA TSD examines several potential scenarios for the postclosure period (i.e., Institutional Controls and Post-Institutional Controls phases) as a way to capture and quantify uncertainties in the future conditions at the site and assess the potential for radiological and non-radiological contamination of the atmospheric environment (among other environments) for these scenarios. For detail on these scenarios, the reader is directed to Section 4 of the PostSA TSD. For example, airborne contaminants can spread to and potentially affect the terrestrial environment. Since the atmospheric environment is a pathway to VCs in other environmental components (e.g. terrestrial environment, human health), the project's effects on the atmospheric environment are assessed with respect to the VCs in those other environmental components (see Sections 9.6.4, 9.8.4 and 9.10.3 respectively).

9.2.3.4 Prediction Confidence and Uncertainty

Although the project has been described in Titterington (2016), Johnson (2022a) and various other studies, there are some uncertainties with respect to some aspects of the project details. These uncertainties, and their implications on the assessment of effects, are outlined below.

It is unknown whether grout will be pumped or trucked from the grout batch mixing plant to various areas. It was assumed that the grout would be transported from the grout batch mixing plant to the facility by truck as this is anticipated to have greater potential for environmental effects. The method of moving the grout from the grout batch mixing plant to the facility has been left operationally flexible for the grout contractor.

It was conservatively assumed that no airborne contaminants from the facility are captured by the HEPA filter system although the HEPA filtration system will be used as required.

The GHG TSD acknowledges that there are no GHG models available for grout. Consequently, the GHG emission estimates use cement/concrete production as a surrogate for grout. The GHG TSD used conservative assumptions wherever possible; for example, it was assumed that the standby diesel generator at the grout batch mixing plant will operate for 12 hours per day. Material volumes were selected to be conservative. The use of US default values for the calculation of indirect CO_2 emissions may result in uncertainty, as concrete and grout manufacturing, as well as raw material extraction and transportation may differ between the United States and Canada. As discussed earlier, the project's GHG emissions (direct and indirect combined) are negligible in comparison to Ontario's total GHG emissions (i.e., less than 0.005%) and are approximately 0.3% of the Ontario total for cement production. Therefore, there is enough margin in the results to accommodate the above uncertainties.

Variability in airborne contaminants (e.g., tritium, lead and asbestos) concentrations in the facility is accounted for by conservatively using the highest available measured concentrations in the DecomSA normal operation scenario. This is a conservative assumption because it overestimates the average contaminant concentrations in air within the facility, and the overestimates the releases to the atmospheric environment.

Tritium is treated as tritiated water (HTO) to be conservative wherever HTO dose calculations are available.

During the demolition of the above grade structures there is the possibility for lead (from lead-based paint) to be released into the atmosphere, and potentially affect the atmospheric environment. The following assumptions were used in a step approach to estimate the volume of lead based paint inventory that would be resuspended into the environment as a result of demolition (for more detail see the DecomSA TSD):

- The total inventory of lead paint in the above-grade structure was assumed to be released as particulate.
- Given that much of the paint will remain adhered to the demolition debris, and will not be released as airborne particulate, an airborne release fraction of 0.01 has been applied.
- Of the particulate created, only a portion will be of a respirable size. Therefore, it has been assumed that 10% of the airborne particulate will be respirable (i.e., a factor of 0.1).

- Given that water spray misting will be used as a dust control measure, it is assumed that only a small portion (i.e., 10%) of the released respirable particles would not be captured.
- The rate that the buildings are being demolished, and therefore the rate that the lead is being released, is estimated based on the number of days spent demolishing the above grade buildings:
    - 30 total days are spent actively demolishing the above grade structures (excluding the ventilation stack);
    - It was assumed that 8 hours per day were spent demolishing buildings. This allowed for the total inventory to be divided by the total demolition time (s) producing a resulting release rate in g/s.
- The release occurs at approximately 1 m (corresponding to the height of release for the CALPUFF calculations (Appendix C of the DecomSA TSD)).

REGDOC-2.9.1 on *Environmental Principles, Assessments and Protection Measures* (CNSC 2020a) provides guidance on characterizing the effects on the project on the atmospheric environment. As per REGDOC-2.9.1 (Appendix C.1), radiological and non-radiological emissions (including greenhouse gases) during the different phases of the project have been characterized, including postulated accidents and malfunctions. The modelling includes site-specific atmospheric characteristics and receptors. REGDOC-2.9.1 also states that the predictions should include average and maximum emissions from planned discharges, point sources and fugitive releases. However, due to the large amount of unknown information, many assumptions were made in order to estimate future emissions. Wherever possible, very conservative assumptions were made (such as those described above). Therefore, the emission estimates are likely representative of a maximum, based on the available information. There is not enough information to produce average emission estimates, and they are likely not required, as no issues are expected even from the very conservative emission estimates. With respect to noise estimates, REGDOC-2.9.1 suggests that daytime and nighttime noise levels and tonal noise be predicted and compared to baseline levels and published guidelines. In this EIS, the assessment of noise effects was conducted qualitatively, based on knowledge of planned project activities and nearby receptor locations. It is noted that ambient daytime and nighttime noise levels are not currently measured at the site, and no noise concerns have been raised during current conditions (i.e., during generator operation).

9.2.3.5 Residual Effects

Table 9.2-4 summarizes the air quality and noise effects assessment carried out above and presents the residual effects that were identified for the atmospheric environment. The residual effects in Table 9.2-4 are grouped by effect rather than by individual interaction as listed in Table 9.2 3.

Table 9.2-4 Summary of Residual Effects in the Atmospheric Environment

Environmental Component	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Decommissioning Execution					
Atmospheric Environment: Air Quality (non-radiological).	All Decommissioning Execution activities.	Decommissioning Execution activities (including grout batch mixing plant setup and operation, material transport, generator operation, demolition, sizing) will result in emissions of NO_x, SO_2, TSP, PM_{10}, $PM_{2.5}$, and GHGs.	Standard Construction Practices (e.g., dust suppression, machinery maintenance).	NO_x, SO_2, TSP, PM_{10}, $PM_{2.5}$, and GHGs emissions will be minor, temporary and localized.	Effects of non-radiological exposure are assessed in terms of their effect on humans and non-human biota in Sections 9.6 and 9.8.
Atmospheric Environment: Noise.	Grout batch mixing plant set-up and operation.	Transportation of material, equipment and grout and operation of the grout batch mixing plant is expected to generate noise.	Standard Construction Practices (e.g., timing of activities).	It is unlikely that noise from the operation of the grout batch mixing plant would cause an adverse noise effect on humans or wildlife.	No adverse residual effect.
Atmospheric Environment: Air Quality (radiological).	Volatile radionuclides in air displaced from grouting the below grade structure and demolition of above grade structure.	Contaminated air from the facility will be released to the atmospheric environment.	Dust suppression.	Volatile radionuclides in air may result in exposure effects on non-human biota and human health.	Effects of radiological exposure are assessed in terms of their dose in humans and non-human biota in Sections 9.6 and 9.8.
Atmospheric Environment: Air Quality (non-radiological).	Lead and asbestos in air displaced from grouting the below grade structure and removal of above grade structures.	Contaminated air from the facility will be released to the atmospheric environment.	Dust suppression	Lead and asbestos in air may result in exposure effects on non-human biota and human health.	Effects of non-radiological exposure are assessed in terms of their effect on humans and non-human biota in Sections 9.6 and 9.8.

Environmental Component	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Atmospheric Environment: Noise.	Grouting involves trucking between the grout batch mixing plant and the facility.	Vehicle and equipment operation will generate noise.	Standard Construction Practices (e.g., timing of activities).	It is unlikely that noise from the operation of the grout batch mixing plant would cause an adverse noise effect on humans or wildlife.	No adverse residual effect.
Atmospheric Environment: Noise.	Demolition and sizing of material.	Demolition of above grade structures, cutting metal and crushing masonry is expected to generate noise.	Standard Construction Practices (e.g., timing of activities).	Noise generated may affect nearby residents and wildlife, however the noise is expected to be of short duration, limited to daytime hours and intermittent.	No adverse residual effect.
Atmospheric Environment: Noise.	Earth moving, grout mixing, transportation, pouring.	Grout batch mixing plant operation, vehicle transportation, operation of heavy mobile equipment such as front-end loaders and backhoes.	Standard Construction Practices (e.g., timing of activities).	It is unlikely that noise from the operation of the grout batch mixing plant would cause an adverse noise effect on humans or wildlife.	No adverse residual effect.
Atmospheric Environment: Noise.	Removal of temporary structures.	These activities will involve the use of mobile powered equipment such as pavement breakers, backhoes, excavators, bull dozers, compactors, etc. and are thus potential sources of noises.	Standard Construction Practices (e.g., timing and sequencing of activities).	These noise sources would not be continuous and unlikely to be simultaneous.	No adverse residual effect.
Institutional Controls and Post-Institutional Controls					
Atmospheric Environment: Air Quality (radiological).	Radionuclides volatilizing from surface media.	Contamination of air may affect VCs in other environmental components.	In-design mitigations to isolate and contain the inventory in order to reduce the potential for contamination in the atmospheric environment.	Contamination of air may affect VCs in other environmental components.	Effects of radiological exposure are assessed in terms of their dose in humans and non-human biota in Sections 9.6 and 9.8.

9.2.4 Assessment of Residual Effects

Since the atmospheric environment is a pathway to other environmental components (e.g., terrestrial environment and human health), potential adverse residual effects are considered within those environmental components (see Sections 9.6.4, 9.8.4 and 9.11.4).

For example, the incorporation of air contaminants (such as C-14) in plants is taken into account. Transfer from air to plants is the main linkage of air contaminants to other pathways.

9.2.5 Monitoring and Follow-up

The atmospheric environment (i.e., air quality, noise) represents a pathway for transfer of an effect to VCs in other environmental components. As discussed in Section 9.1.2.3, a proposed follow-up monitoring program was developed to support the EA Follow-up Program. Specifically, the effluent monitoring and environmental monitoring aspects are relevant for the atmospheric environment. Please note that this section discusses only those monitoring considerations specific to the atmospheric environment, specifically, monitoring details (e.g., parameters, locations/effluent streams, frequency).

Other more general considerations of the EA Follow-up Program (e.g., sampling and analysis procedures, information management and reporting) are presented in Section 12.

9.2.5.1 Effluent Monitoring

Each potential effluent stream during the Decommissioning Execution and Institutional Controls phases was evaluated in the proposed follow-up monitoring program to determine the need for monitoring following the systematic informed planning process. Monitoring details for those atmospheric effluent streams requiring monitoring are summarized for the Decommissioning Execution and Institutional Controls phases in Table 9.2-5 and Table 9.2-6 below.

Evaluation criteria for air emissions, and actions taken to address exceedances were developed and are presented in the proposed follow-up monitoring program. The generic actions to address exceedances are presented in Section 9.1.2.3 above.

Decommissioning Execution

Table 9.2-5 Airborne Effluent Monitoring during the Decommissioning Execution Phase

Effluent Stream	Monitoring Required (Y/N)	Parameters to be Monitored	Monitoring Frequency[1]
Ventilation exhaust, including portable ventilation.	Y	Radionuclides	Continuous while exhaust fan running (ventilation will be in place until the completion of grouting)
		Flow	Monthly
		Fan Run Time	Monthly
Fugitive releases from the main building non-nuclear area	N (minimal or no source of airborne radioactivity)		
Fugitive releases from the external areas or structures	N (minimal or no source of airborne radioactivity)		
Release of surface contamination during demolition	Y	Radionuclides	Continuous during demolition
		Metals	Continuous during demolition
		Flow	Monthly
		Fan Run Time	Monthly
Displacement of air during grouting of below grade structures	Y	Radionuclides	Continuous during grouting
		Metals	Continuous during grouting
		Asbestos	Continuous during grouting
		Flow	Monthly
		Fan Run Time	Monthly
Halocarbon release (in support of annual estimation of GHG emissions, not related to project impacts)	Y	Halocarbons	Per release
Solvent use	Y	Solvent Use	Annually
Dust emissions	Y	Suspended particulate matter	Continuous
Noise Emissions	Y	Monitored as part of the proposed follow-up environmental (Section 12.3.2) monitoring	
Diesel Emissions	Y	Air pollution gases	N/A
Former Landfill 1	Y	Greenhouse Gas	Annually

Notes:

GHG – Greenhouse Gas; N/A – Not Applicable
1 - Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each effluent stream are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

Institutional Controls

Table 9.2-6 Airborne Effluent Monitoring during the Institutional Controls Phase

Effluent Stream	Monitoring Required (Y/N)	Parameters to Be Monitored	Monitoring Frequency[1]
Fugitive releases through the cap and barrier	Y	Monitoring is considered as part of the proposed follow-up environmental (Section 12.3.2) monitoring	
Dust emissions	N	Suspended Particulate Matter	
	Y	Hours worked	Annual
		Vehicle kilometers travelled	Annual
Diesel emissions	N	Suspended Particulate Matter	
	Y	Hours worked/ fuel used	Annual

Notes:

N/A – Not Applicable
1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each effluent stream are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

9.2.5.2 Environmental Monitoring

This section provides a concise summary of the proposed follow-up environmental monitoring in the atmospheric environment.

Evaluation criteria for the atmospheric environment, and actions taken to address exceedances were developed and are presented in the proposed follow-up environmental monitoring program. The generic actions to address exceedances are presented in Section 9.1.2.3 above.

Decommissioning Execution

Atmospheric environmental monitoring details developed for the Decommissioning Execution phase are summarized in Table 9.2-7 below.

Table 9.2-7 Atmospheric Environmental Monitoring During the Decommissioning Execution Phase

Environmental Component	Subcomponent	Sampling Locations	Parameters to be Monitored	Monitoring Frequency[1]
Atmospheric Environment	Air Quality	*(if triggered by tier 2 exceedances in atmospheric effluent monitoring)* • Site boundary • Sensitive receptors within the Regional Study Area	• Radionuclides	Continuous for one week during new activities or modifications to existing activities (while activities are occurring)
			• Air pollution gases	Continuous for one week during new activities or modifications to existing activities (while activities are occurring)
			• Suspended particulate matter	Continuous during decommissioning activities (while activities are occurring)
			• Metals • Asbestos	Continuous for one week during new activities or modifications to existing activities (while activities are occurring)
	Noise	• Site boundary *(if triggered by monitoring at the Site boundary)* • Sensitive receptors within the Regional Study Area.	• Noise	Continuous during periods of high activity (while activities are occurring)

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

Institutional Controls

Atmospheric monitoring locations associated with predictions in the Decommissioning Execution phase are no longer relevant, and monitoring may occur (if triggered) at locations associated with potential groundwater exceedances.

Monitoring in the atmospheric environment will only be undertaken in the event of exceedances in other environmental media, specifically contaminants in groundwater. If triggered by tier 2 groundwater exceedances, the monitoring details for the atmospheric environment during the Institutional Controls phase are summarized in Table 9.2-8 below.

Table 9.2-8 Atmospheric Environmental Monitoring During the Institutional Controls Phase

Subcomponent	Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
Air quality *(if triggered by tier 2 groundwater exceedances)*	Atmospheric monitoring will be co-located with groundwater exceedances.	Parameters dependent upon exceedances in other environmental media.	Continuous

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

9.2.6 Conclusion

As shown in Table 9.2-4, no adverse residual effects were identified for the atmospheric environment.

It is important to note that the atmospheric environment is a pathway that carries Project emissions to receptors (both human and non-human). While some contaminants (e.g., SO_2) can be assessed by comparing their airborne concentrations against benchmarks, the potential effects of others (e.g., most radionuclides) must be evaluated through the effect of the medium on a receptor. The potential effects of Project contaminants on receptors are also not necessarily limited to only air pathways (e.g., inhalation); rather, all relevant pathways that can affect a receptor are cumulatively considered.

Project emissions are not expected to have adverse effects on the atmospheric environment because levels in this environmental component were found not to have adverse health effects on human receptors (see Sections 9.8.4 and 9.10.2.4) and not to cause undue risk for relevant biota (see Section 9.6.4).

The assessment of potential effects to the atmospheric environment (Section 9.2.3.5) took into consideration the concerns expressed by Indigenous Nations, communities, and organizations during engagement activities (Section 9.2.1.1).

Monitoring for parameters of concern on a per-event basis (e.g., monitoring noise during demolition), and estimating project-related emissions will verify the accuracy of the EA predictions and effectiveness of measures implemented to mitigate potential adverse environmental effects.

9.3 Surface Water Environment

9.3.1 Selection of VCs

As outlined in Section 5.2.4, the surface water environment (i.e., site drainage and water quality) represents features that can be affected by the project and as such would be pathways or mechanisms for transfer of an effect to another environmental component (e.g., aquatic environment, terrestrial environment, human health). As such, no VCs have been selected in the surface water environment. The potential effects of changes in the surface water conditions will be considered in the applicable environmental components. Although surface water is not a VC, surface water quality is an important parameter and is being monitored. As outlined in Table 9.3-1 below, effects are considered once surface water interacts with a receptor or another environmental component.

Table 9.3-1 VC Selection for the Surface Water Environment

Environmental Component	Pathway	Rationale
Surface Water Environment	Pathway to human health	The potential effects on humans associated with changes in site drainage and surface water quality (radiological and chemical releases and concentrations) will be considered in the Human Health component.
	Pathway to non-human biota health	The potential effects on non-human biota associated with changes in site drainage and surface water quality (radiological and chemical releases and concentrations) will be considered for Aquatic Environment and Terrestrial Environment VCs.
	Pathway to VCs in other environmental components	The potential effects on VCs in other environmental components associated with changes in site drainage and surface water quality (e.g., water levels) will be considered in the applicable environmental components.

9.3.1.1 Indigenous Engagement Feedback – Key Interests and Concerns related to Surface Water VCs

This section describes how the input from Indigenous engagement activities influenced the scope of the surface water assessment. Table 9.3-2 summarizes the key interests and concerns raised by Indigenous peoples related to the evaluation of potential effects to the surface water environment (based on Table 6.3-1 above), and demonstrates how the interest or concern has been addressed in the present assessment. Comments that are specifically related to fish and other aquatic species are addressed in Section 9.4, Aquatic Environment.

Table 9.3-2 Summary of Interests and Concerns Raised During Indigenous Engagement Activities that Influenced the Scope of the Surface Water Environment Assessment

Interest or Concern	How the Interest Was Included in the Assessment
Loss of connection to and use of lands and water	The EIS discusses concerns about potential loss of connection to land and water, and loss of land and water use, as part of the assessment of effects on traditional land and resource use (Section 9.9.5). Changes to land and water use are discussed in the EIS as part of the expected outcomes of renaturalization during and after the Institutional Controls phase (Section 9.9.3). CNL's Public Information Program aims to enhance engagement with Indigenous peoples and address any potential feelings of loss of connection to and use of lands and water (Section 9.9.5).
Ottawa River water quality, and potential for contamination of waterways, plants and animals	The EIS considers the effects of project activities on surface water quality and drainage (Section 9.3.3). It also assesses potential effects of changes to the surface water environment on plant and animal VCs as well as traditional land and resources VCs and human health VCs (members of the public and Indigenous Nations, communities and organizations) that may use Ottawa River water (Sections 9.4.3, 9.6.3, 9.8.3, 9.9.3, 9.10.1.3, 9.10.2.3, 9.11.3). Based on feedback received during Indigenous engagement, CNL added new VCs related to the aquatic and terrestrial environments, Indigenous socio-economic and health conditions (Section 9.4.1, 9.6.1, 9.10.1, 9.10.2). In 2018, in response to public and Indigenous concerns, CNL ceased the practise of discharging liquid effluent from the facility sumps to the Ottawa River, and arranged for water to be sent to the Waste Treatment Centre at the CRL site (Section 8.3.3).
Impacts to Ottawa River shoreline	Impacts to the Ottawa River shoreline are assessed in the EIS by considering the effects of the project on the aquatic habitat-related VCs (Section 9.4.3) and the Landscape and Visual Setting VC (Section 9.11.3).
Surface water and stormwater management	Surface water management is discussed in the EIS in the context of mitigation measures and monitoring. Mitigation measures include consideration of stormwater flows (Sections 9.3.3.2 and 9.3.3.5).

Notes:

The table above provides a summary of the concerns expressed by multiple Indigenous Nations, communities and organizations. See Table 6.3-1 for a more detailed listing of key interests and concerns from each Indigenous Nation, community and organization.

9.3.2 Assessment Boundaries

9.3.2.1 Spatial Boundaries

Similar to the surface water environment baseline characterization in Section 8.3 above, the Site and Local Study Areas are consistent with the general spatial boundaries outlined in Section 5.2.1.1. The Regional Study Area for this assessment is outlined in Figure 8.3-1.

9.3.2.2 Temporal Boundaries

The temporal boundaries for this assessment are the standard temporal boundaries outlined in Section 5.2.1.2 of this EIS.

9.3.3 Identification of Residual Effects

9.3.3.1 Project-Environment Interactions

As shown in Table 5.2-1, potential effects to the surface water environment may occur as a result of interactions associated with operations and activities in the Decommissioning Execution, Institutional Controls, and Post-Institutional Controls phases, in particular:

- Installation and operation of the grout batch mixing plant;
- Removal of above grade structures;
- Install concrete cap and engineered cover;
- Final site restoration;
- Facility performance during the Institutional Controls phase;
- Facility performance during the Post-Institutional Controls phase.

The rationale for these interactions is included in Table 9.3-3 below.

Table 9.3-3 Project-Environment Interactions in the Surface Water Environment

		Project Works and Activities	Potential Interaction
Decommissioning Execution	**1**	**Grout Batch Mixing Plant**	
	1.1	Designate footprint, create access, temporary fencing (east side of main building).	Activities associated with designating footprint may affect site drainage.
	1.2	Assign storage area for raw materials, ship in sand. Likely east side of licensed area.	Storage of raw materials may affect site drainage properties on the site. Runoff from the stockpiles may affect water quality.
	1.6	Construct washout pit. Lined excavation with water transfer. Likely near grout batch mixing station.	Construction of the washout pit will affect site drainage as land will be graded and the pit will be lined with a watertight material. Washout pit operation has the potential to affect water quality.
	1.7	Level area for pumper.	Levelling may affect site drainage.
	1.10	Wash out cement truck sluice and pumper truck and slip pipes. (Daily)	Equipment washout may affect water quality on site.
	1.11	Sample and dewater the cleaning pit. Emplace sediments into voids in condenser pit.	Dewatering the pit may affect surface water quality on the site.[6]
	3	**Removal of Above Grade Structure**	
	3.1	Conventional heavy equipment knockdown of reactor hall.	Demolition affects water quality due to potential runoff.
	3.2	Sizing of material such as cutting steel beams or crushing masonry for fitting into void areas.	Outdoor cutting steel and crushing masonry may affect water quality due to potential run-off.
	3.3	Set up laydown area and perform clearance surveys on materials for possible recycle.	Runoff from material stored outdoors may affect water quality.
	3.10	Demolish block walls and inside walls around control room and change rooms.	Demolition may affect water quality due to potential runoff.

[6] Handled as a non-routine discharge following approved CNL Environmental Protection processes (Matasich 2021)

		Project Works and Activities	Potential Interaction
	3.14	Demolish guard house and emplace in furnace room and adjacent rooms.	Demolition may affect water quality due to potential runoff.
	3.16	Demolish above grade portion of pressure relief pit. Fill with grout.	Demolition may affect water quality due to potential runoff.
	4	**Install Concrete Cap and Engineered Cover**	
	4.1	Concrete Cap (construct forms, install rebar, and pour, level and slope concrete).	Concrete cap installation will impede water infiltration, thus affecting site drainage.
	4.2	Engineered Cover (ship in materials, layer and shape mound, install geotextile layer, grade property, install remaining earth layers and seed).	Grading and installing layers of earth will affect site drainage. Installation of the engineered cover may increase soil runoff, affecting water quality.
	5	**Final Site Restoration**	
	5.2	Demobilize Site (Remove temporary facilities, decontaminate equipment, remove power upgrades, poles and lines, return transformers).	Decontamination of equipment via washout will affect water quality on site. Remediation of site may alter site drainage.
IC*	**6**	**Long-Term Care and Maintenance**	
	6.8	Facility performance during the Institutional Controls phase	Groundwater will start to enter and eventually resaturate the grouted structure and come into contact with contamination. Dissolved contaminants in groundwater will flow out and may reach the Ottawa River.
PIC**	**7**	**Post-Institutional Controls**	
	7.1	Facility performance during the Post-Institutional Controls phase	Groundwater in the resaturated and eventually degraded grouted structure will become contaminated. Dissolved contaminants in groundwater will flow out and may reach the Ottawa River.

Notes:

*IC: Institutional Controls phase
**PIC: Post-Institutional Controls phase

9.3.3.2 Proposed Mitigation Measures

The mitigation measures presented below are preliminary and have been developed based on the current understanding of the project. As the project approaches detailed work planning, details will be refined, and additional mitigation measures may be developed as required.

In addition to the in-design mitigation measures identified in Section 4.1 above, the following mitigation measures have been identified to ensure the protection of the surface water environment. These mitigation measures are consistent with CNL's Land and Habitat procedure (Hawkins 2024), CNL's Radiation Protection program and CNL's Management and Monitoring of Emissions (Lambert 2022):

- In-design mitigation to impede rainwater inflow into the facility with construction of the concrete cap, engineered cover and monolith;
- sediment and erosion controls consistent with CNL's Environmental Protection Procedure on Management of Land and Habitat (Hawkins 2024) for example "Drainage ditches for surface water drainage shall be properly maintained during construction, incorporating appropriate sediment retention measures such as silt curtains and straw bales." During the Decommissioning Execution

phase, silt fencing will be placed in the area to be used for stockpiles of raw material for grout (i.e. sand) to prevent runoff into the Ottawa River;

- dust suppression measures outlined in Section 9.2.3.2;
- road maintenance activities should follow the guidelines included in the Synthesis of Best Practices Road Salt Management (Hawkins 2024) namely minimizing the use of road salt while continuing to maintain the safety of operations and personnel;
- utilization of spill kits and secondary containment of storage tanks (e.g., for fuel oil) to contain any releases from spillage or tank rupture (Hawkins 2024);
- use of secondary containment for any hazardous liquids stored on-site;
- Once completed, the cover system is designed to convey storm water to ditches on the nominal south, east and western perimeters of the engineered cover which then connect to the existing ditch systems. The ditch systems would enable infiltration of storm water; and
- reuse of water from the washout pit for the grout batch mixing plant (to the extent practicable); retention and emplacement of settled sediment in the facility. Any liquids generated by the NPD Closure Project will be handled as a non-routine discharge following approved CNL Environmental Protection processes (Matasich 2021), which outlines appropriate disposition routes depending on the analysis results. The key aspect is that no un-assessed liquid effluent releases will occur as part of the decommissioning work.

For perspective on industry practices related to waterborne emissions, the Ontario Ministry of the Environment and Energy (MOEE) Guidelines for Evaluating Construction Activities Impacting on Water Resources (MOEE 1995) suggest mitigation measures that include the following:

- retention of existing vegetation where feasible;
- in-design mitigation to maintain low runoff velocities (control runoff);
- restriction of the use of heavy construction equipment to within the approved work areas to minimize soil disturbance and vegetation destruction;
- diversion of runoff away from exposed areas and stockpiles, and strategic placement away from concentrated stormwater flows;
- retention of sediment on site;
- revegetation of disturbed areas by seeding and/or planting following construction as soon as seasonal conditions permit;
- proper design, inspection and management of washout pits and material storage site(s); and,
- use of paved (impermeable) areas for stockpile and material laydown to reduce infiltration, and cover prior to heavy precipitation.

These mitigation measures will ensure minimal runoff, sediment transport and contamination outside of the Site Study Area.

9.3.3.3 Effects After Mitigation

Decommissioning Execution

Site and Local Study Area

Some decommissioning activities have the potential to result in water/soil contamination and contaminated flows into the river from water runoff (e.g., from rainwater, misting, water used in metal cutting, etc.). This water could become contaminated during activities in the Decommissioning Execution phase, including grout materials storage, washout pit dewatering, demolition, and material sizing. Mitigation measures (e.g., silt fencing and dust suppression) will reduce the likelihood and/or magnitude of any unplanned releases. As discussed in Section 8 of the DecomSA TSD, mitigation measures are expected to trap and prevent any releases to the surface water environment. Washout water (once settled) will be reused for grout mixing, to the extent practicable. Any excess washout water that is not reused in the grout batch mixing plant (for example, the final wash, which will be conducted after all grout mixing is complete) will be collected and handled as non-routine discharge following approved CNL Environmental Protection processes (Matasich 2021). CNL has planned the decommissioning tasks to reduce the time when rainwater could enter the facility (i.e., keeping the roof in place for much of the grouting process). Any rainwater that does enter and accumulate in the facility will be collected and handled as non-routine discharge following approved CNL Environmental Protection processes (Matasich 2021). Installation of the concrete cap and engineered cover may have temporary localized effects on site drainage. Any affected areas will be remediated following Decommissioning Execution activities, thus no residual effects after mitigation are expected on the surface water environment in the Site and Local Study Areas during the Decommissioning Execution phase.

Regional Study Area

Potential effects in the Regional Study Area will only occur if effects spread from the Site and Local Study Areas. Since no effects are expected in the Site and Local Study Areas, no effects are expected in the Regional Study Area during the Decommissioning Execution phase.

Institutional Controls and Post-Institutional Controls

The PostSA TSD examines several potential scenarios for the postclosure period as a way to capture and quantify uncertainties in the future conditions at the site and assess the potential for radiological and non-radiological contamination of the surface water environment (among other environments) for these scenarios. For detail on these scenarios, the reader is directed to Section 4 of the PostSA TSD. For example, contaminated groundwater from degraded grouted structure is expected to flow into the Ottawa River. Since the surface water environment is a pathway to VCs in other environmental components (e.g., aquatic environment, terrestrial environment and human health), the project's effects on the surface water environment are assessed with respect to the VCs in those environmental components (see Sections 9.4.3, 9.6.3, 9.8.3, 9.9.3 and 9.10.3).

As shown in Table 9.3-3 above, there is the potential for contaminated groundwater flowing from the facility to reach the Ottawa River in the postclosure period (Institutional Controls and Post-Institutional Controls phases). The EcoRA TSD considers these releases combined with baseline concentrations (i.e., total) in its assessment.

Radiological

The PostSA TSD presents results for those radionuclides present in the Ottawa River at the highest concentrations at a location near where groundwater is expected to be released into the river. These are also shown in Table 9.3-4 below.

Table 9.3-4 Concentrations of Major Radionuclides in the Ottawa River near NPD

Time (y)	Radionuclides (Bq l^{-1})					
	H3	C14	Ca41	Cl36	Ni59	Total
100	$3x10^{-5}$	$2 x10^{-9}$	$1 x10^{-11}$	$1 x10^{-7}$	$7 x10^{-19}$	$3 x10^{-5}$
300	$2 x10^{-10}$	$3 x10^{-7}$	$6 x10^{-12}$	$8 x10^{-8}$	$3 x10^{-19}$	$4 x10^{-7}$
1000	$3 x10^{-8}$	$4 x10^{-6}$	$6 x10^{-11}$	$1 x10^{-7}$	$1 x10^{-17}$	$4 x10^{-6}$
3000	$1 x10^{-11}$	$3 x10^{-6}$	$7 x10^{-8}$	$5 x10^{-7}$	$1 x10^{-14}$	$4 x10^{-6}$
10000	$-3 x10^{-16}$	$4 x10^{-7}$	$1 x10^{-6}$	$4 x10^{-7}$	$7 x10^{-12}$	$2 x10^{-6}$
30000	$-4 x10^{-20}$	$2 x10^{-8}$	$2 x10^{-7}$	$2 x10^{-7}$	$3 x10^{-9}$	$5 x10^{-7}$
50000	$3 x10^{-24}$	$2 x10^{-9}$	$3 x10^{-8}$	$2 x10^{-7}$	$3 x10^{-8}$	$2 x10^{-7}$
Maximum (Bq l^{-1})	$6 x10^{-3}$	$1 x10^{-5}$	$1 x10^{-6}$	$6 x10^{-7}$	$3 x10^{-8}$	$6 x10^{-3}$
Time of Peak (y)	7	1,500	12,000	6,500	50,000	7

Note:

* At times less than 100 y the NPDDF will remain under institutional control and exposures to radionuclides can be controlled, e.g., by land-use restrictions.

Non-radiological

As shown in the PostSA TSD, concentrations of lead only accumulate on a long timescale owing to the solubility limitation that restricts the release of the contaminant. The peak concentration of lead in surface water is very small at $1x10^{-10}$ mg/L, and is much lower than the lowest PWQO adopted from MOE (1994) of 0.001 mg/L as well as the Quebec surface water quality criteria for the protection of aquatic life of 0.00017 mg/L (MELCC). Concentrations of lead are found in the shoreline sediment and springs (0.00004 mg/kg) on longer timeframes, and is below the guideline for sediment (31 mg/kg).

Additionally, the alkaline plume study shows essentially no alkaline plume forming for at least 100,000 years post-closure.

9.3.3.4 Prediction Confidence and Uncertainty

Although the project has been described in Titterington (2016), Johnson (2022a) and various other studies, there are some minor uncertainties with respect to some aspects of the project details. These uncertainties, and their implications on the assessment of effects, are outlined below.

The surface water modelling considers the lowest amount of dilution provided by the Ottawa River. Similarly, the modelling assumed the maximum discharge concentrations calculated in the PostSA for each contaminant. In both cases, these assumptions are conservative.

The volume and frequency of washout pit dewatering releases have not been determined; however, sampling of water prior to dewatering will address this uncertainty by controlling releases following approved CNL Environmental Protection processes (Matasich 2021). Potential runoff has not been characterized; however, dust suppression and runoff diversion and management are expected to limit runoff to a localized area. Runoff monitoring (see Section 12) will help to prevent effects to the surface water environment. Runoff monitoring (see Section 12) will ensure that there will be no effects to the surface water environment.

Since the location of certain aspects of the project (e.g., the laydown area) have not been finalized, there is some uncertainty with the potential for these activities to affect surface water quality. The exact locations of the staging areas, raw material storage areas, on-site trucking routes could influence the potential for surface water quality contamination. The sediment and erosion controls, consistent with Morin (2018), discussed under mitigation measures above, would reduce this uncertainty.

When evaluating the preferred location for the grout batch mixing plant, the project planning team identified key attributes for selecting the location based on the following:

- Operational experience of a cement company to confirm size and capacity requirements of a portable mixing unit.
- Confirmation of an area suitably sized to stockpile grout materials, house a portable grout batch mixing plant, stage the washout pit; all of which are ideally located on existing concrete pads or paved areas to minimize dust creation.
- Confirmation of roads which can accommodate transportation paths capable of handling heavy deliveries while being located away from office pedestrian traffic, and which are constructed of tarmac to minimize dust creation.
- Confirmation of roads which can accommodate the delivery of processed grout to the work area in a “one way” direction while being located away from office pedestrian traffic, and which are constructed of tarmac to minimize dust creation.
- Confirmation of an area located as far away, to the greatest extent reasonable, from the chimney swift roost located in the building ventilation stack.
- Increased distance from surface water (i.e., Ottawa River) and established away from slopes/gradients that would result in run-off flowing directly into surface water.

In the PostSA TSD, uncertainties in postclosure conditions (e.g., floods), key parameters (e.g. inventory of contamination) are addressed inherently by assessing several disruptive scenarios.

9.3.3.5 Residual Effects

Table 9.3-7 summarizes the effects assessment above and presents the residual effects that were identified for the surface water environment and are carried forward for assessment in the appropriate environmental components. The residual effects in Table 9.3-5 are grouped by effect rather than by individual interaction as listed in Table 9.3-3.

Table 9.3-5 Summary of Residual Effects in the Surface Water Environment

Environmental Component	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Decommissioning Execution					
Surface Water: Site Drainage.	Upgrading road surface and existing surfaces.	Establishing the project footprint may affect site drainage.	Sediment and erosion controls.	Effects on site drainage are temporary, minor and localized, and not expected to affect overall site drainage.	No adverse residual effects.
Surface Water: Site Drainage and Water Quality.	Raw material storage.	Storage of raw materials may affect site drainage properties on the site. Runoff from the stockpiles may affect water quality.	Runoff diversion away from stockpiles, and strategic placement away from concentrated flows of stormwater. Stockpiles will be placed on impermeable material, and covered overnight and prior to heavy precipitation. Any hazardous liquids will be stored with secondary containment.	Temporary, minor and localized effect on site drainage and water quality. No effects on the overall surface water environment are expected.	No adverse residual effects.
Surface Water: Site Drainage.	Level area for pumper.	Regrading will affect site drainage.	Sediment and erosion controls.	Effects on site drainage are temporary and localized, and not expected to affect overall site drainage.	No adverse residual effects.
Surface Water: Site Drainage and Water Quality.	Washout pit (preparation and operation).	Construction of the washout pit will affect site drainage as it will be lined with a watertight material. Equipment washout and dewatering may affect water quality on site.	Proper design, inspection and management procedures of washout pit. Dewatering will be handled as a non-routine discharge following approved CNL Environmental Protection processes (Matasich 2021)	Effects on site drainage are temporary and localized, and not expected to affect overall site drainage.	No adverse residual effects.

Environmental Component	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Surface Water: Water Quality.	Demobilization of grout batch mixing plant (after cap pour).	Possible equipment decontamination (washout) may affect water quality on site.	Proper design, inspection and management procedures of washout pit.	Sampling prior to dewatering will ensure negligible effects to water quality.	No adverse residual effects.
Surface Water: Water Quality.	Demolition of above grade structures.	Demolition affects water quality due to potential runoff.	Dust suppression, runoff diversion and standard construction procedures will reduce effect on water quality.	Effects on surface water quality are temporary, minor and localized, and not expected to affect overall surface water quality.	No adverse residual effects.
Surface Water: Water Quality.	Sizing of material.	Outdoor cutting steel and crushing masonry may affect water quality due to potential run-off.	Dust suppression, runoff diversion and standard construction procedures will reduce effect on water quality.	Effects on surface water quality are temporary, minor and localized, and not expected to affect overall surface water quality.	No adverse residual effects.
Surface Water: Water Quality.	Set up laydown area and perform clearance surveys.	Run-off from material stored outdoors may affect water quality.	Utilizing paved areas for laydown will reduce infiltration, as well as runoff diversion will reduce the effect on surface water quality.	Effects on surface water quality are temporary, minor and localized, and not expected to affect overall surface water quality.	No adverse residual effects.
Surface Water: Site Drainage.	Concrete cap installation.	Concrete cap installation will impede water infiltration, thus affecting site drainage.	Sediment and erosion controls.	The concrete cap covers the footprint of the current building; thus, the concrete cap may have a minor, but unmeasurable effect on site drainage.	No adverse residual effects.
Surface Water: Site Drainage.	Engineered cover.	Grading and installing layers of earth will affect site drainage and alter soil run off, affecting site drainage	Sediment and erosion controls.	The engineered cover may have a minor effect on site drainage.	No adverse residual effects.
Surface Water: Site Drainage and Water Quality.	Site demobilization.	Possible equipment decontamination via washout, if required, may affect water quality on site. Site remediation may alter site drainage.	Proper design, inspection and management procedures of washout pit.	No measurable effect is expected from equipment decontamination. Site remediation may increase local soil infiltration, having a positive effect on site drainage.	No adverse residual effects.

Environmental Component	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Institutional Controls and Post-Institutional Controls					
Surface Water: Water Quality (radiological).	Facility performance during the postclosure period.	Groundwater will flow into the eventually degraded grouted structure. Contaminated groundwater will flow out and eventually into the Ottawa River.	In-design mitigations to isolate and contain the inventory in order to reduce the potential of groundwater contamination.	Groundwater will flow into the eventually degraded grouted structure. Contaminants will reach surface water, river sediment and shoreline sediment.	Effects of radiological exposure are assessed in terms of their dose in humans and non-human biota in Sections 9.4, 9.6 and 9.8.
Surface Water: Water Quality (non-radiological).	Facility performance during the postclosure period.	Groundwater will flow into the eventually degraded grouted structure. Contaminated groundwater will flow out and eventually into the Ottawa River.	In-design mitigations to isolate and contain the inventory in order to reduce the potential of groundwater contamination.	Groundwater will flow into the eventually degraded grouted structure. Contaminants will reach surface water, river sediment and shoreline sediment.	Effects of non-radiological exposure are assessed in terms of their dose in humans and non-human biota in Sections 9.4, 9.6 and 9.8.

9.3.4 Assessment of Residual Effects

Since the surface water environment is a pathway to other environmental components (e.g., aquatic, terrestrial environments and human health), any potential adverse residual effects identified are further assessed within those environmental components (see Sections 9.4.4, 9.6.4, 9.8.4, 9.9.4 and 9.10.2.4).

9.3.5 Monitoring and Follow-up

The surface water (i.e., site drainage, water quality) environment represents a pathway for transfer of an effect to VCs in other environmental components. As discussed in Section 9.1.2.3, a proposed follow-up monitoring program was developed to support the EA Follow-up Program. Specifically, the effluent and environmental monitoring aspects are relevant for the surface water environment. please note that this section discusses only those monitoring considerations specific to the surface water environment, specifically, monitoring details (e.g., parameters, locations/effluent streams, frequency).

Environmental monitoring of the Ottawa River

Other more general considerations of the EA Follow-up Program (e.g., sampling and analysis procedures, information management and reporting) are presented in Section 12.

9.3.5.1 Effluent Monitoring

Each potential effluent stream during the Decommissioning Execution and Institutional Controls phases was evaluated in the proposed follow-up monitoring program to determine the need for monitoring following the systematic informed planning process. Monitoring details for those waterborne effluent streams requiring monitoring are summarized for the Decommissioning Execution and Institutional Controls phases in Table 9.3-6and Table 9.3-7 below.

Evaluation criteria for liquid effluent, and actions taken to address exceedances were developed and are presented in the proposed follow-up monitoring program. The generic actions to address exceedances are presented in Section 9.1.2.3 above.

Decommissioning Execution

Table 9.3-6 Waterborne Effluent Monitoring during the Decommissioning Execution Phase

Effluent Stream	Monitoring Required (Y/N)	Parameters to be Monitored	Monitoring Frequency[1]
Water collection points throughout the facility	Y	Radionuclides	Prior to every batch shipment to CRL
		Metals	Prior to every batch shipment to CRL
		Toxic chemicals	Prior to every batch shipment to CRL
		Volume	Per batch
Subsurface drainage	Y	Monitored as part of the proposed follow-up environmental (Section 12.3.2) and groundwater (Section 12.3.3) monitoring	
Surface water drainage	Y	Monitored as part of the proposed follow-up environmental (Section 12.3.2) monitoring	
Washout pit	Y	Radionuclides	Prior to every batch shipment to CRL
		Water Clarity	Prior to every batch shipment to CRL
		pH	Prior to every batch shipment to CRL
		Volume	Per batch

Notes:

1 - Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each effluent stream are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

Institutional Controls

Any waterborne releases during the Institutional Controls phase will be monitored as part of environmental monitoring, discussed below (as well as groundwater monitoring in Section 9.5.5).

9.3.5.2 Environmental Monitoring

This section provides a concise summary of the proposed follow-up environmental monitoring in the surface water environment.

Evaluation criteria for the surface water environment, and actions taken to address exceedances were developed and are presented in the proposed follow-up monitoring program. The generic actions to address exceedances are presented in Section 9.1.2.3 above.

Decommissioning Execution

Following the systematic informed planning process, monitoring details were developed for the Decommissioning Execution phase. These monitoring details are summarized in Table 9.3-7 below.

Table 9.3-7 Proposed Surface Water Environmental Monitoring During the Decommissioning Execution Phase

Subcomponent	Sampling Locations	Parameters to be Monitored	Monitoring Frequency[1]
Erosion	Visual inspection of site drainage and erosion will be undertaken as part of CNL's Routine Inspections Procedure (CNL 2018a)		
On-site Surface Water Quality	• Ottawa River shoreline, downgradient of effluent points	• Radionuclides	Monthly
Ottawa River Water Quality	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	• Radionuclides • pH • Water Clarity • Metals	Quarterly
Sediment Quality (*if triggered by tier 2 surface water or groundwater exceedances*)	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	Parameters dependent upon exceedances in other environmental media.	Annually

Notes:

N/A – not applicable
1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.

Institutional Controls

Following the systematic informed planning process, monitoring details were developed for the Decommissioning Execution phase. These monitoring details are summarized in Table 9.3-8 below.

Table 9.3-8 Surface Water Environmental Monitoring During the Institutional Controls Phase

Subcomponent	Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
On-site surface water quality	• Ottawa River shoreline, downgradient of effluent points	• Radionuclides	Monthly
Site drainage	Visual inspection of site drainage and erosion will be undertaken as part of CNL's *Surveillance Plan* (Taylor 2019)		
Ottawa River Water Quality	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	• Radionuclides (alpha and beta emitters) • pH • Metals *If triggered* • Radionuclides (gamma emitters)	Quarterly
Sediment Quality *(if triggered by tier 2 surface water or groundwater exceedances, or a potential seismic event scenario)*	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	(*if triggered)* Parameters dependent upon exceedances in other environmental media.	Annual, if triggered

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

9.3.6 Conclusion

As shown in Table 9.3-5, no adverse residual effects were identified for the surface water environment.

It is important to note that the surface water environment is also a pathway that carries Project emissions to receptors (both human and non-human). While some contaminants (e.g., mercury) can be assessed by comparing their water concentrations against benchmarks, the potential effects of others (e.g., most radionuclides) must be evaluated through the effect of the medium on receptors. The potential effects of Project contaminants on receptors are not necessarily limited to only water pathways (e.g., ingestion); rather, all relevant pathways that can affect a receptor are cumulatively considered.

Project emissions are not expected to have adverse effects on the surface environment because their estimated concentrations in water were found not to have adverse health effects on human receptors (see Sections 9.8.4 and 9.10.2.4) and not to cause undue risk for relevant biota (see Sections 9.4.4 and 9.6.4).

The assessment of potential effects to the surface water environment (Section 9.3.3) took into consideration the concerns expressed by Indigenous Nations, communities, and organizations during engagement activities (Section 9.3.1.1).

Monitoring activities, such as inspection of site drainage properties and analyzing discharges for parameters of concern, will verify the accuracy of the EA predictions and effectiveness of measures implemented to mitigate potential adverse environmental effects.

9.4 Aquatic Environment

9.4.1 Assessment Boundaries

9.4.1.1 Spatial Boundaries

Similar to the aquatic environment baseline characterization in Section 8.4 above, the Site and Local Study Areas for this assessment are consistent with the general spatial boundaries outlined in Section 5.2.1.1. The Regional Study Area for the aquatic environment is consistent with the surface water environment Regional Study Area outlined in Figure 8.3-1 above.

9.4.1.2 Temporal Boundaries

The temporal boundaries for this assessment are the standard temporal boundaries outlined in Section 5.2.1.2 of this EIS.

9.4.2 Selection of VCs

As outlined in Section 5.2.4, VCs for the aquatic environment were selected to encompass the potential effects of the project on the aquatic environment as well as other environmental components such as surface water that act as a pathway to the aquatic environment. VCs were selected to represent a variety

of ecological roles within the aquatic environment. VCs for the aquatic environment and the rationale for their selection are listed in Table 9.4-1.

Table 9.4-1 VC Selection for the Aquatic Environment

Environmental Component	Sub-Category		VC	Effects Assessed		Rationale
				Habitat	Exposure	
Aquatic Environment	Aquatic Invertebrates		Benthic invertebrates		x	Macroinvertebrates occupy the sediment and are an important food source for benthivorous fish species. They are used to evaluate overall ecosystem health.
	Aquatic Vegetation		Aquatic vegetation (e.g., cranberries)		x	Represents a fundamental element of ecosystem health and function.
	Fish	Small	Emerald shiner		x	Numerically important pelagic forage species.
		Large	White sucker		x	Abundant benthivorous, bottom dwelling fish, an important component of that community with available data.
		Large	Lake sturgeon		x	THR (COSEWIC), END (SARO) Benthivorous, bottom-dwelling fish. Lake sturgeon has been subject to fishery exploitation in the past, before population declines. It is the largest, longest-living freshwater fish in Ontario. In the stretch of the Ottawa River that includes NPD, the lake sturgeon is more abundant than elsewhere in the river.

9.4.2.1 Indigenous Engagement Feedback – Key Interests and Concerns related to Aquatic Environment VCs

This section describes how the input from Indigenous engagement activities influenced the selection of VCs in the aquatic environment assessment. Table 9.4-2 summarizes the key interests and concerns raised by Indigenous peoples related to VCs for the evaluation of potential effects to the aquatic environment (based on Table 6.3-1 above), and demonstrates how the interest or concern has been addressed in the present assessment.

Table 9.4-2 Summary of Interests and Concerns Raised During Indigenous Engagement Activities that Influenced the Scope of the Aquatic Environment Assessment

Interest or Concern	How the Interest Was Included in the Assessment
Effects to the aquatic environment	Potential effects of the project on the aquatic environment are assessed using the aquatic plant and animal VCs selected in the EIS (Section 9.4.3). Based on feedback received during Indigenous engagement, CNL confirmed that fish species of Indigenous importance were captured in the assessment, specifically in the EcoRA calculations (Section 6.3). In response to feedback from Indigenous Nations, communities and organizations, CNL also added new VCs that live and/or feed in the aquatic environment: moose, otter and mink. In addition, the aquatic environment is protected by the mitigation measures employed in the other environmental components, e.g., surface water environment, atmospheric environment and geological and hydrogeological environment (Section 9.4.3.2).
Fish and spawning habitat	No physical disturbances to spawning habitat are expected from the NPD Closure project, because the project does not involve any in-water or near-water work such as infilling, construction or blasting (Sections 9.4.3).
Fishing areas	Fishing does not currently occur on the NPD property. The EIS assesses potential effects of the project on fishing as a resource activity practiced by Indigenous peoples in nearby areas (Section 9.9.3).
Impacts on riparian ecosystems	Protection of riparian ecosystems is discussed in the EIS as part of the assessment of potential contaminant exposure effects on the surface water environment and aquatic plant and animal VCs (Sections 9.4.3 and 9.6.3). Based on feedback received during Indigenous engagement, CNL also added new VCs that live and/or feed in the aquatic environment: moose, otter and mink. The project is not expected to have any physical impacts on the current riparian habitat on the NPD site, because no project activities will occur near the shoreline (Section 9.4.3).
Bioaccumulation of contaminants in fish species	Bioaccumulation of contaminants in fish species was taken into account in the assessment of potential exposure risk to fish and fish-eating animal VCs (Sections 9.4.3 and 9.6.3). The EcoRA TSD calculations used conservative assumptions to estimate contaminant concentrations in fish tissue, and to model contaminant transport through the food chain. In addition, to address any concerns related to fish concentrations, the EA Follow-Up Program includes monitoring of contaminants in fish tissue if any surface water exceedances are identified, during the Decommissioning Execution and Institutional Control phases (Section 12.3.2).
Fishing rights	Indigenous peoples' rights to fish are assessed in the EIS using the fishing activities VC under the traditional land and resource use environmental component (Section 9.9.3), and by assessing the effects of the project on fish and fish habitat (Section 9.4.3).

Interest or Concern	How the Interest Was Included in the Assessment
Specific aquatic species identified as important by Indigenous Nations, communities and organizations during engagement activities: trout (lake trout, speckled trout, brook trout) northern pike/jackfish, pickerel/walleye, sauger, muskellunge, cranberries, bass (smallmouth bass), walleye, sturgeon, bait fish, burbot, catfish, chub, lake sturgeon, lake whitefish, mud pout/brown bullhead, sucker, sunfish, yellow perch, and cranberries (see terrestrial environment for semi-aquatic VCs)	Potential effects to all of these species are assessed in the EIS and EcoRA, where they were already included as VCs and/or represented by an EcoRA receptor (e.g., benthic fish, pelagic fish, aquatic vegetation). See Tables 6.3-2 through 6.3-5 for mapping of these species to EcoRA receptors.

Notes:

The table above provides a summary of the concerns expressed by multiple Indigenous Nations, communities and organizations. See Table 6.3-1 for a more detailed listing of key interests and concerns from each Indigenous Nation, community and organization.

9.4.3 Identification of Residual Effects

9.4.3.1 Project-Environment Interactions

As shown in Table 5.2-1, potential effects to the aquatic environment may occur as a result of interactions during the Decommissioning Execution, Institutional Controls and Post-Institutional Controls phases, in particular:

- Installation and operation of the grout batch mixing plant;
- Drawing water from the Ottawa River via dry hydrant;
- Removal of above grade structures;
- Facility performance during the Institutional Controls phase; and
- Facility performance during the Post-Institutional Controls phase.

Interactions in other environmental components (e.g., surface water and geological and hydrogeological environments) have the potential to affect aquatic biota and habitats. This is illustrated in Table 9.4-3 below.

None of the activities of the project are expected to affect fish habitat; there will be no infilling, construction or blasting in the river, and no activities near the wetlands. Releases are considered in the assessment of effects on biota in this section and in the EcoRA TSD.

Table 9.4-3 Project-Environment Interactions in the Aquatic Environment

Phase		Project Works and Activities	Potential Interaction	Habitat	Exposure
Decommissioning Execution	**1**	**Grout Batch Mixing Plant**			
	1.2	Assign storage area for raw materials, ship in sand. Likely east side of licensed area.	Run-off from the stockpiles could result in deposition of suspended solids to the river, potentially affecting aquatic habitat.	x	
	1.4	Draw water from the Ottawa River through the existing dry hydrant	Drawing water from the Ottawa River may affect aquatic biota and habitat	x	
	1.10	Wash out cement truck sluice and pumper truck and slip pipes. (Daily)	Contamination may affect aquatic biota that could enter the washout pit prior to sampling and dewatering.	x	x
	1.11	Sample and dewater the cleaning pit. Emplace sediments into voids in condenser pit.	Washout pit dewatering[7] could result in deposition of suspended solids to the river, potentially affecting aquatic habitat.	x	
	3	**Removal of Above Grade Structure**			
	3.1	Conventional heavy equipment knockdown of reactor hall.	Demolition may contaminate the Ottawa River via runoff and affect aquatic biota.	x	x
	3.2	Sizing of material such as cutting steel beams or crushing masonry for fitting into void areas.	Material sizing may contaminate the Ottawa River via runoff and affect aquatic biota.	x	x
	3.3	Set up laydown area and perform clearance surveys on materials for possible recycle.	Runoff from material stored outdoors could result in deposition of suspended solids to the river, potentially affecting aquatic habitat.	x	
	3.10	Demolish block walls and inside walls around control room and change rooms.	Demolition may contaminate the Ottawa River via runoff and affect aquatic habitat and biota.	x	x
	3.14	Demolish guard house and emplace in furnace room and adjacent rooms.	Demolition may contaminate the Ottawa River via runoff and affect aquatic habitat and biota.	x	x
	3.16	Demolish above grade portion of pressure relief pit. Fill with grout.	Demolition may contaminate the Ottawa River via runoff and affect aquatic habitat and biota.	x	x
	4	**Install Concrete Cap and Engineered Cover**			
	4.2	Engineered Cover (ship in materials, layer and shape mound, install geotextile layer, grade property, install remaining earth layers and seed).	Installation of the engineered cover may increase soil runoff, affecting aquatic habitat and biota.	x	
	5	**Final Site Restoration**			
	5.2	Demobilize Site (remove temporary facilities, decontaminate equipment, remove power upgrades, poles and lines, return transformers).	Washout pit releases could affect aquatic habitat and biota.	x	
C*	**6**	**Long-Term Care and Maintenance**			
	6.8	Facility performance during the Institutional Controls phase	Groundwater will start to enter and eventually resaturate the grouted structure and come into contact with contamination. Dissolved contaminants may reach the Ottawa River.		x
PIC**	**7**	**Post-Institutional Controls**			
	7.1	Facility performance during the Post-Institutional Controls phase	Groundwater in the resaturated and eventually degraded structure will become contaminated. Contaminated and groundwater will flow out and eventually into the Ottawa River.		x

Notes: *IC: Institutional Controls **PIC: Post-Institutional Controls

[7] Handled as a non-routine discharge following approved CNL Environmental Protection processes (Matasich 2021)

9.4.3.2 Proposed Mitigation Measures

The dry hydrant may be used to draw water from the Ottawa River for project activities. The dry hydrant was installed with measures to minimize the impact to the aquatic environment. For example, the strainer was designed for the protection of fish following DFO guidelines with wire mesh over the strainer and a riprap pad under the intake to reduce attractant habitat. The design of the dry hydrant is consistent with DFO guidance on end-of-pipe fish protection screens for small water intakes in freshwater (DFO 2020).

For other project activities, since other environmental components (i.e., surface water environment, atmospheric environment, geological and hydrogeological environment) act as pathways to affect the aquatic environment, mitigations within these components (e.g. in-design mitigation measures, dust suppression, runoff diversion, washout pit design and management etc.) will also reduce potential effects to the aquatic environment.

9.4.3.3 Effects After Mitigation

Decommissioning Execution

Habitat-Related Effects

None of the activities of the project are expected to affect fish habitat because the dry hydrant was installed with measures to minimize impact to the aquatic environment. There will be no infilling or construction in the river, and no activities near the wetlands. Therefore, no effects to aquatic habitat are expected in the Site, Local or Regional Study Areas during the Decommissioning Execution phase.

Any potential releases of suspended solids to the Ottawa River will be mitigated through dust suppression and runoff diversion mitigation measures, as well as sampling prior to washout pit dewatering. As discussed in Section 9.3.3.3, these mitigation measures will ensure negligible effects to surface water quality.

Exposure-Related Effects

In the EcoRA TSD, all radiological and chemical COPCs were screened out of the assessment for the Decommissioning Execution phase. Therefore, no potential exposure-related effects to aquatic biota are expected in the Site, Local or Regional Study Areas during the Decommissioning Execution phase.

For details on the screening process, see the EcoRA TSD or Section 9.1.1.1 above.

Institutional Controls and Post-Institutional Controls

Habitat-Related Effects

No potential habitat-related effects are expected in the aquatic environment in the Site, Local or Regional Study Areas during the postclosure period (Institutional Controls and Post-Institutional Controls phases).

Exposure-Related Effects

During the postclosure period, the grouted structure will degrade, and groundwater will flow into the facility. Contaminants will dissolve into the groundwater, which will continue to flow and release contaminants to the Ottawa River. As shown in the Alkaline Plume Supplementary Document to the PostSA TSD, the alkaline plume flowing from the grouted structure is expected to be sufficiently diluted and of relatively small volume, and are not expected to result in contamination to the aquatic environment.

The EcoRA TSD assesses radiological and non-radiological exposure of aquatic biota to this contamination. The results of the EcoRA are conservatively assumed to apply to the Site, Local and Regional Study Areas, and are briefly summarized as follows:

Radiological

In the EcoRA TSD, 9 radiological contaminants were screened in for all scenarios, as well as an additional 11 radionuclides that were screened in for only specific scenarios. For the Normal Evolution Scenario (NES), the results of EcoRA showed no adverse residual effects on aquatic biota. Sensitivity analysis cases shown in the EcoRA account for uncertainties in parameter values such as sorption (i.e., NES SA – Sorption) and inventory (i.e., NES SA – Radioactive Inventory) among others. No adverse residual effects on aquatic biota were identified for any of the sensitivity cases. The EcoRA TSD also assesses Disruptive Event scenarios (i.e., human intrusion and extreme degradation of engineered structures) and Defence in Depth scenarios (i.e., role of waste form, role of existing facility, role of grout). For these scenarios, approximately 30 radionuclides were screened in. No adverse residual effects were identified for aquatic biota under any of these scenarios. For details on the screening process, see the EcoRA TSD or Section 9.1.1 of this EIS. Therefore, no adverse residual effects to aquatic biota are anticipated from exposure to radiation during the postclosure period (Institutional Controls and Post-Institutional Controls phases).

The EcoRA TSD also studies “What If” scenarios (e.g., mass excavation, river level fall). “What If” scenarios make deliberately extreme assumptions so as to understand the limits of safety performance and are not compared with any criteria because they are extremely unlikely, and in some cases implausible.

Non-radiological

In the EcoRA TSD, no non-radiological contaminants were screened in for the normal evolution scenario for the postclosure period. Similarly, no non-radiological contaminants were screened in for any of the sensitivity cases, disruptive scenarios and defence-in-depth scenario. For details on the screening process, see the EcoRA TSD or Section 9.1.1 of this EIS. Therefore, no adverse residual effects from non-radiological exposure were identified for aquatic biota in the postclosure period (Institutional Controls and Post-Institutional Controls phases).

The EcoRA TSD also studies “What If” scenarios (e.g., mass excavation, river level fall). “What If” scenarios make deliberately extreme assumptions so as to understand the limits of safety performance and are not compared with any criteria because they are extremely unlikely, and in some cases implausible.

9.4.3.4 Prediction Confidence and Uncertainty

Section 6 of the EcoRA TSD outlines the uncertainties associated with the assessment of risk to aquatic biota. Most of these uncertainties are addressed through the use of conservative assumptions (e.g., 100% absorption of intake of a COPC from diet).

REGDOC-2.9.1 on Environmental Principles, Assessments and Protection Measures (CNSC 2020a) provides guidance on characterizing the effects of the project on aquatic flora and fauna, including a full accounting of effects on species of natural conservation status and their habitat. As per REGDOC-2.9.1 (Appendix C.3), the aquatic environment effects assessment was based on predictions from the EcoRA TSD, and covered effects such as the following (from REGDOC-2.9.1):

- effects on habitat;
- effects on aquatic species, including rare or sensitive species; and
- contaminant exposures through environmental and food chain transport.

None of the physical activities of the project are expected to affect fish habitat: there will be no blasting, infilling or construction in the river, and no activities near the wetlands. Neither thermal effects nor impingement and entrainment effects are assessed, as this is not relevant to the project.

REGDOC-2.9.1 (Appendix C.3) requires a clear description of how any predicted effects compare to the expected reference condition for unexposed biota on a biological population basis, taking natural variation into account. Predictions of effects should include sufficient detail to allow follow-up verification.

Uncertainty in animal behaviour is addressed in the EcoRA through the assumption that biota are present in the Site Study Area year-round, which is likely to overestimate the magnitude of exposure for mobile biota (i.e., lake sturgeon, white sucker, emerald shiner).

The calculations in the EcoRA are based on maximum concentrations. However, the duration of any effects is unknown. It has been assumed that any effects are long-term.

9.4.3.5 Residual Effects

Table 9.4-4 summarizes the effects assessment above and presents the residual effects that were identified for the aquatic environment. The residual effects in Table 9.4-4 are grouped by effect rather than by individual interaction as listed in Table 9.4-3.

Table 9.4-4 Summary of Residual Effects in the Aquatic Environment

Environmental Component	Source of Effect	Potentially Affected VCs	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Decommissioning Execution						
Aquatic Environment	Dewatering the washout pit.	Benthic invertebrates Aquatic vegetation Emerald shiner White sucker Lake sturgeon	Equipment washout and dewatering may affect aquatic biota.	Proper design, inspection and management procedures of washout pit. Dewatering releases will be handled as a non-routine discharge following approved CNL Environmental Protection processes (Matasich 2021)	No effects are predicted.	No adverse residual effects.
Aquatic Environment	Draw water from the Ottawa River through the existing dry hydrant	Benthic invertebrates Aquatic vegetation Emerald shiner White sucker Lake sturgeon	Drawing water from the Ottawa River may affect aquatic biota and habitat	The dry hydrant was installed with measures to minimize the impact to the aquatic environment, in consultation with the DFO. Design and use of the dry hydrant will be consistent with DFO guidance (DFO 2020)	No effects are predicted.	No adverse residual effects.
Aquatic Environment	Demolition of above grade structures.	Benthic invertebrates Aquatic vegetation Emerald shiner White sucker Lake sturgeon	Demolition may affect aquatic biota via potential runoff.	Dust suppression, runoff diversion and standard construction procedures will reduce effects.	No effects are predicted.	No adverse residual effects.
Aquatic Environment	Sizing of material.	Benthic invertebrates Aquatic vegetation Emerald shiner White sucker Lake sturgeon	Outdoor cutting steel and crushing masonry may affect aquatic biota via potential run-off.	Dust suppression, runoff diversion and standard construction procedures will reduce effects.	No effects are predicted.	No adverse residual effect.
Institutional Controls and Post-Institutional Controls						
Aquatic Biota (radiological)	Facility performance during the	All aquatic VCs	Groundwater will flow into the eventually degraded structure. Contaminated groundwater may flow out	In-design mitigation to isolate and contain the inventory in order to reduce the potential of groundwater contamination and	Radionuclides are expected to be within	No adverse residual effects.

Environmental Component	Source of Effect	Potentially Affected VCs	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
	postclosure period.		and eventually into the Ottawa River. This may be transferred to biota	effects in the terrestrial environment.	acceptance criteria.	
Aquatic Biota (non-radiological)	Facility performance during the postclosure period.	All aquatic VCs	Groundwater will flow into the eventually degraded structure. Contaminated groundwater may flow out and eventually into the Ottawa River. This may be transferred to biota.	In-design mitigation to isolate and contain the inventory in order to reduce the potential of groundwater contamination and effects in the terrestrial environment.	Chemical contaminants are expected to be below benchmarks.	No adverse residual effects
Aquatic Environment: Engineering Degradation (non-radiological)	Instantaneous degradation of the concrete and grout, altering the hydraulic properties and decreasing contaminant transport times.	Benthic invertebrates Aquatic vegetation Emerald shiner White sucker Lake sturgeon	Lead in groundwater reaching the Ottawa River is predicted to contaminate surface water and sediment and may affect aquatic biota.	In-design mitigation to isolate and contain the inventory in order to reduce the potential of groundwater contamination and effects in the aquatic environment.	No undue effects are predicted	No adverse residual effect.
Aquatic Environment: Surface Erosion (radiological)	Flooding of sufficient magnitude has the potential to expose contaminated rock to the surface environment.	Benthic invertebrates Aquatic vegetation Emerald shiner White sucker Lake sturgeon	Exposure to contaminated rock may affect aquatic biota.	In-design mitigation to isolate and contain the inventory in order to reduce the potential of groundwater contamination and effects in the aquatic environment.	No undue effects are predicted	No adverse residual effect.

9.4.4 Assessment of Residual Effects

Based on the assessment described above, no adverse residual effects on the aquatic environment have been predicted.

9.4.5 Monitoring and Follow-up

The VCs in the aquatic environment are benthic invertebrates, aquatic vegetation, emerald shiner, white sucker and lake sturgeon. The follow-up and monitoring work undertaken by CNL in other environmental components (i.e., the surface water and geological and hydrogeological environments) is directly related to confirming the EIS findings related to aquatic environment VCs. As discussed in Section 9.1.2.3, a proposed follow-up monitoring program was developed to support the EA Follow-up Program. Specifically, the environmental monitoring aspects are relevant for the aquatic environment. Please note that this section discusses only those monitoring considerations specific to the aquatic environment, specifically, monitoring details (e.g., parameters, locations/effluent streams, frequency).

Other more general considerations of the EA Follow-up Program (e.g., sampling and analysis procedures, information management and reporting) are presented in Section 12.

9.4.5.1 Environmental Monitoring

This section provides a concise summary of the follow-up environmental monitoring in the aquatic environment.

Evaluation criteria for the aquatic environment, and actions taken to address exceedances were developed and are presented in the proposed follow-up monitoring program. The generic actions to address exceedances are presented in Section 9.1.2.3 above.

Decommissioning Execution

Following the systematic informed planning process, monitoring details for the aquatic environment were developed for the Decommissioning Execution phase. These monitoring details are summarized in Table 9.4-5 below. No effects were predicted for the aquatic environment in this EIS; the monitoring of media within the aquatic environment was only identified in the event that exceedances of evaluation criteria are measured for contaminants in surface water (tier 2) or sediment in the Ottawa River.

The need for monitoring in the aquatic environment may be triggered if monitoring of Ottawa River surface water identifies exceedances of tier 2 evaluation criteria. Aquatic environment monitoring activities may include fish tissue sampling (triggered by surface water exceedances) or benthic invertebrate community sampling (triggered by sediment exceedances).

Table 9.4-5 Aquatic Environmental Monitoring During the Decommissioning Execution Phase

Subcomponent	Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
Fish (*if triggered by tier 2 surface water exceedances)*	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	(*if triggered)* Parameters dependent upon exceedances in other environmental media.	Annual, if triggered
Benthic Macroinvertebrate community (*if triggered by sediment exceedances)*	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	Benthic macroinvertebrate community metrics	Semi-annually

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

Institutional Controls

Following the systematic informed planning process, monitoring details were developed for the Institutional Controls phase. These monitoring details are summarized in Table 9.4-6 below. No effects were predicted for the aquatic environment in this EIS; the monitoring of media within the aquatic environment was only identified in the event that exceedances of evaluation criteria are measured for contaminants in surface water (tier 2) or sediment in the Ottawa River.

The need for monitoring in the aquatic environment may be triggered if monitoring of Ottawa River surface water identifies exceedances of tier 2 evaluation criteria. Aquatic environment monitoring activities may include fish tissue sampling (triggered by surface water exceedances) or benthic invertebrate community sampling (triggered by sediment exceedances).

Table 9.4-6 Aquatic Environmental Monitoring during the Institutional Controls Phase

Subcomponent	Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
Fish *(if triggered by tier 2 surface water exceedances)*	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	(*if triggered)* Parameters dependent upon exceedances in other environmental media.	Annual, if triggered
Benthic Macroinvertebrate community (*if triggered by sediment exceedances*)	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	Benthic macroinvertebrate community metrics	Semi-annually

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

9.4.6 Conclusion

As shown in Table 9.4-4, no adverse residual effects were identified for the aquatic environment.

The assessment covered the aquatic VCs of interest to Indigenous Nations, communities, and organizations, including the fish species identified during Indigenous engagement activities (see Sections 6.3, 9.4.1.1).

Monitoring activities in other environmental components (i.e., surface water, and geological and hydrological environments) are cumulatively considered and will verify the accuracy of the EA predictions and effectiveness of measures implemented to mitigate potential adverse environmental effects related to the aquatic environment. If monitoring identifies concerns in the other environmental components, CNL will assess the implications to the aquatic environment (e.g., through discussion with CNL biologists).

9.5 Geological and Hydrogeological Environment

9.5.1 Selection of VCs

As outlined in Section 5.2.4, the geological and hydrogeological environment (i.e. soil quality, groundwater flow and quality) represents features that can be affected by the project and as such would be pathways or mechanisms for transfer of an effect to another environmental component (e.g. surface water environment, aquatic environment). In addition to pathways, specific VCs have been identified in the geological and hydrogeological environment (Table 9.5-1). The potential effects will be considered with respect to these VCs as well as VCs in other applicable environmental components.

Table 9.5-1 VC Selection for the Geological and Hydrogeological Environment

Environmental Component	Pathway or VC	Rationale
Geological and Hydrogeological Environment	Pathway to human health	The potential effects on humans associated with changes in soil and groundwater conditions (radiological and chemical releases and concentrations) as well as groundwater flow and other physical parameters will be considered in the Human Health component.
	Pathway to non-human biota health	The potential effects on non-human biota associated with changes in soil and groundwater conditions (radiological and chemical releases and concentrations) as well as groundwater flow and other physical parameters will be considered for the Aquatic and Terrestrial Environment VCs.
	Pathway to VCs in other environmental components	The potential effects on VCs in other environmental components associated with changes in soil and groundwater conditions (radiological and chemical releases and concentrations, and noise) as well as groundwater flow and other physical parameters will be considered in the applicable environmental components. These will include effects on Surface Water Environment, Aquatic Environment and Terrestrial Environment VCs.
	VC: Soil quality	Potential to affect the Geological and Hydrogeological environment, as soil quality may be affected during construction activities (e.g., release of contaminated particulate matter during removal of above-grade structure). Soil contamination may also occur during the Institutional Controls and Post-Institutional Controls phases, e.g., via surface water and irrigation.
	VC: Groundwater quality	Potential to affect the Geological and Hydrogeological environment, as groundwater will come into contact with contamination during the Institutional Controls phase (i.e., via contact with contamination) and Post- Institutional Controls phase (i.e., via contact with contaminants in the grouted structure).
	VC: Groundwater flow	Potential to affect the Geological and Hydrogeological environment during the Institutional Controls phase: groundwater flow will be affected in a localized area, as groundwater starts to enter the grouted structure.

9.5.1.1 Indigenous Engagement Feedback – Key Interests and Concerns related to Geological and Hydrogeological Environment VCs

This section describes how the input from Indigenous engagement activities influenced the scope of the geological and hydrogeological environment assessment. Table 9.5-2 summarizes the key interests and concerns raised by Indigenous peoples related to the evaluation of potential effects to the geological and hydrogeological environment (based on Table 6.3-1 above), and demonstrates how the interest or concern has been addressed in the present assessment.

Table 9.5-2 Summary of Interests and Concerns Raised During Indigenous Engagement Activities that Influenced the Scope of the Geological and Hydrogeological Environment Assessment

Interest or Concern	How the Interest Was Included in the Assessment
Need better understanding of the groundwater flow system	The existing groundwater flow around the NPD site is discussed in the EIS as part of the determination of baseline hydrogeological conditions (Section 8.5.5). In response to feedback from Indigenous Nations, communities and organizations, CNL has added a groundwater flow VC. CNL also completed additional geoscientific characterization and updated its Geosynthesis TSD to better understand the local geology and hydrogeology. These additional findings are summarized in Section 8.5.3 and 8.5.5. CNL also has a detailed, calibrated groundwater flow model (Groundwater Modelling TSD) used to define hydrogeological conditions into the future to support the PostSA TSD.
Current and future impacts to groundwater quality	The EIS considers project impacts to groundwater quality in Section 9.5.3. The EIS also assesses impacts to VCs in other environmental compartments (e.g., the aquatic environment) from changes to groundwater conditions associated with the project. The baseline groundwater quality conditions, which are summarized in Section 8.5.6, are indicative of past impacts on groundwater. CNL has added groundwater quality and soil quality VCs to the assessment, and has identified mitigation measures related to protection of groundwater and soil from contamination (Section 9.5.3.2).

Notes:

The table above provides a summary of the concerns expressed by multiple Indigenous Nations, communities and organizations. See Table 6.3-1 for a more detailed listing of key interests and concerns from each Indigenous Nation, community and organization.

9.5.2 Assessment Boundaries

9.5.2.1 Spatial Boundaries

Similar to the geological and hydrogeological baseline characterization in Section 8.5 above, the Site and Local Study Areas for this assessment are consistent with the general spatial boundaries outlined in Section 5.2.1.1. The Regional Study Area for the geological and hydrogeological environment is outlined in Figure 8.5-1, and extends five km beyond the Site Study Area.

9.5.2.2 Temporal Boundaries

The temporal boundaries for this assessment are the standard temporal boundaries outlined in Section 5.2.1.2 of this EIS.

9.5.3 Identification of Residual Effects

9.5.3.1 Project-Environment Interactions

As shown in Table 5.2-1, potential effects to the geological and hydrogeological environment may occur as a result of interaction with activities in the Decommissioning Execution, Institutional Controls and Post-Institutional Controls phases:

- Removal of above grade structures;
- Facility performance during the Institutional Controls phase;
- Facility performance during the Post-Institutional Controls phase.

The rationale for these interactions is included in Table 9.5-3 below.

Table 9.5-3 Project-Environment Interactions in the Geological and Hydrogeological Environment

		Project Works and Activities	Rationale
Decommissioning Execution	**3**	**Removal of Above Grade Structure**	
	3.1	Conventional heavy equipment knockdown of reactor hall.	Demolition will release contaminated particulate matter which may affect soil quality.
	3.2	Sizing of material such as cutting steel beams or crushing masonry for fitting into void areas.	Sizing of material will release contaminated particulate matter which may affect soil quality.
	3.3	Set up laydown area and perform clearance surveys on materials for possible recycle.	Material laydown may release contaminated particulate matter which may affect soil quality.
	3.10	Demolish block walls and inside walls around control room and change rooms.	Demolition will release contaminated particulate matter which may affect soil quality.
	3.14	Demolish guard house and emplace in furnace room and adjacent rooms.	Demolition will release contaminated particulate matter which may affect soil quality.
	3.16	Demolish above grade portion of pressure relief pit. Fill with grout.	Demolition will release contaminated particulate matter which may affect soil quality.
IC*	**6.**	**Long-Term Care and Maintenance**	
	6.8	Facility performance during the Institutional Controls phase.	Groundwater will start to enter and eventually resaturate the grouted structure, which will affect groundwater flow in a localized area. Soil contamination may also occur (e.g., via the surface water environment). Groundwater will come into contact with contamination, affecting groundwater quality.
PIC**	**7**	**Post-Institutional Controls**	
	7.1	Facility performance during the Post-Institutional Controls phase.	The groundwater in the resaturated and eventually degraded structure will become contaminated. Soil contamination may also occur (e.g., via irrigation). The alkaline plume study shows essentially no alkaline plume forming for at least 100,000 years post-closure.

Notes:

*IC: Institutional Controls

**PIC: Post-Institutional Controls

As seen in the above table, soil quality and groundwater flow and quality were identified as having potential project-environment interactions as part of the geological environment. No other project-environment interactions have been identified relating to geology and geomorphology. Interrelationships with the groundwater regime are discussed as a part of the hydrogeological environment.

9.5.3.2 Proposed Mitigation Measures

The mitigation measures presented below are preliminary and have been developed based on the current understanding of the project. As the project approaches detailed work planning, details will be refined, and additional mitigation measures may be developed as required.

In addition to the in-design mitigation measures identified in Section 4.1 above, the following mitigation measures have been identified to limit and/or eliminate contamination of groundwater and soil:

- survey and remediation of localized areas of contamination in affected areas (e.g. laydown areas, staging areas) as required throughout the project;
- dust suppression and sedimentation, runoff and erosion control mitigation measures identified for the atmospheric and surface water environments in Sections 9.2.3.2 and 9.3.3.2 to minimize and localize effects to soil and groundwater quality;
- design, inspection and management of washout pits and material storage site(s);
- specific spill prevention and clean-up procedures will be prepared by CNL prior to commencement of construction, in accordance with CNL's Management and Monitoring of Emissions procedure (Lambert 2022) to minimize the risk of accidental spills. CNL's Waste Management procedures (Riopel 2020) will be followed for any removal and disposition of contaminated material;
- storage of only material expected to be clean in laydown areas; and
- reduction in the probability of accidental spills that will affect surface water quality through adherence to spill management practices including: health and safety procedures, chemical storage in approved containers, secondary spill containment for harmful substances, spill containment measures and training of personnel in spill containment procedures.

9.5.3.3 Effects After Mitigation

Decommissioning Execution

Site and Local Study Area

In the Decommissioning Execution phase, there are potential effects to soil quality from the release of contaminated particulate during demolition and material sizing. As discussed in Section 8 of the DecomSA TSD, mitigation measures (identified above) will trap and remediate effects to soil quality, and as such, only localized and negligible effects on soil quality are expected. Effects to groundwater flow may occur from the engineered cover; however, these effects are expected to be localized to the area surrounding the concrete cap and engineered cover. No effects are expected on groundwater quality during the Decommissioning Execution phase.

Regional Study Area

Any potential effects within the Site and Local Study Areas are localized. Therefore, no effects are expected to extend into the Regional Study Area during the Decommissioning Execution phase.

Institutional Controls and Post-Institutional Controls

Any potential changes to groundwater flow are expected to occur during resaturation. Any effects on groundwater flow will be temporary and localized to the area surrounding the NPDDF.

The PostSA TSD also considers impacts on soil quality in the Institutional Controls and Post-Institutional Controls phases (e.g., via irrigation of soil used for growing crops).

As discussed in the PostSA TSD, during the Institutional Controls phase, the facility will gradually resaturate, and dissolved contaminants will start leaching out into the surrounding groundwater. Contaminant concentrations in the groundwater surrounding the NPDDF are expected to be much lower than within it. The alkaline plume study shows essentially no alkaline plume forming for at least 100,000 years post-closure.

The project's potential effects on the geological and hydrogeological environment, resulting from changes to groundwater quality, are assessed with respect to VCs in other environmental components (see Sections 9.4.3, 9.6.3, 9.8.3, 9.9.3 and 9.10.3).

Radiological

During the Institutional Controls phase, the concentrations in the surrounding groundwater are dominated by tritium, peaking at around 3,000 Bq/L. By 100 y, concentrations are around 10 Bq/L. For perspective, the current drinking water guideline for tritium is 7,000 Bq/L (Health Canada 2017). This value has also been adopted by Province of Quebec as drinking water criteria for tritium (Quebec Regulation; Chapter Q-2, r. 40). Therefore, the estimated groundwater concentrations are less than the criterion.

The maximum concentrations for the radionuclides with the highest concentrations in groundwater during the assessment timeframe are calculated in the PostSA TSD. These concentrations are presented in Table 9.5-4.

Table 9.5-4 Radionuclides with the Five Highest Concentrations in Groundwater^ (Bq/L)

Time (y)	H3	C14	Ca41	Cl36	Ni59	Total
100	$1x10^{1}$	$5x10^{-2}$	$2x10^{-7}$	$6x10^{-2}$	$<1\ x10^{-10}$	$1x10^{1}$
300	$2x10^{-4}$	$5x10^{-1}$	$8x10^{-6}$	$4x10^{-2}$	$<1\ x10^{-10}$	$5x10^{-1}$
1000	$<1\ x10^{-10}$	$2x10^{0}$	$2x10^{-4}$	$6x10^{-2}$	$<1\ x10^{-10}$	$2x10^{0}$
3000	$<1\ x10^{-10}$	$1x10^{0}$	$2x10^{-1}$	$2x10^{-1}$	$6x10^{-7}$	$2x10^{0}$
10000	$<1\ x10^{-10}$	$1x10^{-1}$	$6x10^{-1}$	$2x10^{-1}$	$4x10^{-4}$	$9x10^{-1}$
30000	$<1\ x10^{-10}$	$3x10^{-3}$	$1x10^{-1}$	$1x10^{-1}$	$1x10^{-2}$	$2x10^{-1}$
50000	$<1\ x10^{-10}$	$3x10^{-4}$	$1x10^{-2}$	$7x10^{-2}$	$4x10^{-2}$	$1x10^{-1}$
Maximum (Bq l-1)	$3x10^{3*}$	$6x10^{0}$	$6x10^{-1}$	$3x10^{-1}$	$4x10^{-2}$	$3x10^{3}$
Time of peak (y)	7	1300	10,000	6,500	50,000	7

Notes:

^ All concentrations relate to the bedrock groundwater. * The early peak is a result of the rapid diffusion of tritium from NPDDF external walls into groundwater at the beginning of the assessment timeframe.

The maximum concentrations in groundwater are below the WHO drinking water guidance (WHO 2022) for tritium and carbon-14 (the other radionuclides have no corresponding guidance levels). All radionuclides are included in dose calculations to estimate effects to human and non-human biota health in Sections 9.4, 9.6, 9.8, and 9.10.2.

The maximum concentrations of radionuclides in the soils overlying the NPDDF are presented in Table 9.5-5 below. All radionuclides are included in dose calculations to estimate effects to human and non-human biota health in Sections 9.4, 9.6, 9.8, and 9.10.2.

Table 9.5-5 Contaminants Present at the Highest Concentration in NPDDF Soil

Time (y)	Radionuclides (Bq/kg)					
	H3	Ni59	C14	Ca41	Cl36	Total
100	$2x10^{2}$	$3 x10^{-8}$	$9 x10^{0}$	$5 x10^{-2}$	$9 x10^{-1}$	$2 x10^{2}$
300	$2x10^{-3}$	$3 x10^{-7}$	$1 x10^{1}$	$4 x10^{-1}$	$9 x10^{-1}$	$1 x10^{1}$
1000	$<1x10^{-10}$	$4 x10^{-6}$	$1 x10^{1}$	$3 x10^{0}$	$9 x10^{-1}$	$2 x10^{1}$
3000	$<1x10^{-10}$	$1 x10^{-4}$	$2 x10^{1}$	$8 x10^{0}$	$8 x10^{-1}$	$3 x10^{1}$
10000	$<1x10^{-10}$	$3 x10^{-2}$	$2 x10^{1}$	$9 x10^{0}$	$2 x10^{-0}$	$3 x10^{1}$
30000	$<1x10^{-10}$	$8 x10^{-1}$	$2 x10^{0}$	$9 x10^{-1}$	$1 x10^{-0}$	$7 x10^{0}$
50000	$<1x10^{-10}$	$5 x10^{0}$	$3 x10^{-1}$	$1 x10^{-1}$	$1 x10^{-0}$	$8 x10^{0}$
Maximum	$1 x10^{4}$	$5 x10^{0}$	$2 x10^{1}$	$1 x10^{1}$	$2 x10^{-0}$	$1 x10^{4}$
Time of max. (y)	10	50,000	6,000	6,500	12,000	10

Non-radiological

The PostSA TSD results show that the highest lead concentration in groundwater is $4x10^{-7}$ mg/L and occurs in the overburden at 12,000 years after closure. The highest concentration in the bedrock is $3x10^{-7}$ mg/L at 90,000 years after closure. The MOE generic Site Condition Standards (2011) for lead in groundwater are:

- 0.1 mg/L, the generic site condition standards for shallow soils in a potable ground water condition;
- 0.02 mg/L, the generic site condition standards for shallow soils in a non-potable ground water condition;
- 0.01 mg/L, the generic site condition standards for use within 30 m of a water body in a potable groundwater condition; and
- 0.02 mg/L, the generic site condition standards for use within 30 m of a water body in a non-potable groundwater condition.

The calculated concentrations of lead in groundwater are far lower than these criteria.

During the assessment timeframe, the highest concentration of lead in soil is 0.9 mg/kg in the cap at 12,000 years after closure. Slightly lower concentrations are also found in the garden soil (0.04 mg/kg). All concentrations are much lower than the MOE soil standard of 45 mg/kg for lead.

No other non-radioactive contaminants reach the environment in any considerable concentration. Additionally, the alkaline plume study shows essentially no alkaline plume forming for at least 100,000 years post-closure. The PostSA TSD provides more details on non-radiological concentrations in the groundwater which are used to estimate effects to human and non-human biota health in Sections 9.4, 9.6, 9.8, and 9.10.2.

9.5.3.4 Prediction Confidence and Uncertainty

Although the project has been described in Titterington (2016), Johnson (2022a) and various other studies, there are some minor uncertainties with respect to some aspects of the project details. These uncertainties, and their implications on the assessment of effects, are outlined below.

Since the location of certain aspects of the project (e.g., the laydown area) have not been finalized, there is some uncertainty with the potential for these activities to affect soil and groundwater quality and groundwater flow. The exact locations of the grout batch mixing plant, staging areas, raw material storage areas, on-site trucking routes have could influence the potential for soil and groundwater contamination. The sediment and erosion controls, consistent with Morin (2018), discussed under mitigation measures above, would reduce this uncertainty.

Mitigation measures will ensure that runoff and sediment will be properly contained/managed to localize any potential effects, and remediation will ensure that effects do not extend past the Decommissioning Execution phase.

REGDOC-2.9.1 on *Environmental Principles, Assessments and Protection Measures* (CNSC 2020a, Appendix C.4) states the requirement for a description of any predicted changes to the environment due to: modifications to the geology and geomorphology of the site; removal of bedrock and/or consolidated deposits; or disturbance of soils or sediments. Since the project does not involve the removal of bedrock or deposits, and does not involve any new disturbance of soil, this is not considered relevant. Changes to the shoreline are discussed in this EIS in Section 9.11 (Accidents and Malfunctions), and sediment transport is addressed in Section 9.4 of this EIS (Aquatic Environment).

9.5.3.5 Residual Effects

Table 9.5-6 summarizes the effects assessment above and presents the residual effects that were identified for the geological and hydrogeological environment and are carried forward for assessment in the appropriate environmental components. The residual effects in Table 9.5-6 are grouped by effect rather than by individual interaction as listed in Table 9.5-3.

Table 9.5-6 Summary of Residual Effects in the Geological and Hydrogeological Environment

Environmental Component/ VC	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Decommissioning Execution					
Geological and Hydrogeological Environment: Groundwater Flow	Washout pit construction and operation.	Washout pit will create an impermeable area on the site, affecting groundwater flow and direction.	Proper design, inspection and management of washout pits	Effects are expected to be localized.	No adverse residual effects.
Geological and Hydrogeological Environment: Soil Quality.	Demolition.	Demolition will release contaminated particulate matter which may affect soil quality.	Dust suppression methods (e.g. misting) and runoff control will trap dust and other potential contaminants produced from demolition, thereby limiting contamination of the surrounding soil. Soil remediation during final site restoration, if necessary.	Effects on soil quality are negligible, localized and temporary.	No adverse residual effects.
Geological and Hydrogeological Environment: Soil Quality.	Sizing of material.	Sizing of material will release contaminated particulate matter which may affect soil quality.	Dust suppression methods (e.g. misting) will trap dust and other potential contaminants produced from crushing of masonry and cutting beams, thereby limiting contamination of the surrounding soil. Cutting will also be done in a controlled manner. Soil remediation during final site restoration, if necessary.	Effects on soil quality are negligible, localized and temporary.	No adverse residual effects.
Geological and Hydrogeological Environment: Soil Quality.	Material laydown and clearance surveys.	Material laydown may release contaminated particulate matter which may affect soil quality.	Dust suppression methods (e.g. misting) and runoff control will trap dust and other potential contaminants. Only material that is expected to be clean will be brought to the clearance survey lay down area, therefore further minimizing the potential for contamination. Soil remediation during final site restoration, if necessary.	Effects on soil quality are negligible, localized and temporary.	No adverse residual effects.

Environmental Component/ VC	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Institutional Controls and Post-Institutional Controls					
Geological and Hydrogeological Environment: Groundwater Quality (radiological).	Facility performance during the postclosure period.	Groundwater will flow into the eventually degraded structure and become contaminated.	In-design mitigation measures to isolate and contain the inventory in order to reduce the potential of groundwater contamination.	Contaminated groundwater has the potential to transfer effects to humans and biota in other environmental compartments. Effects on groundwater quality, as evaluated through dose assessment for humans and biota, are negligible.	Potential adverse residual effects on groundwater quality, as evaluated through dose assessment for humans and biota (Sections 9.4, 9.6 and 9.8) are negligible.
Geological and Hydrogeological Environment: Groundwater Quality (non-radiological).	Facility performance during the postclosure period.	Groundwater will flow into the eventually degraded structure and become contaminated.	In-design mitigation measures to isolate and contain the inventory in order to reduce the potential of groundwater contamination.	Contaminated groundwater has the potential to transfer effects to humans and biota in other environmental compartments. Effects on groundwater quality, as evaluated through assessment for humans and biota, are negligible.	Potential adverse residual effects on groundwater quality, as evaluated through assessment for humans and biota (Sections 9.4, 9.6 and 9.8) are negligible.

9.5.4 Assessment of Residual Effects

Based on the assessment described above, no adverse residual effects on the geological and hydrogeological environment have been predicted, based on the assessment of the VCs selected for this environmental component.

Since the geological and hydrogeological environment is also a pathway to other environmental components (e.g., surface water, aquatic and terrestrial environments, human health), the potential adverse residual effects are further assessed within those environmental components (see Sections 9.3.4, 9.4.4, 9.6.4, 9.8.4, 9.9.4 and 9.10.3).

9.5.5 Monitoring and Follow-up

The VCs for the geological and hydrogeological environment are soil quality, groundwater flow and groundwater quality. This environmental component also represents a pathway for transfer of an effect to VCs in other environmental components (i.e., surface water, aquatic, and terrestrial environments). As discussed in Section 9.1.2.3, a proposed follow-up monitoring program was developed to support the EA Follow-up Program. Specifically, the environmental and groundwater monitoring aspects are relevant for the geological and hydrogeological environment. Please note that this section discusses only those monitoring considerations specific to the geological and hydrogeological environment, specifically, monitoring details (e.g., parameters, locations, frequency).

Other more general considerations of the EA Follow-up Program (e.g., sampling and analysis procedures, information management and reporting) are presented in Section 12.

9.5.5.1 Groundwater Monitoring

Following the systematic informed planning process, monitoring well locations (both existing and new) required to support the groundwater monitoring were selected.

Evaluation criteria for groundwater flow and direction, and actions taken to address exceedances were developed. The generic actions to address exceedances are presented in Section 9.1.2.3 above.

9.5.5.1.1 Flow and Direction

Decommissioning Execution

Following the systematic informed planning process, monitoring details were developed for the Decommissioning Execution phase. These monitoring details are summarized in Table 9.5-7 below.

Table 9.5-7 Groundwater Monitoring during the Decommissioning Execution Phase

Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
Reference Wells (upgradient of the facility); Existing Wells and/or Proposed New Wells (downgradient of the facility)	Groundwater Level	*Groundwater Flow and Direction* 4 campaigns (quarterly for 1 year), following completion of the Decommissioning Execution phase

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

Groundwater flow and direction are obtained indirectly: groundwater levels in wells are measured and this data (along with additional parameters) are used to calculate groundwater flow velocity and estimate the direction of groundwater flow.

Institutional Controls

Monitoring during resaturation of the facility is not straightforward. In the overburden sands and fill, a greater amount of water is flowing past the facility than through its low permeability walls, and therefore resaturation is expected to have little impact on water levels outside of the facility. Within the bedrock, there is a possibility of measuring small head changes over the first phases of resaturation; however, the required location of the measurements is not practical. Based on the resaturation model, these water levels must be measured within 5 m of the facility, within bedrock but also within the footprint of the facility. After approximately 10 years, the difference in water levels at all locations is 0.5 m or less, and after 20 years, the difference is approximately 0.1 m or less. Large changes in water levels only reflect early resaturation, and not complete saturation (85 years in the base case). As well, while these small changes are easily observed in the resaturation model that considers steady-state climactic conditions, small differences in water levels will likely be very difficult if not impossible to discern amongst seasonal fluctuations in water levels. Therefore, monitoring close to the facility, and comparing to predicted levels, is not considered to be practical. Instead, as mentioned earlier, measured groundwater levels from wells in the vicinity of the facility will be obtained and used to calculate flow and direction, which will be compared to baseline levels at these locations. When finalized, the EA Follow-up Program will reflect the most up-to-date resaturation modelling. The expectation is that resaturation will be complete within the next several decades.

Monitoring of groundwater flow and direction during the Institutional Controls Phase is summarized in Table 9.5-8.

Table 9.5-8 Monitoring Groundwater Flow and Direction During the Institutional Controls Phase

Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
Reference Wells (upgradient of the facility); Existing Wells and/or Proposed New Wells (downgradient of the facility)	Groundwater Level	*Groundwater Levels (Obj. #3):* During resaturation: semi-annually After resaturation: to be determined in future using the periodic review process.

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

9.5.5.1.2 Groundwater Quality

Decommissioning Execution

Following the systematic informed planning process, monitoring details were developed for the Decommissioning Execution phase. These monitoring details are summarized in Table 9.5-9 below.

Table 9.5-9 Monitoring Groundwater Quality During the Decommissioning Execution Phase

Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
Reference Wells (upgradient of the facility); Existing Wells and/or Proposed New Wells (downgradient of the facility)	Wellhead Parameters	semi-annually and, 1 one-time campaign at the completion of DE
	Radionuclides	
	Anions	
	Alkalinity	
	Major Cations	
	Metals	
	Petroleum Components (F1 - F4)	

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

Institutional Controls

CNL will also conduct routine groundwater analyses for parameters of concern (radiological and non-radiological), to verify that potential effluent emissions are below the applicable guidelines. Following the systematic informed planning process, monitoring details for groundwater quality were developed for the Institutional Controls phase. These monitoring details are summarized in Table 9.5-10 below.

Table 9.5-10 Monitoring Groundwater Quality During the Institutional Controls Phase

Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
Reference Wells (upgradient of the facility); Existing Wells and/or Proposed New Wells (downgradient of the facility)	Wellhead Parameters	1st year: Quarterly 2nd year to completion of resaturation: Semi-annual After resaturation: 1 one-time campaign at the completion of resaturation *Resaturation Monitoring[2]:* *(Tritium, Gross Beta/Gamma, pH, and Alkalinity)* 1st year: Quarterly 2nd year to completion of resaturation: Semi-annual After Resaturation: 1st year: Periodic (Quarterly) for 1 year After resaturation: 2nd year and beyond: Periodic (semi-annually).
	Radionuclides	
	Anions	
	Alkalinity	
	Major Cations	
	Metals	
	Petroleum Components (F1 - F4)	

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.
2- When finalized, the EA Follow-up Program will reflect the most up to date resaturation modelling. The expectation is that resaturation will be complete within the next several decades.

9.5.5.2 Environmental Monitoring

This section provides a concise summary of the proposed follow-up environmental monitoring in the geological and hydrogeological environment.

Evaluation criteria for the geological and hydrogeological environment, and actions taken to address exceedances were developed and are presented in the proposed follow-up monitoring program. The generic actions to address exceedances are presented in Section 9.1.2.3 above.

Decommissioning Execution

Following the systematic informed planning process, monitoring details were developed for the Decommissioning Execution phase. These monitoring details are summarized in Table 9.5-11 below.

Monitoring in the geological environment may be triggered, for example soil sampling may be triggered by groundwater monitoring results or monitoring wet and dry deposition may be triggered by exceedances in atmospheric contaminants.

Table 9.5-11 Geological Environmental Monitoring in the Decommissioning Execution Phase

Environmental Subcomponent	Sampling Locations	Parameters to be Monitored	Monitoring Frequency[1]
Wet and Dry Deposition *(if triggered by atmospheric exceedances)*	• Site boundary • Sensitive receptors within the Regional Study Area.	*(if triggered)* parameters dependent upon exceedances in other environmental media.	Continuous
Soil quality *(if triggered by groundwater exceedances)*	• Established monitoring points within the Site Study Area	• Radionuclides *(if triggered)* Parameters dependent upon exceedances in other environmental media.	Annually

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

Institutional Controls

Following the systematic informed planning process, monitoring details were developed for the Institutional Controls phase. These monitoring details are summarized in Table 9.5-12 below.

Table 9.5-12 Geological Environmental Monitoring in the Institutional Controls Phase

Environmental Subcomponent	Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
Soil quality *(if triggered by groundwater exceedances)*	• Soil monitoring will be co-located with groundwater exceedances. • Established monitoring points within the Site Study Area.	• Radionuclides *(if triggered)* Parameters dependent upon exceedances in other environmental media.	Annually
Soil vapour quality *(if triggered by groundwater exceedances)*	• Soil vapour monitoring will be co-located with groundwater exceedances. • Established monitoring points within the Site Study Area.	*(if triggered)* Parameters dependent upon exceedances in other environmental media.	Annually
Topography	Inspection of slope stability and changes in topography in the disposal facility footprint will be undertaken as part of CNL's *Surveillance Plan* (Taylor 2019)		

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

9.5.6 Conclusion

As shown in Table 9.5-6, no adverse residual effects were identified for the geological and hydrogeological environment.

It is important to note that the geological and hydrogeological environment is also a pathway that carries Project emissions to receptors (both human and non-human). While some contaminants (e.g., mercury)

can be assessed by comparing their concentrations in media (e.g., groundwater) against benchmarks, the potential effects of others (e.g., most radionuclides) must be evaluated through the effect of the medium on receptors. The potential effects of Project contaminants on receptors are not necessarily limited to only groundwater pathways (e.g., ingestion); rather, all relevant pathways that can affect a receptor are cumulatively considered.

Project emissions are not expected to have adverse effects on the geological and hydrogeological environment because their estimated concentrations in soil and groundwater were found not to have adverse health effects on human receptors (see Sections 9.8.4 and 9.10.2.4) and not to cause undue risk for relevant biota (see Sections 9.4.4 and 9.6.4).

The assessment of potential effects took into consideration the concerns expressed by Indigenous Nations, communities, and organizations during engagement activities (Section 9.5.1.1).

Monitoring activities such as the measurement of groundwater quality, flow and direction will verify the accuracy of the EA predictions.

9.6 Terrestrial Environment

9.6.1 Selection of VCs

As outlined in Section 5.2.4, VCs for the terrestrial environment were selected to encompass the potential effects of the project to the terrestrial component as well as other environmental components (e.g., atmospheric environment, geological environment) that act as a pathway to transfer potential effects to the terrestrial environment. VCs were selected to represent a variety of ecological roles within the terrestrial environment. All species are assessed for exposure-related effects. Species that are likely to be found in the Site Study Area are selected for assessment of habitat-related effects. The VCs for the terrestrial environment, with rationale for their selection, are listed in Table 9.6-1.

Table 9.6-1 VCs for the Terrestrial Environment

Environmental Component	Sub-Category	VC	Effects Assessed		Rationale
			Habitat	Exposure	
Terrestrial Environment	Terrestrial Invertebrates	Soil invertebrates		x	Soil-dwelling invertebrates (e.g. earthworm). Exposure from soil.
		Monarch butterfly	x	x	END (*SARA* status) – Monarchs are migrants and are sensitive to habitat fragmentation and disturbance. Found in the Site Study Area.
	Terrestrial Vegetation	Red maple		x	Upland/wetland deciduous tree common in the Local Study Area.
	Berries	Berries (e.g., blueberries, raspberries, serviceberries, chokeberries)			Identified through Indigenous engagement

Environmental Component	Sub-Category		VC	Effects Assessed		Rationale
				Habitat	Exposure	
Terrestrial Environment	Fungi		Mushrooms		x	Identified through Indigenous engagement
	Birds	Small-medium, aerial	Chimney swift	x	x	THR (*SARA* status) - migratory insectivorous bird. There is a chimney swift super roost in the ventilation stack in the Site Study Area which is in close proximity to site activities and may be affected.
		Large, aerial	Bald eagle	x	x	Large raptor. Cultural and ecological significance. Previously, a nest was identified in the Local Study Area but is no longer present, the tree was blown down in a storm in 2021.
		Medium, ground-dwelling	Ruffed grouse		x	Ground-dwelling non-migratory omnivorous bird. Present in the Local Study Area.
		Medium, semi-aquatic	Mallard		x	The Ottawa River is in the heart of the Atlantic Flyway, and is an important stopover for migrating waterfowl such as the mallard. Likely present in the Regional Study Area.
		Large, semi-aquatic	Great blue heron		x	Large wading piscivorous bird. Great blue herons are sensitive to human disturbance. Present in the Regional Study Area. Great blue herons often return to their nesting colonies for many consecutive years, and are sensitive to habitat destruction or disturbance.

Environmental Component	Sub-Category		VC	Effects Assessed		Rationale
				Habitat	Exposure	
Terrestrial Environment	Mammals	Small, insectivorous	**Little brown myotis** Eastern small-footed myotis Northern myotis Tri-colored bat	x	x	Bat species known to be present in the Site Study Area. All are listed as END under *SARA* except for eastern small-footed myotis. While each listed species is a VC, the little brown myotis (in bold) is used as a surrogate for the others.
		Small, herbivorous	Meadow vole	x	x	Soil-dwelling, small herbivore. Burrowing is an important exposure pathway.
		Small, omnivorous	Short-tailed shrew		x	Abundant, mostly-carnivorous small mammal. Burrowing is an important exposure pathway.
		Small, carnivorous	American mink		x	Small carnivorous mammal with both terrestrial and aquatic prey. Identified through Indigenous engagement
			Northern river otter		x	Small carnivorous mammal feeding primarily on fish. Identified through Indigenous engagement.
			Short-tailed weasel		x	Carnivorous small mammal No habitat impact is expected. Identified through Indigenous engagement
		Medium, omnivorous	Red Fox		x	Omnivorous, medium-sized mammal. No habitat impact is expected. Identified through Indigenous engagement
		Large, omnivorous	Black bear		x	Large terrestrial omnivore Cultural importance and public interest.
		Large, carnivorous	Eastern wolf		x	THR (*SARA* status) large terrestrial carnivore. Likely present in the Regional Study Area.

Environmental Component	Sub-Category		VC	Effects Assessed		Rationale
				Habitat	Exposure	
		Large, semi-aquatic, herbivorous	Moose		x	Identified through Indigenous engagement.
		Small-Medium, semi-aquatic	Muskrat		x	Aquatic piscivore/herbivore. Likely present in the Regional Study Area.
	Reptiles and Amphibians	Reptile	Blanding's turtle		x	Sighting near the Local Study Area. END (*SARA* status) Travels great distances over land.
			Eastern milksnake	x	x	SC (*SARA* status) snake present in the Site Study Area.
		Amphibian	Green frog		x	The green frog is abundant and is present in wetlands in the Local Study Area.

9.6.1.1 Indigenous Engagement Feedback – Key Interests and Concerns related to Terrestrial Environment VCs

This section describes how the input from Indigenous engagement activities influenced the selection of VCs in the terrestrial environment assessment. Table 9.6-2 summarizes the key interests and concerns raised by Indigenous peoples related to VCs for the evaluation of potential effects to the terrestrial environment (based on Table 6.3-1 above), and demonstrates how the interest or concern has been addressed in the present assessment.

Table 9.6-2 Summary of Interests and Concerns Raised During Indigenous Engagement Activities that Influenced the Scope of the Terrestrial Environment Assessment

Interest or Concern	How the Interest Was Included in the Assessment
Loss of connection to, and use of lands and water	The EIS discusses concerns about potential loss of connection to land and water, and loss of land and water use, as part of the assessment of effects on traditional land and resource use (Section 9.9.5). Changes to land and water use are discussed in the EIS as part of the expected outcomes of renaturalization during and after the Institutional Controls phase (Section 9.9.3). CNL's Public Information Program enhances engagement with Indigenous peoples and address any potential feelings of loss of connection to and use of lands and water (Section 9.9.5).
Impact on terrestrial and wetland areas from project operations (e.g., grout batch mixing plant and staging areas)	CNL has identified a preferred location for the grout batch mixing plant and associated operations (Section 4.3.1.2). The EIS addresses the potential impacts of these activities to terrestrial and wetland areas by discussing habitat and exposure-related effects of the project to VCs in the terrestrial environment as well as the surface water environmental components, including wetlands (Sections 8.6, 9.2, 9.3, 9.6). The VCs assessed include terrestrial and semi-aquatic VCs. CNL added monarch butterflies, moose, mink and otter to the assessment as a result of feedback received during Indigenous engagement.

Interest or Concern	How the Interest Was Included in the Assessment
Impacts to Species at Risk, in particular the protection of chimney swifts and monarch butterflies	The EIS assesses several SAR that have been observed, or are potentially present at the site, including: monarch butterfly; little brown myotis; chimney swift; eastern wolf; Blanding's turtle; and eastern milksnake (Section 5.2.4, 9.6.1). CNL added the monarch butterfly VC as a result of feedback from Indigenous Nations, communities and organizations. In the EcoRA TSD, additional protective measures were applied in the assessment of potential exposure effects to the SAR species, such as adding an extra safety factor to the radiological benchmarks for SAR species, and selecting chemical benchmarks protective at the individual level (EcoRA TSD Section 4). CNL has developed a number of mitigation measures to ensure the protection of biota, including SARs. Some of the planned measures are specific to the protection of SARs: chimney swifts, monarch butterflies, bats, migratory birds, amphibians and reptiles (Section 9.6.3.2). Specific to the chimney swift: The EIS assesses potential exposure- and habitat-related effects to the chimney swift (Section 9.6.3.3). CNL has undertaken numerous studies specific to chimney swifts to address potential impacts from decommissioning activities, identify mitigation measures, and monitoring for effectiveness of mitigation measures (Chimney Swift Studies TSD). Mitigation measures specifically for minimizing effects on chimney swifts include restrictions on: the timing of work activities (i.e., daylight only); the seasonal scheduling of stack-related work activities (i.e., to avoid roosting season; May 1 to September 1); distance from the stack for work activities; noise, vibration and lighting levels (Section 9.6.3.2). Specific to the monarch butterfly: The EIS assesses potential habitat- and exposure-related effects from the project to monarch butterfly (Section 9.6.3.3). Mitigation measures for the protection of monarch butterflies, such as sweeping of work areas and avoiding vegetation removal during periods of monarch presence, are outlined in Sections 9.6.3.2 and 9.6.3.3. In addition, during site restoration, the cleared area will be reseeded with milkweed (Section 9.6.3.3).
Protection of habitat: - migratory birds - plants - wildlife	CNL acknowledges that habitat protection has been expressed as an area of interest for Indigenous Nations, communities and organizations, and it has an Environmental Protection Procedure on Management of Land and Habitat (Hawkins 2024). Although the NPD Closure project does not involve destruction or removal of migratory bird habitat, the EIS does include specific mitigation measures for the protection of migratory birds and their habitat, including avoiding tree clearing (if required) during the breeding bird season, and ground nest surveys (Section 9.6.3.2). The EIS also specifically discusses migratory bird habitat of the chimney swift and bald eagle. Previously, a bald eagle's nest had been identified on the NPD site but it is no longer present, the tree was blown down in a storm in 2021 (see Section 8.6.4.2, 9.6.3.3). Protection of terrestrial habitat (i.e., for plants and wildlife) is discussed in the EIS as part of the assessment of physical disturbance and noise effects (Section 9.6.3). It is noted that NPD Closure project activities are expected to remain within the Site

Interest or Concern	How the Interest Was Included in the Assessment
	Study Area, which consists primarily of areas previously disturbed by human activity and contains various cultural vegetation communities. Other than the removal of milkweed (a temporary effect discussed earlier), no removal or destruction of wildlife areas is expected. This area provides very little suitable habitat to support resident terrestrial species (Section 8.6.1). Therefore, the EIS discusses habitat-related effects on species that are likely to be found in the Site Study Area. The EIS assesses effects from physical disturbance, wildlife habitat fragmentation, noise, and roadkill (Sections 9.6.3.1, 9.6.3.3). The EIS proposes mitigation measures for the protection of terrestrial vegetation and wildlife habitat in the Site Study Area (Section 9.6.3.2).
Reducing animal road mortality of sensitive species	Effects to sensitive species from road mortality are assessed in the EIS using the Blanding's turtle and eastern milksnake VCs. The EIS assesses the potential for direct loss of wildlife on the NPD site as roadkill from on-site transportation as well from vehicles travelling to and from the site (Section 9.6.3.3). Mitigation measures have been developed to minimize direct loss of wildlife from on-site transportation as well as vehicle travel entering the site; these include fencing, signage, training, surveys and sweeps (Section 9.6.3.2). CNL notes that to date, no eastern milksnakes or Blanding's turtles have been seen on the road at NPD.
Specific terrestrial and semi-aquatic species identified as important by Indigenous Nations, communities and organizations during engagement activities: moose, white-tailed deer, beaver, marten, mink, otter, rabbit/hare, muskrat, fox, elk, black bear, bald eagle, waterfowl/ducks, grouse, berries (blueberries, raspberries, serviceberries, chokecherries), partridge, goose, turkey, wintergreen, chaga, fiddleheads, cedar, oak, ash, yellow birch, badger, coyote, fisher, raccoon, squirrel, weasel, eastern/Algonquin wolf, barn swallow, turtle, pine, poplar, spruce, tamarack, willow, cattails, dandelions, juniper bush, Labrador tea, wiken, prickly ash, red willow, gzibimkshk (scouring rush), magajim mashkiai (sweet fern), wild leek or onion	CNL added moose, fox, river otter, mink, short-tailed weasel, berries, and mushrooms as new VCs specifically in response to Indigenous feedback. The remainder of the identified species were already included as VCs and/or represented by an EcoRA receptor. Potential effects to all of these species are assessed in the EIS and EcoRA TSD. See Tables 6.3-2 through 6.3-5 for mapping of these species to EcoRA receptors. In the EIS, some of these VCs are also assessed under existing traditional land and resource use VCs: Trapping, Hunting, Fishing and Gathering (Section 9.9).

Notes:

The table above provides a summary of the concerns expressed by multiple Indigenous Nations, communities and organizations. See Table 6.3-1 for a more detailed listing of key interests and concerns from each Indigenous Nation, community and organization.

9.6.2 Assessment Boundaries

9.6.2.1 Spatial Boundaries

Similar to the terrestrial environment baseline characterization in Section 8.6 above, the Site and Local Study Areas for this assessment are consistent with the general spatial boundaries outlined in Section 5.2.1.1. The Regional Study Area for the terrestrial environment is outlined in Figure 8.6-1.

9.6.2.2 Temporal Boundaries

The temporal boundaries for this assessment are consistent with the standard temporal boundaries outlined in Section 5.2.1.2.

9.6.3 Identification of Residual Effects

9.6.3.1 Project-Environment Interactions

As shown in Table 5.2-1, potential effects to the terrestrial environment may occur as a result of interaction with activities in the Decommissioning Execution phase and the Post-Institutional Controls phase, in particular:

- Installation and operation of the grout batch mixing plant;
- Grouting the below grade structure;
- Removal the above grade structure;
- Final site restoration;
- Facility performance during the Institutional Controls phase; and
- Facility performance during the Post-Institutional Controls phase.

The rationale for these interactions is included in Table 9.6-3 below.

Table 9.6-3 Project-Environment Interactions in the Terrestrial Environment

Phase		Project Works and Activities	Potential Interaction	Habitat	Exposure
Decommissioning Execution	**1**	**Grout Batch Mixing Plant**			
		Generation of garbage, particularly food wastes.	Generation of food or other wastes by workers on site may attract wildlife (i.e. bears to the site).		
	1.1	Designate footprint, create access, temporary fencing (east side of main building).	Despite being in a previously disturbed area, all activities related to establishing the project footprint (fencing) are expected to result in dust and emissions, and affect and displace wildlife.	x	x
	1.2	Assign storage area for raw materials, ship in sand. Likely east side of licensed area.	Despite being in a previously disturbed area, storage of raw materials will create dust, physical effects (noise, vibration, encroachment) and emissions, affecting vegetation and wildlife.	x	x
Decommissioning Execution	**1.3**	Set up mixing stations, hook up electrical power or diesel power.	Despite being in a previously disturbed area, all activities related to establishing the project footprint (i.e. Setting up mixing stations, power supply) are expected to affect wildlife habitat.	x	
	1.4	Truck in necessary water supply or source water directly from river.	Transportation of water is expected to create dust, physical effects (noise, vibration, encroachment) and emissions. On-site transportation may result in road mortality.	x	x
	1.6	Construct washout pit. Lined excavation with water transfer. Likely near grout batch mixing station.	Despite being in a previously disturbed area, excavation of the washout pit is expected to create dust, physical effects (noise, vibration, encroachment) and emissions, affecting vegetation and wildlife. The washout pit may attract wildlife.	x	x
	1.7	Level area for pumper.	Despite being in a previously disturbed area, levelling the ground is expected to create dust, physical effects (noise, vibration, encroachment) and emissions, affecting vegetation and wildlife.	x	x
	1.9a	Truck grout to pumping station (20 trips per day).	On-site transportation is expected to create dust, physical effects (noise, vibration, encroachment) and emissions. On-site transportation may result in road mortality.	x	x

Phase		Project Works and Activities	Potential Interaction	Habitat	Exposure
Decommissioning Execution	**2**	**Grouting of Below Grade Structure**			
	2.3	Grout Fill Nuclear Area.	Displacement of air containing tritium, lead and asbestos may result in exposure effects to non-human biota. Transportation of grout is expected to create dust, physical effects (noise, vibration, encroachment) and emissions. Grouting base of stack and creating penetrations at base of stack for drainage and ventilation may affect chimney swifts. On-site transportation may result in road mortality.	x	x
	3	**Removal of Above Grade Structure**			
	3.1	Conventional heavy equipment knockdown of reactor hall.	Demolition will release noise, dust, radioactivity and other potential contaminants.	x	x
	3.2	Sizing of material such as cutting steel beams or crushing masonry for fitting into void areas.	Material sizing will result in physical effects (noise, vibration, encroachment), dust, radioactivity and other potential contaminants.	x	X
	3.3	Set up laydown area and perform clearance surveys on materials for possible recycle.	Off-site material transport may affect off-site traffic. On-site material transportation will create dust, physical effects (noise, vibration, encroachment).	x	x
	3.4	Steel and rubble emplaced in condenser room.	Air displacement from below grade structure will release dust, radioactivity and other potential contaminants.		x
	3.5	Grout first level of demolition material in condenser room.	Air displacement from below grade structure will release dust, radioactivity and other potential contaminants.		x
	3.6	Steel and rubble emplaced in condenser room.	Air displacement from below grade structure will release dust, radioactivity and other potential contaminants.		x
	3.7	Grout second level of demolition material in condenser room.	Air displacement from below grade structure will release dust, radioactivity and other potential contaminants.		x
	3.8	Steel and rubble in condenser room.	Air displacement from below grade structure will release dust, radioactivity and other potential contaminants.		x
	3.9	Grout third level of demolition material in condenser room.	Air displacement from below grade structure will release dust, radioactivity and other potential contaminants.		x

Phase		Project Works and Activities	Potential Interaction	Habitat	Exposure
Decommissioning Execution	**3.10**	Demolish block walls and inside walls around control room and change rooms.	Demolition will create physical effects (noise, vibration, encroachment), dust, radioactivity and other potential contaminants.	x	x
	3.11	Collapse ceilings of furnace room and adjacent rooms.	Demolition will release create physical effects (noise, vibration, encroachment), dust, radioactivity and other potential contaminants.	x	x
	3.12	Emplace block wall rubble in furnace room or condenser room.	Air displacement from below grade structure will release dust, radioactivity and other potential contaminants.		x
	3.14	Demolish guard house and emplace in furnace room and adjacent rooms.	Air displacement from below grade structure will release radioactivity and other potential contaminants.		x
	3.15	Grout furnace room and adjacent areas to ground level.	Air displacement from below grade structure will release dust, radioactivity and other potential contaminants.		x
	3.16	Demolish above grade portion of pressure relief pit. Fill with grout.	Demolition will create physical effects (noise, vibration, encroachment), dust, radioactivity and other potential contaminants.	x	x
Decommissioning Executive	**5**	**Final Site Restoration**			
	5.1	Site Restoration (install fencing, install monitoring wells if required, remediate areas affected by previous operations or decommissioning, washout pit, complete closure surveys, etc.).	These activities will create physical effects (noise, vibration, encroachment), dust and emissions. Remediating areas affected by previous operations or decommissioning is expected to reverse some of the habitat-related effects of the decommissioning. On-site transportation may result in road mortality.	x	x
	5.2	Demobilize Site (Remove temporary facilities, decontaminate equipment, remove power upgrades, poles and lines, return transformers).	Demobilizing the site will result in dust and reverse some of the habitat-related effects of the decommissioning. On-site transportation may result in road mortality.	x	x

Phase		Project Works and Activities	Potential Interaction	Habitat	Exposure
IC*	**6**	**Long-term Care and Maintenance**			
	6.6	Renaturalization of the Site Study Area.	Renaturalization of a portion of the Site Study Area may increase habitat.	X	
	6.7	Facility performance during the Institutional Controls phase	Groundwater will start to enter and eventually resaturate the grouted structure. Contaminated groundwater will flow out and may eventually reach the Ottawa River. This Will be transferred to soil through irrigation, and biota through drinking water.		x
PIC**	**7**	**Postclosure**			
	7.1	Facility performance during the Post-Institutional Controls phase	Groundwater in the resaturated and eventually degraded structure will become contaminated. Contaminated groundwater will flow out and may eventually reach the Ottawa River. This Will be transferred to soil through irrigation, and biota through drinking water.		x
		Renaturalization	Renaturalization in the Site Study Area may increase habitat.	x	

Notes:

* - IC: Institutional Controls phase

** - PIC: Post-Institutional Controls phase.

9.6.3.2 Proposed Mitigation Measures

The mitigation measures presented below are preliminary and have been developed based on the current understanding of the project. As the project approaches detailed work planning, details will be refined, and additional mitigation measures may be developed as required.

In addition to the in-design mitigation measures identified in Section 4.1 above, the following mitigation measures have been identified to ensure the protection of the terrestrial environment:

- dust and noise suppression measures as described in Section 9.2.3.2;
- delineation of work areas, limiting project activities to within previously disturbed areas to reduce direct loss of wildlife on-site resulting from the project;
- posted speed limits in the Site Study Area, as well as the access road to reduce roadkill on-site;
- heavy equipment entering the site will be inspected to ensure they are free of dirt clogs coming from outside of the site, to prevent the spread of invasive species via seeds (Hawkins 2024);

- localized surface scarifying with a track machine to break up soil-compacted areas during final site restoration where necessary; these areas will then be top-dressed as required and replanted with native vegetation or allowed to revegetate naturally, subsoil tilled and cultivated (as needed);
- disposal of garbage on-site, particularly food waste, in proper containers to deter wildlife;
- completion of visual inspection to ensure that no bat roosts are present in the facility prior to commencement of below-grade grouting. If a roost is found, then through consultation with CNL's biologist, mitigation measures such as the installation of artificial bat houses and planning work outside of the maternity roosting period will be implemented;
- sweep work areas for the presence of SARs (e.g., eastern milksnakes, nests, bats, roosts, barn swallows, monarch butterflies) prior to work being undertaken, particularly from August to October when juvenile milksnakes are known to enter buildings (Morin and Carr 2015). Employee training will ensure that if a milksnake is encountered, the situation will be properly handled to ensure compliance with *SARA* requirements;
- removal of milkweed will occur only during a period of time when the host plant is not known to be occupied by any life stages of the species; removal will occur between October 01 and April 30;
- no removal of milkweed outside of the Site Study Area;
- vegetation removal by way of mowing or brushing of nectaring plants along the side of the roads and rights-of-way will be avoided during the period of time the monarch is present in the area (May 01 to September 30); and
- during final site restoration, the 1.2-hectare area cleared for the grout batch mixing plant will be seeded with milkweed.

In addition, CNL has identified mitigation measures specifically for the protection of migratory birds in the Site Study Area (chimney swift specific mitigation is discussed below). The project activities are expected to remain within previously disturbed areas, and no tree clearing is planned. However if needed, any tree clearing will follow CNL's Environmental Evaluation process. In order to protect nesting migratory birds, in accordance with the *Migratory Birds Convention Act*, the site preparation activities will avoid tree clearing during the breeding bird season (April 8 - August 28), wherever possible. If such activities cannot be scheduled outside the prime nesting season, deterrents for nesting will be implemented and a nest survey must be conducted beforehand (i.e., within 2 days) to ensure there are no active nests in the areas of activity. It is also possible that migratory birds (e.g., ground nesting birds) could be present in the Site Study Area during site preparation activities. Therefore, nest surveys will be conducted prior to establishing the project footprint if set up of various components (e.g., grout batch mixing plant) commences during the breeding bird season (Morin and Carr 2015).

If a migratory bird nest is discovered in the Site Study Area during project execution, ECCC guidelines on establishing buffer zones and setback distances (https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html#toc5) will be implemented to reduce risk to migratory birds.

As identified in the guidelines, any nest found during the nesting period should be protected with a buffer zone until the young have permanently left the vicinity of the nest. A buffer zone is determined by a setback distance which varies according to; the degree of tolerance of the species to disturbance, previous exposure of birds to disturbance, level of disturbance, and landscape context.

If a nest is found during project execution, an assessment of the activity will be conducted to assess the level of disturbance and an appropriate buffer will be established in accordance with ECCC guidelines. Please note that only the Canada warbler and the eastern wood-pewee have been detected on the site. Special attention will be given to those species if some level of vegetation removal is to be conducted during the migratory bird breeding season.

Following recommendations by ECCC – CWS (Canadian Wildlife Service), the NPD Closure Project developed a plan to exclude bats from accessing the facility (specifically the crawl space under the mechanical wing) in an effort to minimize the impact of the activity on bats using the NPDWF during the summer months as a roosting area and during the winter months as an overwintering site. In 2021, CNL completed work to seal the crawl space under a permit (SARA-OR-21-0588) issued by ECCC. This work involved the installation of a one-way door was successful at evicting the bat from the crawl space and preventing re-entry. This was confirmed through weekly inspections (visual and photographic searches and audio recordings) following the exclusion work. These activities are documented in a letter from CNL to ECCC (CNL 2021c). The success of the exclusion work was also confirmed via crawl space inspections (completed in winter 2021/22) and exit surveys (completed during the summers of 2021 and 2022), and no bats were seen or detected. Therefore, the crawl space has not been accessible to bats since 2021, and is no longer consider habitat or residence.

Through the permitting process, any mitigation measures that are identified will be implemented through the project.

As discussed in Section 8.5, CNL undertook investigation of the viability of ventilation stack removal. It was decided that ventilation stack retention will mitigate the risk of abandonment of the ventilation stack by the chimney swifts. In addition to ventilation stack retention, proposed mitigation measures during the chimney swift roosting season (May 1 to September 1) were identified in the Chimney Swift TSD, and are listed below:

- limitation of decommissioning activities to between 7 am and 7 pm (i.e., daylight hours when the swifts are not in the ventilation stack) where possible;
- modifications to the stack will be performed when chimney swifts are not present in the stack;
- given that the ventilation stack is 46 m (150 feet) in height and the chimney swift roost in the top portion of the stack, coupled with the low flow within the stack, it is considered reasonable to assume that dust will not reach the upper portion of the stack and impact critical roost habitat. For this reason, dust suppression measures in addition to those described in Section 9.2.3.2 are not warranted; and,
- restriction of Decommissioning Execution activities near the roost (within 5 m) as much as possible. Placement of infrastructure (e.g., grout batch mixing plant) should be avoided within 5 m. Further,

as a precaution, any reduction in Decommissioning Execution activities between 5-90 m of the roost would be beneficial.

The following mitigation measures (identified in the Chimney Swift TSD) are to be undertaken when chimney swifts are suspected in the ventilation stack (e.g., at night, during inclement weather from May 1 to September 1 etc.):

- noise performance should be considered in the selection of mechanical equipment and vehicles;
- bearing in mind a minimum placement of 5m from the ventilation stack, mobile plants (e.g., compressors, generators) and other noisy apparatuses such as concrete batching should be located as far as possible from the ventilation stack. These devices should be oriented to direct noise emissions away from the ventilation stack as far as possible, and onsite structures and terrain will be used to screen the ventilation stack and provide noise suppression wherever practicable;
- dramatic and sudden disturbances should only ever be undertaken between 7 am and 7 pm;
- the noise level of audible warning devices should be kept to the minimum necessary for employee health and safety;
- major demolition activities should be undertaken following a planned schedule;
- major demolition procedures should be developed to keep noise and vibration to a minimum without compromising demolition requirements;
- if significant vibration impacts cannot be avoided, consider relocating sources so that there is no direct line of sight between the source and ventilation stack;
- orient all external lighting fixtures so that the top of the ventilation stack is not illuminated;
- insofar as is practical, keep dust from demolition to a minimum (see dust suppression methods in Section 9.2.3.2);
- activities that will create substantial vibration and noise should only be undertaken between 7 am and 7 pm, and it is also recommended that a ‘soft-start’ approach be undertaken. This requires that each time the activity is initiated after a period of inactivity (>24 hours), the disturbance (noise and vibration) levels will be gradually increased over a 30-minute period to allow swifts at least an opportunity to acclimate. Noise and vibration should be minimized without compromising demolition requirements; and,
- in order to minimize the impact to chimney swifts during grouting of the base of the stack and creating penetrations at base of stack for drainage and ventilation, this work will avoid the chimney swift roosting season (May 1 to September 1).

As per the Ontario Ministry of Natural Resources and Forestry, Best Management Practices for Mitigating the Effects of Road on Amphibians and Reptiles (https://arc-solutions.org/wp-content/uploads/2017/02/mnrf_herp_road-mitigation_bmp_2016.pdf), CNL will be implementing mitigation measures to influence driver behaviour:

- Staff and contractors will receive a SAR Awareness training session offered by CNL to increase their knowledge about the potential species at risk present at NPD, how to identify them, what do

to if detected and how to report it to Environmental Protection. A species at risk identification field guide will be available on the job site at all time, and frequent inspection for wildlife presence will be conducted by the environmental personnel in the field.

- The low speed limit of 50 km/h or 20 km/h on NPD property will be enforced for all staff and contractors.
- Daily road mortality survey will be conducted (only on days when activities occur), during the herpetofauna active season (April 15 to Sept 30th).
- If any road mortality is detected (i.e., one individual) for the Eastern Milksnake, CNL will evaluate if exclusion fencing of the area would be an appropriate mitigation measure. Due to the temporary nature of the NPD Closure Project, temporary fencing will be considered such as silt fences.
- Two signs have been installed on each end of the NPD road to remind employees and contractors of the potential presence of herpetofauna, namely snakes, on the road.

9.6.3.3 Effects After Mitigation

In this section, habitat-related and exposure-related effects are discussed for each phase of the project.

The EcoRA TSD assessed exposure effects for all radiological and chemical COPCs identified in the EIS. The results of the EcoRA TSD have a large safety margin, given the conservative assumptions that were used, such as:

- It was assumed that terrestrial biota would spend all of their time on-site, consuming all of their food and water from the site, regardless of migratory patterns or home ranges; and
- Maximum contaminant concentrations at the most sensitive receptor locations were used.

Decommissioning Execution

Site Study Area

Habitat-Related Effects

Because of previously disturbed nature, there is limited potential for loss of habitat for animals potentially found in the Site Study Area associated with Decommissioning Execution activities. The loss of habitat is temporary and minor, displacing wildlife to cultural communities unaffected by project activities, or the surrounding forests. The project is not expected to introduce any physical barriers to wildlife. The following terrestrial VCs in the Site Study Area may have the potential to be affected by loss of habitat: monarch butterfly, eastern milksnake, meadow vole, little brown myotis.

As discussed in Section 8.6, the ventilation stack in the Site Study Area is used as a roost by chimney swifts. The potential effects of Decommissioning Execution activities on chimney swifts are assessed in the Chimney Swift TSD. Activities are not expected to physically alter the roost's habitat quality. However, due to the proximity of the ventilation stack to Decommissioning Execution activities, there is potential for disturbance of the roost through loud noise (acute and/or chronic), vibration (from demolition or machinery) and encroachment (i.e., activities being carried out too close to the ventilation stack, regardless of noise or vibration produced). These effects are most likely to occur when Decommissioning Execution activities overlap with the chimney swifts being present in the roost. Chimney swifts spend the day foraging, and they usually only roost at night or during inclement weather (i.e., rain and/or low temperature). Chimney swifts are often roosting in the ventilation stack during the day in May due to cold temperatures. Therefore, the only Decommissioning Execution activities that pose a greater risk of directly disturbing roosting chimney swifts are those that occur at night (which would only be during an abnormal situation) or on poor weather days (when Decommissioning Execution activities are ongoing). Although no effects on the chimney swift are expected, the chimney swift roost will be monitored regularly throughout decommissioning to ensure they are not disturbed. Details of this monitoring is discussed in Section 9.6.5.

The noise generated by the proposed project would likely be audible to wildlife in the immediate vicinity of the project activities. Although the proposed project is located in a largely rural area that is habitat for both large and small mammals including common rodents, deer, bears, foxes, etc. as well as avian species, its proximity to Highway 17 means that wildlife in the project area may be accustomed to elevated noise levels. In addition, even in cases where the noise is elevated above background noise conditions, it should be noted that such noise will be localized and temporary in nature.

Ground-dwelling VCs such as the eastern milksnake and meadow vole are likely to be temporarily displaced by Decommissioning Execution activities and operations. Eastern milksnakes are habitat generalists and have been recorded in both open and forested habitats (COSEWIC 2014). Therefore, the Site Study Area is not considered to comprise important habitat for milksnakes. It is possible that incidental mortality will arise as a result of project operations and activities. Proper delineation of the work area will deter wildlife from entering the Site Study Area. Training employees to identify and properly handle milksnakes, and conducting regular site sweeps in work areas will help to ensure that milksnakes will be recognized and removed from the Site Study Area to prevent incidental mortality. No residual habitat effects are expected on the eastern milksnake.

The monarch butterfly is known to be present in the Site Study Area. An area of approximately 1.2 hectare currently containing milkweed will have to be cleared for this project in the area where the grout batch mixing plant will be located (see Figure 4.3-1) in order to prevent impacts to monarch butterflies during the operation of the grout batch mixing plant. The milkweed is present on an area where asphalt remains from previous operations of the site. The milkweed to be removed represents approximately 30% of the milkweed observed in disturbed areas and along roadways on the NPD site (Figure 8.6-2). Milkweed is present elsewhere at NPD in smaller areas as well as along Highway 17. Although monarch butterfly larvae feed solely on milkweed plants, monarchs also rely heavily on a variety of wildflowers as a nectar source. These nectar sources are vital to monarch survival and are particularly important during the fall migration.

No net habitat-related effects are expected, as CNL will conduct site sweeps, and removal of the milkweed will occur only during a period of time when the host plant is not known to be occupied by any life stages of the species (between October 01 and April 30). Milkweed will not be removed outside of the Site Study Area. The removal of the milkweed won't have a direct impact on monarch individuals due to the timing of the removal. In addition, since milkweed is present elsewhere at or around the NPD site, the temporary removal of milkweed from the one hectare is not likely to have an impact on the reproductive success of the monarch individuals at NPD. Nectaring sites are available throughout the NPD site and will be maintained for the duration of the NPD Closure Project. To do this, vegetation removal by way of mowing or brushing of nectaring plants along the side of the roads and rights-of-way will be avoided during the period of time the monarch is present in the area (May 01 to September 30). During site restoration, the 1.2-hectare area will be seeded with milkweed. Surveys will be conducted for a period of 3 years and information on milkweed establishment and monarch larvae and chrysalis occupancy will be monitored.

Meadow voles are likely present in the Site Study Area, and throughout suitable habitat in the surrounding area. Any potential population decline as a result of habitat loss in the Site Study Area is temporary and not expected to affect the local population. No residual habitat effects are expected on the meadow vole.

No effects are expected on migratory bird habitat in the Site Study Area.

There is potential for direct loss of wildlife from project activities, particularly as roadkill from vehicle operation on-site. Posted speed limits and the small amount of on-site vehicle use will limit the potential for roadkill. Furthermore, during the Decommissioning Execution phase, animals are likely to avoid these areas due to their frequent disturbance and availability of surrounding vegetation communities. Proper delineation of the work area will reduce wildlife entering the site.

Following final site restoration and demobilization, land outside the licensed area will begin to renaturalize, which is expected to have a positive effect on the biodiversity of terrestrial biota.

Overall, no reduction in wildlife productivity is expected.

Exposure-Related Effects

In the Site Study Area, all radiological and chemical COPCs were screened out of the assessment for the Decommissioning Execution phase in the EcoRA TSD, and therefore were not assessed further (i.e., for effects on terrestrial biota). Thus, it is predicted that no adverse residual exposure-related effects will be observed for terrestrial biota during the Decommissioning Execution phase. This includes moose and berries which were added to the EcoRA TSD assessment as ecological receptors to reflect VCs identified through Indigenous engagement.

For details on the screening process, see the EcoRA TSD or Section 9.1.1.1 above.

Local Study Area

Habitat-Related Effects

No habitat effects on terrestrial VCs in the Local Study Area are expected. Note that the Bald Eagle's nest is no longer present, the tree blew down in a storm in 2021.

Decommissioning Execution activities will also result in an increase in noise and dust for surrounding undisturbed communities in the Local Study Area. These effects are expected to be temporary, minor and localized as discussed in Section 9.2.3.3.

There is potential for direct loss of wildlife as roadkill from vehicle operation to and from the site in the Local Study Area. This is expected to be a temporary, occasional and minor effect.

Exposure-Related Effects

In the Local Study Area, all COPCs were screened out of the assessment for the Decommissioning Execution phase in the EcoRA TSD, and therefore were not assessed further (i.e., for effects on terrestrial biota). Thus, it is predicted that Decommissioning Execution activities have a low potential to affect terrestrial vegetation and wildlife. This includes moose and berries which were added to the EcoRA TSD assessment as ecological receptors to reflect VCs identified through Indigenous engagement.

Regional Study Area

Habitat-Related Effects

No habitat-related effects are expected in the Regional Study Area during the Decommissioning Execution phase.

There is potential for direct loss of wildlife as roadkill from vehicle operation to and from the site in the Regional Study Area. This is expected to be a temporary, occasional and minor effect.

Exposure-Related Effects

In the Regional Study Area, all COPCs were screened out of the assessment in the EcoRA TSD, and therefore were not assessed further (i.e., for effects on terrestrial biota). Thus, it is predicted that Decommissioning Execution activities have a low potential to affect terrestrial vegetation and wildlife. This

includes moose and berries which were added to the EcoRA TSD assessment as ecological receptors to reflect VCs identified through Indigenous engagement.

Institutional Controls and Post-Institutional Controls

Habitat-Related Effects

No adverse habitat-related effects are expected during the Institutional Controls and Post-Institutional Controls phases in the Site, Local or Regional Study Areas.

Renaturalization of the Site Study Area over time may increase habitat for wildlife and would be beneficial for both vegetation and wildlife communities.

Exposure-Related Effects

During the postclosure period (i.e., Institutional Controls and Post-Institutional Controls phases), the grouted structure will degrade, and groundwater will flow into the facility. Soluble contaminants will dissolve into the groundwater, which will continue to flow and release contaminants to the Ottawa River. This will affect terrestrial wildlife and biota through drinking the water, consumption of aquatic biota and plants and swimming. The alkaline plume flowing from the grouted structure is expected to be sufficiently diluted and of relatively small volume, and is not expected to result in contamination to the terrestrial environment.

The PostSA TSD examines several potential scenarios for the postclosure period as a way to capture and quantify uncertainties in the future conditions at the site (for detail on these scenarios, the reader is directed to the PostSA TSD). The PostSA TSD details the results of the assessment of radiological and non-radiological contamination of the terrestrial environment (among other environments) for these scenarios. The PostSA scenarios were assessed for potential effects on terrestrial biota in the EcoRA TSD, including moose and berries which were added to the EcoRA TSD assessment as ecological receptors to reflect VCs identified through Indigenous engagement. The results of this assessment are summarized below.

Radiological

In the EcoRA TSD, approximately 30 radiological contaminants were screened in for the normal evolution scenario as well as several additional scenarios. For the Normal Evolution Scenario (NES), the results of EcoRA showed no adverse residual effects on terrestrial biota. Sensitivity analysis cases shown in the EcoRA account for uncertainties in parameter values such as sorption (i.e., NES SA – Sorption) and inventory (i.e., NES SA – Radioactive Inventory) among others. No adverse residual effects on terrestrial biota were identified for any of the sensitivity cases. The EcoRA TSD also assesses Disruptive Event scenarios (i.e., human intrusion and extreme degradation of engineered structures) and Defence in Depth scenarios (i.e., role of waste form, role of existing facility, role of grout). For these scenarios, approximately 30 radionuclides were screened in. No adverse residual effects were identified for terrestrial biota under any of these scenarios. For details on the screening process, see the EcoRA TSD or Section 9.1.1 of this EIS. Therefore, no adverse residual effect to terrestrial biota are anticipated from exposure to radiation during the postclosure period (Institutional Controls and Post-Institutional Controls phases).

The EcoRA TSD also studies “What If” scenarios (e.g., mass excavation, river level fall). “What If” scenarios make deliberately extreme assumptions so as to understand the limits of safety performance and are not compared with any criteria because they are extremely unlikely, and in some cases implausible.

Non-radiological

In the EcoRA TSD, no non-radiological contaminants were screened in for the normal evolution scenario for the postclosure period. Similarly, no non-radiological contaminants were screened in for any of the sensitivity cases, disruptive scenarios and defence-in-depth scenario. For details on the screening process, see the EcoRA TSD or Section 9.1.1 of this EIS. Therefore, no adverse residual effects from non-radiological exposure were identified for terrestrial biota in the postclosure period (Institutional Controls and Post-Institutional Controls phases).

The EcoRA TSD also studies “What If” scenarios (e.g., mass excavation, river level fall). “What If” scenarios make deliberately extreme assumptions so as to understand the limits of safety performance and are not compared with any criteria because they are extremely unlikely, and in some cases implausible.

9.6.3.4 Prediction Confidence and Uncertainty

Although the project has been described in Titterington (2016), Johnson (2022a) and various other studies, there are some minor uncertainties with respect to some aspects of the project details. These uncertainties, and their implications on the assessment of effects, are outlined below.

The exact locations of the grout batch mixing plant, staging areas, raw material storage areas, on-site trucking routes have not yet been finalized. Since the location of certain aspects of the project (e.g., the laydown area) have not been finalized, there is some uncertainty in the assessment effects on the terrestrial environment. The entire Site Study Area has been identified as the project footprint, which is conservative as the delineated work area is expected to be smaller. As discussed above, CNL does not intend to extend the project footprint outside of already disturbed areas.

In addition, the schedule has not been finalized. The uncertainty of timing certain activities may change the potential effects of noise, dust and other disturbances. This uncertainty is mitigated by restricting the timing of certain activities, as well as dust and noise mitigation outlines in Section 9.2.3.2.

The locations of pits for raw material acquisition are unknown and will depend on the contractor selected for the grout batch mixing plant and grouting activities. The uncertainty with respect to distance travelled off-site may affect the potential roadkill in the Regional Study Area.

The chimney swifts’ diet consists entirely of terrestrial insects, which are represented by soil invertebrates (earthworm) in the model due to a lack of available TFs for insects. This is a conservative assumption, as it provides a direct pathway to soil contamination.

Uncertainty in animal behaviour is addressed in the EcoRA through the assumption that biota are present in the Site Study Area year-round, which is likely to overestimate the magnitude of exposure for mobile

biota (e.g., migrating birds, such as chimney swift, and hibernating animals, such as little brown myotis and black bear).

The monarch butterfly was not fully assessed due to a lack of available data on the effects of the lead. However, the exposure to lead through its diet of vegetation is considered to be negligible, as terrestrial vegetation does not exceed benchmarks in any scenarios.

REGDOC-2.9.1 on *Environmental Principles, Assessments and Protection Measures* provides guidance on characterizing the effects on the project on terrestrial flora and fauna, including a full accounting of effects on species of elevated conservation status and their habitat. As per REGDOC-2.9.1 (CNSC 2020a, Appendix C.5), the terrestrial environment effects assessment was based on predictions from the EcoRA TSD, and covered effects such as the following (from REGDOC-2.9.1):

- effects on terrestrial habitat and loss of habitat for relevant species;
- disturbance of feeding, nesting or breeding habitats;
- direct and indirect wildlife mortality (e.g., roadkill);
- disruption of daily or seasonal wildlife movements such as migration or home ranges;
- contaminant exposures through environmental and food chain transport.

Some effects were assessed quantitatively in Section 9.6.3.3 above, such as physical barriers to wildlife; noise and vibration; reduction in wildlife productivity and effects on biodiversity.

REGDOC-2.9.1 (CNSC 2020a, Appendix C.3) requires a clear description of how any predicted effects compare to the expected reference condition for unexposed biota on a biological population basis, taking natural variation into account. Predictions of effects should include sufficient detail to allow follow-up verification.

In the PostSA TSD, uncertainties in postclosure conditions (e.g. floods), key parameters (e.g. inventory of contamination) are addressed inherently by assessing several disruptive scenarios. Conservative assumptions are also used to address other uncertainties, such as sediment characteristics.

9.6.3.5 Residual Effects

Table 9.6-4 summarizes the effects assessment discussed above. As seen in Table 9.6-4, no adverse residual effects on the terrestrial environment have been identified. The residual effects in Table 9.6-4 are grouped by effect rather than by individual interaction as listed in Table 9.6-3.

Table 9.6-4 Summary of Residual Effects in the Terrestrial Environment

Environmental Component	Source of Effect	Potentially Affected VCs	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Decommissioning Execution						
Terrestrial: Vegetation Communities/ Wildlife	Establishing the footprint of grout batch mixing plant and related activities (washout pit, pumper, raw material storage, earth grading).	Meadow vole Eastern milksnake Monarch Butterfly	Loss of vegetation and wildlife habitat.	All project works to take place in previously disturbed areas. Site to be restored at the end of the Decommissioning Execution phase. Site sweeps for ground nests to be conducted prior to establishing project footprint if during breeding season. Employee training and frequent inspection. Reseeding of grout batch mixing plant area with milkweed during site restoration.	Temporary loss of vegetation and wildlife habitat.	No adverse residual effects.
Terrestrial: Vegetation Communities/ Wildlife	Establishing the footprint of grout batch mixing plant and related activities (washout pit, pumper, raw material storage, earth grading).	Chimney swift Bald eagle Little brown myotis Meadow vole Eastern milksnake	Increased levels of physical effects (noise, vibration, encroachment), dust and emissions affecting surrounding undisturbed vegetation communities.	Standard construction best practices to be applied are discussed in Section 9.2.3.2 will also be effective at minimizing effects of noise, dust and emissions on vegetation and wildlife.	Temporary and localized effect. Species would generally be expected to return to the area following the Decommissioning Execution phase.	No adverse residual effects.
Terrestrial: Wildlife	Operation of vehicles on-site.	Meadow vole Eastern milksnake	Wildlife mortality via roadkill.	Wildlife exclusion fencing to be put in place around construction areas if required.	Small number of vehicles, occurrence of	No adverse residual effects.

Environmental Component	Source of Effect	Potentially Affected VCs	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
				Posted (low) speed limits. Brake-for-Snake signs. Daily road mortality surveys on activity days (during active season) Employee training and site sweeps for eastern milksnake will increase awareness and proper procedures are followed.	roadkill likely infrequent.	
Terrestrial: Vegetation	Dust releases (material transport/storage, vehicle operation etc.).	Red maple Berries Chimney swift	Dust generation may result in reduced plant growth or senescence.	Dust suppression measures outlined in Section 9.2.3.2 will also be effective in minimizing the effects on vegetation.	Minor, localized and temporary effect on vegetation communities.	No adverse residual effect.
Terrestrial: Wildlife	Generation of garbage.	Black bear	Open access to food waste may attract wildlife to the Site Study Area and may result in nuisance bear problems.	Proper garbage disposal containers (i.e. sealed containers and frequent removal) and waste management practices will be utilized.	No effects are expected.	No adverse residual effect.
Terrestrial: Vegetation Communities/ Wildlife	Displacement of tritiated air from the facility during grouting and emplacement.	All terrestrial VCs	Release of radioactivity to terrestrial environment and potential exposure effects to vegetation and wildlife.	No mitigation measures identified.	No effects are expected.	No adverse residual effects.
Terrestrial: Vegetation Communities/ Wildlife	Transportation of grout and materials around the site.	All terrestrial VCs	Transportation of grout and materials around the site will create physical effects (noise, vibration,	Standard construction best practices to be applied discussing in Section 9.2.3.2 will also be effective at minimizing effects of noise,	Temporary and localized effect. Species would generally be expected to return	No adverse residual effects.

Environmental Component	Source of Effect	Potentially Affected VCs	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
			encroachment), dust, and emissions.	dust and emissions on vegetation and wildlife.	to the area following the Decommissioning Execution phase.	
Terrestrial: Vegetation Communities/ Wildlife	Displacement of tritiated air from the facility during grouting and emplacement.	All terrestrial VCs	Release of radioactivity to terrestrial environment and exposure effects to vegetation and wildlife.	No mitigation measures have been identified.	No effects are expected.	No adverse residual effect.
Terrestrial: Vegetation Communities/ Wildlife	Demolition and related material sizing and storage.	All terrestrial VCs	Increased physical effects (noise, vibration, encroachment), dust, radioactivity and other potential contaminants from material to terrestrial environment.	Mitigation measures identified in Section 9.2.3.2 with respect to noise and dust effects will also be effective in minimizing the effects on wildlife and vegetation.	Temporary and localized effect from noise and dust. Species would generally be expected to return to the area following the Decommissioning Execution phase. No exposure effects are expected.	No adverse residual effects.
Terrestrial: Vegetation Communities/ Wildlife	Restoring and demobilizing the site (earth moving, material and equipment transport, remediation).	All terrestrial VCs	Physical effects (noise, vibration, encroachment), dust and emissions will be released. These activities will allow eventual renaturalization of the area.	Standard construction best practices to be applied are discussed in Section 9.2.3.2 will also be effective at minimizing effects of noise, dust and emissions on vegetation and wildlife.	Temporary, localized and minor disturbance.	No adverse residual effects.

Environmental Component	Source of Effect	Potentially Affected VCs	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Terrestrial: Vegetation Communities/ Wildlife	Demobilization (equipment and material removal from site).	All terrestrial VCs	Demobilization of the site will reverse some of the habitat-related effects of the decommissioning.	No mitigation measures have been identified.	Eventual renaturalization and reclamation.	No adverse residual effects.
Institutional Controls and Post-Institutional Controls						
Terrestrial: Vegetation Communities/ Wildlife (radiological)	Facility performance during the postclosure period.	All terrestrial VCs	Groundwater will flow into the eventually degraded structure. Contaminated groundwater may flow out and eventually into the Ottawa River. This may be transferred to soil through irrigation, and biota through drinking water.	In-design mitigation to isolate and contain the inventory in order to reduce the potential of groundwater contamination and effects in the terrestrial environment.	Radionuclides are expected to be within acceptance criteria.	No adverse residual effects
Terrestrial: Wildlife (non-radiological)	Facility performance during the postclosure period.	All terrestrial VCs	Groundwater will flow into the eventually degraded structure. Contaminated groundwater may flow out and eventually into the Ottawa River. This may be transferred to soil through irrigation, and biota through drinking water	In-design mitigation to isolate and contain the inventory in order to reduce the potential of groundwater contamination and effects in the terrestrial environment.	Chemical contaminants are expected be below benchmarks.	No adverse residual effects

9.6.4 Assessment of Residual Effects

Based on the assessment described above, no adverse residual effects on the terrestrial environment have been predicted.

9.6.5 Monitoring and Follow-up

Local youth group participating in chimney swift roost count.

The VCs in the terrestrial environment are soil invertebrates, monarch butterfly, red maple, chimney swift, bald eagle, ruffled grouse, mallard, great blue heron, little brown myotis (bats), short-tailed shrew, black bear, eastern wolf, muskrat, Blanding's turtle, eastern milksnake and green frog. Monitoring and follow-up activities within the terrestrial environment are discussed below. In addition to monitoring in the terrestrial environment, follow-up and monitoring work undertaken by CNL in other environmental components (i.e., atmospheric, surface water, and geological and hydrogeological environments and ambient radioactivity) are directly related to confirming the EIS findings related to VCs in the terrestrial environment.

Other more general considerations of the EA Follow-up Program (e.g., sampling and analysis procedures, information management and reporting) are presented in Section 12.

Decommissioning Execution

Following the systematic informed planning process, monitoring details were developed for the Decommissioning Execution phase. These monitoring details are summarized in Table 9.6-5 below. Evaluation criteria for the terrestrial environment, and actions taken to address exceedances were developed and generic actions are presented in Section 9.1.2.3 above.

Additionally, monitoring and mitigation measures related to the chimney swift roost were developed separately (Chimney Swift TSD). The details of this monitoring are discussed below.

During the non-breeding season (May 1 to June 21 and July 31 to September 1):

- When >25 swifts are observed leaving the roost in the daytime during the first day of inclement weather (i.e., measurable precipitation lasting longer than 30 minutes, and ambient temperatures below 9^{o}C for more than 120 continuous minutes), and do not return within the observation period, then an examination of the associated decommissioning activities to identify the likely source of disturbance, with mitigation measures, should be taken; or,

- if >200 swifts are seen exiting the roost on day 2 or more of inclement weather and do not return within the observation period, then an examination of the associated decommissioning activities to identify the likely source of disturbance, with mitigation measures, should be taken.

During the breeding period (June 22 to July 30):

- If a marked decrease is seen, this may indicate that swifts have been disturbed by a contemporaneous activity in the decommissioning process. A marked decrease is a >50% decrease in the average of the counts from the previous 4 nights during which decommissioning activities have taken place during the day. If this marked decrease has been observed, then an examination of the associated decommissioning activities must ensue to identify the likely source of disturbance, with mitigation measures taken.

Upon the occurrence of any circumstances listed above, decommissioning activities taking place should be reviewed and additional mitigation measures should be applied (additional details provided in Section 9.6.3 of this EIS and in the Chimney Swift TSD). In order to assess the effectiveness of the mitigation measures, monitoring should be conducted to confirm their effectiveness prior to the resumption of work. Monitoring of mitigation effectiveness will use the same protocols listed above, but with a differing threshold of response. During the non-breeding period, if <10 swifts leave the roost on the first day of inclement weather during the observation period, or <50 swifts leave the roost on the second day of inclement weather during the observation period, then a positive response to mitigation measures is indicated. During the breeding period, if there is a $\geq$25% increase in the average daily counts from the previous four nights, then a positive response to mitigation measures is indicated. Figure 9.6-1 presents a flow chart outlining chimney swift monitoring, mitigation and monitoring of mitigation effectiveness.

Figure 9.6-1 Chimney Swift Monitoring Program Flow Chart

A survey for roosting bats will be conducted in the summer preceding the initiation of decommissioning activities. Visual surveys for evidence of roosting bats and roost emergence surveys will be conducted, using hand-held acoustic bat monitoring detectors (for species identification), on all four sides of the building. The objective of these surveys is to visualize and confirm bats exiting from any potential roosting locations within the building. This monitoring will be conducted in the summer – from June to July – during the expected period of highest bat activity. Monitoring will be conducted for a minimum of two nights, during suitable conditions (i.e., not on nights with rainfall events or high winds).

Pre-disturbance searches for hibernating little brown myotis will be conducted during the winter prior to the initiation of decommissioning to confirm the absence of hibernating individuals inside the below-grade floors. Starting in November of the calendar year prior to decommissioning activities, searches will be conducted for hibernating bats. A suitably trained biologist or environmental specialist will use a spotlight to search all surfaces of the walls and ceiling for individual hibernating little brown myotis. Searches for guano (to be distinguished from mouse feces) will also be conducted. If there are no bats detected within the below-grade floors of the building, it can be concluded that bats are not hibernating in the building and no further survey or exclusion effort is required.

If bats are detected, CNL will consult with ECCC on the appropriate next steps.

Table 9.6-5 Monitoring and Follow-up Activities in the Terrestrial Environment during the Decommissioning Execution Phase

Subcomponent	Sampling Locations	Parameters to be Monitored	Monitoring Frequency[1]
Chimney Swift	• NPD Site	Chimney swift roost disturbance	• During the non-breeding season (May 1-June 21 and July 31-September 1): 1-hour observation during inclement weather • During breeding season (June 22 to July 30): daily roost counts
Species at Risk	Along the main road, other transportation routes, and areas of where new activities are taking place on site.	Roadkill mortality	Daily during eastern milksnake active season (April 15 to September 30), only when decommissioning activities are occurring
		SAR disturbance	Prior to commencement of new or modified activities
	• NPDWF structure (crawlspace, voids outside of facility), as well as areas of bat emergence	Bat presence	Preceding the initiation of decommissioning activities: Visual inspections to be conducted in both summer (during high activity) and winter (during hibernation).
Wildlife	Along the main road, other transportation routes, and areas of where new activities are taking place on site.	Disturbance of locally rare species, migratory birds' nests, etc.	Prior to new activities or modifications to existing activities
Vegetation *(if triggered by tier 2 groundwater exceedances)*	• Established monitoring points within the Site Study Area	• Radionuclides *(if triggered)* Parameters dependent upon exceedances in other environmental media.	Quarterly

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change. Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

Institutional Controls

Following the systematic informed planning process, monitoring details were developed for the Institutional Controls phase. These monitoring details are summarized in Table 9.6-6 below.

During the Institutional Controls phase, CNL will conduct periodic (i.e., once every five years) visual inspections of the ventilation stack as part of CNL's *Surveillance Plan* (Taylor 2019). If the integrity of the ventilation stack has been compromised (i.e., deterioration of concrete), the situation will be assessed, and appropriate repairs will be considered. Inspections will continue for the lifespan of the ventilation stack, or until the chimney swift is no longer listed as a SAR. Unique inspection will be triggered if circumstances occur that could change the integrity of the ventilation stack (i.e., a seismic event).

For three years following completion of decommissioning activities, CNL will conduct weekly evening roost counts when chimney swifts are present at the NPD site (i.e., roosting season, i.e., May 1 to September 1). After the three-year period, volunteers may be used to participate in National Roost Count Days (typically five per year). With respect to milkweed and monarch butterfly, during final site restoration, the 1.2-hectare area of the grout batch mixing plant location will be seeded with milkweed. Surveys will be conducted for a period of 3 years and information on milkweed establishment and monarch larvae and chrysalis occupancy will be monitored.

Monitoring and follow-up activities conducted in other environmental components (i.e., atmospheric, surface water and geological and hydrogeological environments and ambient radioactivity) will also confirm EIS predictions for effects to VCs in the terrestrial environment during the Institutional Controls phase. If parameters are above applicable guidelines or notable changes are observed, CNL biologist(s) will be consulted.

Evaluation criteria for the terrestrial environment, and actions taken to address exceedances were developed and generic actions are presented in Section 9.1.2.3 above.

Table 9.6-6 Monitoring and Follow-up Activities in the Terrestrial Environment during the Institutional Controls Phase

Environmental Subcomponent	Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
Chimney Swift	• NPD site	Chimney swift roost disturbance	Weekly for the first three years of institutional control
	Inspection of ventilation stack integrity will be undertaken as part of CNL's *Surveillance Plan* (Taylor 2019)		
Vegetation quality *(if triggered by tier 2 groundwater exceedances)*	• Vegetation monitoring will be co-located with groundwater exceedances. • Established monitoring points within the Site Study Area.	• Radionuclides (*if triggered)* Parameters dependent upon exceedances in other environmental media.	Annually

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change. Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

9.6.6 Conclusion

As shown in Table 9.6-4, no adverse residual effects were identified for the terrestrial environment.

The assessment covered the terrestrial VCs of interest to Indigenous Nations, communities, and organizations, including moose, fox, otter, mink, weasel, berries, and mushroom VCs that were added as a result of Indigenous engagement activities (see Sections 6.3, 9.6.1.1).

Monitoring activities have been identified for the terrestrial environment, such as checks for SAR in the facility and roadways. Specific monitoring activities have been developed for bats and chimney swifts. In addition, monitoring activities in other environmental components (i.e., atmospheric, surface water, and geological and hydrogeological environments and ambient radioactivity) will verify the accuracy of the EA predictions and effectiveness of measures implemented to mitigate potential adverse environmental effects related to the terrestrial environment. If monitoring identifies concerns in the other environmental components, CNL will assess the implications to the terrestrial environment (e.g., through discussion with CNL biologists).

9.7 Ambient Radioactivity

9.7.1 Selection of VCs

As shown in Section 5.2.4, ambient radioactivity represents features that can be affected by the project and as such would be pathways or mechanisms for transfer of an effect to another environmental component (e.g. aquatic environment, terrestrial environment, human health). As such, no VCs have been selected in the ambient radioactivity (Table 9.7-1). The potential effects of changes in ambient radioactivity are considered in the applicable environmental components.

Table 9.7-1 VC Selection for Ambient Radioactivity

Environmental Component	Pathway	Rationale
Ambient Radioactivity	Pathway to human health	The potential effects on humans associated with changes in ambient radioactivity will be considered in the human health.
	Pathway to aquatic environment	The potential effects on aquatic biota associated with changes in ambient radioactivity will be considered in the aquatic environment.
	Pathway to terrestrial environment	The potential effects on terrestrial biota associated with changes in ambient radioactivity will be considered in the terrestrial environment.

9.7.1.1 Indigenous Engagement Feedback – Key Interests and Concerns related to Ambient Radioactivity VCs

This section describes how the input from Indigenous engagement activities influenced the scope of the ambient radioactivity environment assessment. Table 9.7-2 summarizes the key interests and concerns raised by Indigenous peoples related to the evaluation of potential effects to ambient radioactivity (based on Table 6.3-1 above), and demonstrates how the interest or concern has been addressed in the present assessment.

Table 9.7-2 Summary of Interests and Concerns Raised During Indigenous Engagement Activities that Influenced the Scope of the Ambient Radioactivity Environment Assessment

Interest or Concern	How the Interest Was Included in the Assessment
Indigenous Health: concerns due to introduction of tritium into the Ottawa River	Potential effects on Indigenous peoples health from tritium in the Ottawa River are assessed using the new Indigenous peoples Health VC that was added to the EIS in response to feedback from Indigenous Nations, communities and organizations on VCs (Section 9.10.2).
Protection of the Environment (specifically Ottawa River)	Protection of the environment is assessed throughout the EIS, including: consideration of how the project may interact with the various environment components; developing mitigation measures to minimize project impacts and protect the environment; assessing potential impacts of the project on relevant VCs; determining whether any adverse residual effects may occur; and developing monitoring programs to confirm the findings of the assessment. With respect to protection of the Ottawa River in particular: Potential effects to the Ottawa River from radiological releases are assessed using the aquatic plant and animal VCs and human (public and Indigenous health) receptor VCs selected in the EIS (Sections 9.4.3, 9.8.3, 9.10.2.3).

Notes:
The table above provides a summary of the concerns expressed by multiple Indigenous Nations, communities and organizations. See Table 6.3-1 for a more detailed listing of key interests and concerns from each Indigenous Nation, community and organization.

9.7.2 Assessment Boundaries

9.7.2.1 Spatial Boundaries

Similar to the ambient radioactivity baseline characterization in Section 8.7 above, the Site and Local Study Areas for this assessment are consistent with the general spatial boundaries outlined in Section 5.2.1.1. The Regional Study Area incorporates both the atmospheric and surface water environment Regional Study Areas (see Figure 8.7-1).

9.7.2.2 Temporal Boundaries

The temporal boundaries for this assessment are the standard temporal boundaries outlined in Section 5.2.1.2 of this EIS.

9.7.3 Identification of Residual Effects

9.7.3.1 Project-Environment Interactions

As shown in Table 5.2-1, potential effects to the ambient radioactivity may occur as a result of interaction with activities in the Decommissioning Execution, Institutional Controls and Post-Institutional Controls phases, in particular:

- Grouting of below grade structures;
- Removal of above grade structures;
- Facility performance during the Institutional Controls phase; and

- Facility performance during the Post-Institutional Controls phase.

The rationale for these interactions is included in Table 9.7-3 below.

Table 9.7-3 Project-Environment Interactions in Ambient Radioactivity

		Project Works and Activities	Potential Interaction
Decommissioning Execution	**1**	**Grout Batch Mixing Plant**	
	1.5	Provide slip pipe access to nuclear area.	Drilling of slip pipe access holes could affect the external radiation field.
	2	**Grouting of Below Grade Structure**	
	2.1	Room preparation (e.g., sealing of pipes).	Some associated activities will take place in areas with higher ambient radioactivity, however the *overall* radiation levels remain unchanged.
	2.2	System preparation large vessels.	Some associated activities will take place in areas with higher ambient radioactivity, however the *overall* radiation levels remain unchanged.
	2.3	Grout fill nuclear area.	Grout filling will displace (i.e. release to the environment) air containing tritium from within the facility.
	3	**Removal of Above Grade Structure**	
	3.1	Conventional heavy equipment knockdown of reactor hall.	During demolition, there is potential for surface contamination from the structures to be released into the environment.
	3.2	Sizing of material such as cutting steel beams or crushing masonry for fitting into void areas.	Sizing of material from the facility may release radionuclides to the environment.
	3.3	Set up laydown area and perform clearance surveys on materials for possible recycle.	Storage of potentially contaminated materials may affect ambient radioactivity.
Decommissioning Execution	**3.4**	Steel and rubble emplaced in condenser room.	Emplacing material in the facility will displace air containing tritium which will affect the ambient radioactivity.
	3.5	Grout first level of demolition material in condenser room.	Grout filling will displace (i.e. release to the environment) air containing tritium from within the facility.
	3.6	Steel and rubble emplaced in condenser room.	Emplacing material in the facility will displace air containing tritium which will affect the ambient radioactivity.
	3.7	Grout second level of demolition material in condenser room.	Grout filling will displace (i.e. release to the environment) air containing tritium from within the facility.
	3.8	Steel and rubble emplaced in condenser room.	Emplacing material in the facility will displace air containing tritium which will affect the ambient radioactivity.
	3.9	Grout third level of demolition material in condenser room.	Grout filling will displace (i.e. release to the environment) air containing tritium from within the facility.
	3.10	Demolish block walls and inside walls around control room and change rooms.	During demolition, there is potential for surface contamination to be released into the environment.
	3.11	Collapse ceilings of furnace room and adjacent rooms.	During demolition, there is potential for surface contamination to be released into the environment.
	3.12	Emplace block wall rubble in furnace room or condenser room.	Emplacing material in the facility will displace air containing tritium which will affect the ambient radioactivity.

		Project Works and Activities	Potential Interaction
	3.14	Demolish guard house and emplace in furnace room and adjacent rooms.	Emplacing material in the facility will displace air containing tritium which will affect the ambient radioactivity.
	3.15	Grout furnace room and adjacent areas to ground level.	Grout filling will displace (i.e. release to the environment) air containing tritium from within the facility.
	3.16	Demolish above grade portion of pressure relief pit.	During demolition, there is potential for surface contamination to be released into the environment.
IC*	**6**	**Long-Term Care and Maintenance**	
	6.8	Facility performance during the Institutional Controls phase.	Potential releases of volatilized radioactivity to air through the cap system. Groundwater will start to enter and eventually resaturate the grouted structure and come into contact with contamination. Dissolved radiological contaminants in groundwater will flow out and may reach the Ottawa River.
PIC**	**7**	**Post-Institutional Controls**	
	7.1	Facility performance during the Post-Institutional Controls phase.	Potential releases of volatilized radioactivity to air through the cap system. Groundwater will start to enter and eventually resaturate the grouted structure and come into contact with contamination. Dissolved radiological contaminants in groundwater will flow out and may reach the Ottawa River.

Notes:

* - IC: Institutional Controls phase.

** - PIC: Post-Institutional Controls phase.

9.7.3.2 Proposed Mitigation Measures

In addition to the in-design mitigation measures (e.g., grout creating an alkaline environment that helps to contain radioactivity, isolation of radiological inventory with grout fill and concrete cap) identified in Section 4.1 above, the following mitigation measures have been identified for ambient radioactivity:

- dust suppression measures outlined in Section 9.2.3.2;
- sediment and erosion controls outlined in Section 9.3.3.2;
- use of localized HEPA ventilation as necessary during grouting operations.

The mitigation measures presented above are preliminary and have been developed based on the current understanding of the project. As the project approaches detailed work planning, details will be refined, and additional mitigation measures may be developed as required.

9.7.3.3 Effects After Mitigation

Decommissioning Execution

The DecomSA TSD examines the potential effects of Decommissioning Execution activities on ambient radioactivity. Activities such as drilling holes in below grade structures, displacement of air from the facility during grouting and emplacement, and demolition have the potential to affect ambient radioactivity. Since ambient radioactivity is a pathway to VCs in other environmental components (e.g., aquatic environment, terrestrial environment, human health), potential effects on ambient radioactivity are considered for VCs (humans and non-human biota) in those other environmental components (see Sections 9.4.3, 9.6.3, 9.8.3, 9.9.3 and 9.10.3). The DecomSA TSD uses annual dose calculations consistent with the DRL, which accounts for all relevant routes of exposure, including consideration of consumers of country food whose exposure pathways may differ due to cultural norms, as per REGDOC-2.9.1 on *Environmental Principles, Assessments and Protection Measures* (CNSC 2020a, Appendix C.6) requirements (see Table 8.8-4).

Institutional Controls and Post-Institutional Controls

The PostSA TSD examines several potential scenarios for the postclosure period (i.e., Institutional Controls and Post-Institutional Controls phases) as a way to capture and quantify uncertainties in the future conditions at the site (for detail on these scenarios, the reader is directed to the PostSA TSD) and assess the potential for radiological and non-radiological contamination of the atmospheric environment (among other environments) for these scenarios. Since ambient radioactivity is a pathway to VCs in other environmental components (e.g., aquatic environment, terrestrial environment, human health), potential effects on ambient radioactivity are considered for VCs (humans and non-human biota) in those other environmental components (see Sections 9.4.3, 9.6.3, 9.8.3, 9.9.3, 9.10.2 and 9.11.3). The PostSA TSD uses annual dose calculations which account for all relevant routes of exposure, including consideration of consumers of country food, as well as a site resident who fishes, grows crops and raises livestock.

9.7.3.4 Prediction Confidence and Uncertainty

Air displaced from the facility is likely to have variable tritium concentrations. To determine the amount of tritium released when the air is displaced, this variability is accounted for by the assumption that the air has a tritium concentration equal to the highest contaminated room. Additionally, tritium is treated as HTO to be conservative wherever HTO dose calculations are available.

In the PostSA TSD, uncertainties in postclosure conditions (e.g. floods), key parameters (e.g. inventory of contamination) are addressed inherently by assessing several disruptive scenarios. Conservative assumptions are also used to address other uncertainties, such as sediment characteristics.

9.7.3.5 Residual Effects

Table 9.7-4 summarizes the effects assessment above and presents the residual effects that were identified in ambient radioactivity. The residual effects in Table 9.7-4 are grouped by effect rather than by individual interaction as listed in Table 9.7-3.

Table 9.7-4 Summary of Residual Effects to Ambient Radioactivity

Environmental Component	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Decommissioning Execution					
Ambient Radioactivity	Grouting will displace contaminated air from within the facility. This activity includes all air displacement (e.g. from emplacement).	Tritium in air will be released to the environment.	No mitigation measures identified.	Air containing low levels of tritium will be displaced due to the pouring of grout into the facility.	Effects of radiological exposure are assessed in terms of their dose in humans and non-human biota in Sections 9.4, 9.6 and 9.8.
Ambient Radioactivity	Demolition may release surface contamination to the environment.	Surface contamination release may affect the environment.	Standard Construction Practices related to dust suppression from demolition, and CNL's Radiation Protection Program requirements.	Contamination in the atmosphere may affect the environment and non-human biota and human health.	Effects of radiological exposure are assessed in terms of their dose in humans and non-human biota in Sections 9.4, 9.6 and 9.8.
Ambient Radioactivity	Metal cutting and crushing of masonry may release surface contamination.	Sizing of material may release radionuclides to the environment.	Standard Construction Practices related to dust suppression, and CNL's Radiation Protection Program requirements	The components to be sized will primarily be portions of the aboveground facility, and are unlikely to have high concentrations of radionuclides.	Effects of radiological exposure are assessed in terms of their dose in humans and non-human biota in Sections 9.4, 9.6 and 9.8.
Ambient Radioactivity	Material laydown and perform clearance surveys.	Storage of potentially contaminated materials may affect ambient radioactivity.	Standard Construction Practices related to dust and runoff suppression, and CNL's Radiation Protection Program requirements.	Effects are expected to be temporary, while potentially contaminated material is in the lay down area.	Effects of radiological exposure are assessed in terms of their dose in humans and non-human biota in Sections 9.4, 9.6 and 9.8.

Environmental Component	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Institutional Controls and Post-Institutional Controls					
Ambient Radioactivity	Radioactivity volatilized from surface media.	Radioactivity may volatilize to the environment.	In-design mitigations to isolate and contain the inventory in order to reduce the potential effects on ambient radioactivity.	Radioactivity may be volatilized and inhaled by humans and non-human biota.	Effects of radiological exposure are assessed in terms of their dose in humans and non-human biota in Sections 9.4, 9.6 and 9.8.
Ambient Radioactivity	Facility performance during the postclosure period.	Groundwater will flow into the eventually degraded grouted structure. Contaminated groundwater will flow out and eventually into the Ottawa River.	In-design mitigations to isolate and contain the inventory in order to reduce the potential of groundwater contamination.	Groundwater will flow into the eventually degraded grouted structure. Contaminants will reach surface water, river sediment and shoreline sediment.	Effects of radiological exposure are assessed in terms of their dose in humans and non-human biota in Sections 9.4, 9.6 and 9.8.

9.7.4 Assessment of Residual Effects

Since ambient radioactivity is a pathway to other environmental components (e.g., aquatic and terrestrial environments, human health), the adverse residual effects are further assessed within those environmental components (see Sections 9.4.4, 9.6.4, 9.8.4, 9.9.4 and 9.10.2.4).

9.7.5 Monitoring and Follow-up

Ambient radioactivity represents a pathway for transfer of an effect to VCs in other environmental components. Monitoring and follow-up activities related to ambient radioactivity are discussed below and presented in Table 9.7-5 and Table 9.7-6. Monitoring activities (e.g., radiation protection surveys, gamma monitoring, and passive air sampling) will verify that no parameters are above applicable guidelines are identified. It is noted that the monitoring presented in this section pertains to direction radiation monitoring, and some monitoring of radiological contaminants is documented as part of monitoring in the atmospheric and surface water environments (Sections 9.2.5 and 9.3.5 respectively). Further action will be triggered if parameters are above applicable guidelines or other notable changes are observed.

Evaluation criteria for ambient radioactivity, and actions taken to address exceedances were developed and generic actions are presented in Section 9.1.2.3 above.

Other more general considerations of the EA Follow-up Program (e.g., sampling and analysis procedures, information management and reporting) are presented in Section 12.

Decommissioning Execution

CNL will conduct routine radiation protection surveys (indoor and outdoor), passive tritium air sampling and ambient radioactivity monitoring at TLD monitoring locations around the NPD site during the Decommissioning Execution phase. Investigative further action will be triggered if parameters are above applicable guidelines are identified.

Institutional Controls

CNL will continue to conduct routine radiation protection surveys (outdoor) and ambient radioactivity monitoring at TLD monitoring locations around the NPD site during the first five years of the Institutional Controls phase. Investigative further action will be triggered if parameters are above applicable guidelines are identified.

Table 9.7-5 Ambient Radioactivity Monitoring during the Decommissioning Execution Phase

Subcomponent	Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
Ambient Radioactivity	• Within the NPD site, at previously established monitoring areas • Downwind at currently monitored locations	Gamma dose rate	Continuous

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

Table 9.7-6 Ambient Radioactivity Monitoring during the Institutional Controls Phase

Subcomponent	Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
Ambient Radioactivity	• Within the NPD site, at previously established monitoring areas. • Downwind at currently monitored locations	Gamma dose rate	Continuous

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

9.7.6 Conclusion

As shown in Table 9.7-4, the potential effects of exposure to radiation and radioactivity in the environment are evaluated in terms of their dose to human receptors and non-human receptors. This is because ambient radioactivity is a pathway that carries project emissions to receptors (both human and non-human). The potential effects of most radionuclides must be evaluated through the effect of the medium on receptors. When evaluating the potential effects of radioactivity in environmental media on receptors, all relevant pathways that can affect a receptor are cumulatively considered.

Project emissions are not expected to have adverse effects to ambient radioactivity because levels in environmental media were found not to have adverse health effects on human receptors (see Sections 9.8.4 and 9.10.2.4) and not to cause undue risk for relevant biota (see Sections 9.4.4 and 9.6.4).

The assessment of potential effects to ambient radioactivity (Section 9.7.3) took into consideration the concerns expressed by Indigenous Nations, communities, and organizations during engagement activities (Section 9.7.1.1).

Monitoring activities such as the use of TLDs, as well as monitoring of radiological contaminants documented as part of the atmospheric and surface water environments will verify the accuracy of the EA predictions and effectiveness of measures implemented to mitigate potential adverse environmental effects related to ambient radioactivity.

9.8 Human Health

9.8.1 Selection of VCs

As outlined in Section 5.2.4, VCs for human health were selected to encompass the potential effects of the project on human health as well as exposure via pathways from environmental components (e.g., atmospheric environment, surface water environment, geological and hydrogeological environment, ambient radioactivity). The VCs for human health, along with rationale for their selection, are listed in Table 9.8-1.

Table 9.8-1 VC Selection for Human Health

Environmental Component	Sub-Category	VC and Rationale
Human Health	Public	The general public may be exposed to health risk as a result of the project. The potential effects on humans associated with changes in atmospheric, surface water, geological and hydrogeological conditions (radiological and chemical releases and concentrations), and external gamma radiation are considered.
	Worker	Workers may be exposed to health risk as a result of performing their duties relative to the project. The potential effects on humans associated with changes in atmospheric, surface water, geological and hydrogeological conditions (radiological and chemical releases and concentrations) and external gamma radiation are considered.

Notes:

Effects on human health from possible accidents and malfunctions are discussed in Section 9.11 below.
In response to feedback received during Indigenous engagement activities, CNL has added Indigenous health VCs (see Section 9.10.2).

9.8.2 Assessment Boundaries

9.8.2.1 Spatial Boundaries

Similar to the human health baseline characterization in Section 8.8 above, the Site and Local Study Areas for this assessment are consistent with the general spatial boundaries outlined in Section 5.2.1.1. As this area is all owned by the Federal Government, there are no residents present. Workers are, and will continue to be, present in this area for the duration of the decommissioning, and as such the Site/Local Study Areas will describe worker health.

The Regional Study Area for this assessment consists of the Renfrew County and District Health Unit, and Région de l'Outaouis Health Unit, illustrated in Figure 8.8-1 and Figure 8.8-2.

9.8.2.2 Temporal Boundaries

The temporal boundaries for this assessment are the standard temporal boundaries outlined in Section 5.2.1.2 of this EIS.

9.8.3 Identification of Residual Effects

9.8.3.1 Project-Environment Interactions

As shown in Table 5.2-1, potential effects to human health may occur as a result of interaction with Decommissioning Execution operations and activities associated with:

- Grout Batch mixing plant;
- Grouting of below grade structures;
- Removal of above grade structures;
- Installation of concrete cap and engineered cover;
- Final site restoration;
- Facility performance during the Institutional Controls phase; and
- Facility performance during the Institutional Controls phase.

The rationale for these interactions is included in Table 9.8-2 below.

Table 9.8-2 Project-Environment Interactions in Human Health

		Project Works and Activities	Potential Interaction
Decommissioning Execution	**1**	**Grout Batch Mixing Plant**	
	1.1	Designate footprint, create access, temporary fencing (east side of main building).	Work conducted near the facility has the potential to release dust, increase radiation doses to workers.
	1.2	Assign storage area for raw materials, ship in sand. Likely east side of licensed area.	Work conducted near the facility has the potential to increase radiation doses to workers. Dust and vehicle emissions may affect worker health.
	1.3	Set up mixing stations, hook up electrical power or diesel power.	Work conducted near the facility has the potential to increase radiation doses to workers.
	1.4	Truck in necessary water supply or source water directly from river.	Work conducted near the facility has the potential to increase radiation doses to workers. Dust and vehicle emissions may affect worker health.
	1.5	Provide slip pipe access to nuclear area.	This activity has the potential to release dust and increase radiation doses to workers. Specifically, to the workers drilling holes for slip pipe access and workers nearby.
	1.6	Construct washout pit. Lined excavation with water transfer. Likely near grout batch mixing station.	Work conducted near the facility has the potential to increase radiation doses to workers. Dust and vehicle emissions may affect worker health.

		Project Works and Activities	Potential Interaction
Decommissioning Execution	**1.7**	Level area for pumper.	Work conducted near the facility has the potential to increase radiation doses to workers. Dust and vehicle emissions may affect worker health.
	1.8	Mix grout to required formula.	Work conducted near the facility has the potential to increase radiation doses to workers. Dust and equipment emissions may affect worker health.
	1.9a	Truck grout to pumping station (20 trips per day).	Work conducted near the facility has the potential to increase radiation doses to workers. Dust and vehicle emissions may affect worker and public health.
	1.11	Sample and dewater the cleaning pit. Emplace sediments into voids in condenser room.	Work conducted near the facility has the potential to increase radiation doses to workers. Dust and vehicle emissions may affect worker health.
	1.12	Demobilize grout batch mixing plant after cap installation.	Work conducted near the facility has the potential to increase radiation doses to workers. Dust and vehicle emissions may affect worker health.
	2	**Grouting of Below Grade Structure**	
	2.1	Room preparation (e.g., sealing of pipes).	Work conducted within the facility has the potential to increase radiation doses to workers.
	2.2	Systems Preparation Large Vessels.	The activities associated with this task are routine construction activities. Potential effects on workers as part of this task are grouped with activity **1.5** (Provide slip pipe access to nuclear area).
	2.3	Grout Fill Nuclear Area.	Displacement of air containing dust, tritium, lead and asbestos may result in effects to the public and workers.
	3	**Removal of Above Grade Structure**	
	3.1	Conventional heavy equipment knockdown of reactor hall.	Release of surface contamination may increase exposure to dust, radioactivity and other potential contaminants to the public and workers.
	3.2	Sizing of material such as cutting steel beams or crushing masonry for fitting into void areas.	Release of surface contamination may increase exposure to dust, radioactivity and other potential contaminants to the public and workers.
	3.3	Set up laydown area and perform clearance surveys on materials for possible recycle.	Conducting clearance surveys has the potential to increase radiation doses to workers.
	3.4	Steel and rubble emplaced in condenser room.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to the public and workers.
	3.5	Grout first level of demolition material in condenser room.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to the public and workers.
	3.6	Steel and rubble emplaced in condenser room.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to the public and workers.

		Project Works and Activities	Potential Interaction
Decommissioning Execution	**3.7**	Grout second level of demolition material in condenser room.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to the public and workers.
	3.8	Steel and rubble in condenser room.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to the public and workers.
	3.9	Grout third level of demolition material in condenser room.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to the public and workers.
	3.10	Demolish block walls and inside walls around control room and change rooms.	Release of dust and surface contamination may increase exposure to the public and workers.
	3.11	Collapse ceilings of furnace room and adjacent rooms.	Release of dust and surface contamination may increase exposure to the public and workers.
	3.12	Emplace block wall rubble in furnace room or condenser room.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to the public and workers.
	3.14	Demolish guard house and emplace in furnace room and adjacent rooms.	Release of surface contamination may increase radiation doses to the public and workers.
	3.15	Grout furnace room and adjacent areas to ground level.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to the public and workers.
	3.16	Demolish above grade portion of pressure relief pit. Fill with grout.	Release of dust and surface contamination may increase exposure to the public and workers.
	4	**Install Concrete Cap and Engineered Cover**	
	4.1	Concrete Cap (construct forms, install rebar, and pour, level and slope concrete).	Work conducted near the facility has the potential to release dust and increase radiation doses to workers.
	4.2	Engineered Cover (ship in materials, layer and shape mound, install geotextile layer, grade property, install remaining earth layers and seed).	Work conducted near the facility has the potential to release dust and increase radiation doses to workers.
	5	**Final Site Restoration**	
	5.2	Demobilize Site (Remove temporary facilities, decontaminate equipment, remove power upgrades, poles and lines, return transformers).	Work conducted near the facility has the potential to release dust and increase radiation doses to workers.
IC*	**6**	**Long-Term Care and Maintenance**	
	6.8	Facility performance during the Institutional Controls phase	Groundwater will start to enter and eventually resaturate the grouted structure. Contaminated groundwater will flow out and has the potential to affect the public.
PIC**	**7**	**Post-Institutional Controls**	
	7.1	Facility performance during the Post-Institutional Controls phase	Groundwater in the resaturated and eventually degraded grouted structure will become contaminated. Contaminated groundwater will flow out and has the potential to affect the public.

Notes:

* Institutional Controls
** PIC: Post-Institutional Controls

9.8.3.2 Proposed Mitigation Measures

The mitigation measures presented below are preliminary and have been developed based on the current understanding of the project. As the project approaches detailed work planning, details will be refined, and additional mitigation measures may be developed as required.

In addition to the in-design mitigation measures identified in Section 4.1 above, mitigation measures identified in other environmental components, such as dust suppression and vehicle maintenance may also reduce the potential for effects on public and worker health. The following mitigation measures are outlined in the DecomSA TSD.

- *General:*
  - Staff and contractors will receive orientation to ensure they are aware of decommissioning activities, hazards, and emergency procedures.
  - Signs will be posted to indicate where decommissioning work is taking place and to alert people to detours where applicable.
  - Work control documents will be developed to guide safe execution of the decommissioning activities.
  - Hazards to personnel will be identified through work control documents and eliminated or controlled using engineered controls, administrative controls, and PPE.
  - Regular updates will be given to site personnel on updates in the proposed decommissioning work plans.
  - CNL health and safety programs are in place to prevent and mitigate injury to personnel.
  - An NPD Emergency Procedure is in place, and is consistent with CNL's Emergency Preparedness Program. This procedure will be updated to include decommissioning activities.
  - Emergency response is available through local municipal Fire Department.
  - Stop work procedures will be followed for power outages.
  - Overall site 'good housekeeping' will be upheld.
  - Contractor Health & Safety Management Program, reviewed by supply chain management and meeting CNL requirements.
  - Periodic communication updates to local residents on the project construction activities, including construction schedule, activities, dedicated contact person for inquiries and emergencies etc.

- *Structural:*
  - Structural assessments will be performed to ensure that all demolition work is done in accordance with safe work practices and civil/engineering requirements.
  - Appropriate methods will be used during the demolition process to provide support and ensure that unintended structural failure does not occur.
  - If inclement weather occurs during the performance of project work, activities would be stopped (if deemed necessary) in order to minimize weather-related risks.
  - A demolition plan is prepared in accordance with PEO standards and approved by a Professional Engineer qualified in this discipline.
  - An exclusion zone will be established for decommissioning activities.

- *Radiation Dose:*

Radiological work assessments will be performed as detailed work packages are developed. They will include specific measures to reduce collective and individual worker dose to ensure that the dose is below relevant dose threshold standards. As per current practice at the NPD site, all internal and external doses received by NPD workers will be monitored and reported as part of the operational dose management program. This system will be in effect during the Decommissioning Execution phase of the project:

  - As mentioned above, work control documents will be prepared for all activities. Where there is the potential for workers to encounter radiological hazards, the preparation of work control. Documents include a radiological assessment completed by CNL health physics personnel. Work control documents are then developed to include radiological aspects as appropriate.
  - Hazards to personnel will be identified through work control documents and eliminated or controlled using engineered controls, administrative controls, and PPE.
  - Utilization of air monitors (including particulate contamination as well as tritium-in-air), dosimeters, and bioassay will be used as required to detect the spread and uptake of contamination before it exceeds limits.
  - Emergency response capability is available from local municipalities.
  - An NPD Emergency Procedure is in place, and is consistent with CNL's Emergency Preparedness Program. This procedure will be updated to include decommissioning activities.
- *Asbestos:*
  - Signage will be installed to indicate asbestos laydown/interim-storage areas.
  - Procedures will be in place for handling and storage of abated asbestos (bagged).
  - Work control documents will be developed for all activities, including those involving handling of abated (bagged) asbestos and transite.
- *PCBs:*
  - Work control documents will be developed for all activities, including those involving handling PCB-containing materials.
  - Sources of PCBs will be confirmed through characterization and will be clearly identified prior to executing activities involving handling of PCB-containing materials (e.g., caulking, paint, cables, light ballasts, etc.).
  - Appropriate personal protection equipment (e.g., respirators and Tyveks) will be available and used.
- *Lead:*
  - Work control documents will be developed for all activities, including those involving lead-containing materials.
  - Sources of lead are known and will be clearly identified prior to executing decommissioning activities.
  - Appropriate personal protection equipment will be used, based on the nature of the activities (e.g. gloves, respirators, etc.).
- *Mercury:*
  - Work control documents will be developed for all activities, including those involving mercury-containing equipment/instrumentation.
  - Sources of mercury are known and will be clearly identified prior to executing decommissioning activities.

- *Hydrogen generation:*
  - Ensuring proper ventilation during grouting.
  - Pouring grout in batches to allow a set up time between pours.

9.8.3.3 Effects After Mitigation

Decommissioning Execution

Site and Local Study Area

Non-radiological

During the Decommissioning Execution phase, the site and local study areas will be occupied primarily by workers. Vehicle and equipment operation and on-site transportation will release NO_x, SO_2, VOCs, TSP, PM_{10}, and $PM_{2.5}$. These activities are discussed in Section 9.2 above. In the DecomSA TSD, it is conservatively assumed that these activities will occur simultaneously (i.e., the maximum potential emissions and releases are considered). Worker exposure to NO_x, SO_2, VOCs, TSP, PM_{10}, and $PM_{2.5}$ for all activities is considered here. The release of these contaminants will be mitigated by standard dust suppression measures listed for the atmospheric environment in Section 9.2.3.2, as well as proper vehicle maintenance to reduce emissions. No adverse health effects to workers are anticipated in the Site and Local Study Areas.

Grouting and removal of the above grade structure will result in the displacement of air from inside the facility, which contains suspended lead and asbestos. This was assessed in Sections 8.5.2 and 8.6.1 of the DecomSA TSD. Exposure to workers will be limited by following the appropriate work control documents described in 9.8.3.2 above. Worker exposures were compared to benchmark values (8-hr limits in this case) to produce (unitless) SI values. An SI of 1 means that the worker exposure is equal to the benchmark value. The maximum SIs for lead and asbestos for near-field workers were 3.88×10^{-5} and 2.14×10^{-8} respectively, indicating that no adverse health effects to workers are expected.

Radiological

Activities that may result in radiation exposure for workers are assessed in the DecomSA TSD. These activities include drilling holes in below grade structures, displacement of air from the facility during grouting and emplacement, and demolition. Radiation protection protocols, work control documents, safeguards and mitigation will reduce the extent of exposure for the workers and are described in Section 9.8.3.2 above.

The maximum total dose rate for workers received during grouting and emplacement was predicted to be 1.35×10^{-5} mSv/y in the DecomSA TSD. The maximum total dose received by a driller while creating slip pipe access was 0.527 mSv. Contaminant release during demolition calculated to result in a maximum total dose of 5.92×10^{-5} mSv. These doses are well below the regulatory limit of 50 mSv/y for NEW (CNSC 2021b); therefore, no adverse health effects to workers are anticipated.

Regional Study Area

Non-Radiological

The DecomSA TSD assesses chemical exposure of members of the public in the Regional Study Area during the Decommissioning Execution phase. During grouting, exposure to lead and asbestos for

members of the public was compared to benchmark values, resulting in maximum SI of 2.09 $x10^{-4}$ and 4.7 $x10^{-7}$ respectively. During demolition, the maximum SI for lead calculated for members of the public was 1.71 $x10^{-1}$. All exposure concentrations are lower than the public benchmark values.

Lastly, the deposition of lead to soil was assessed at receptor locations and compared against the MOE (2011) Table 8 soil criterion for lead of 120 µg/g. The maximum soil concentration calculated from demolition or grouting was four orders of magnitude below this criterion.

Therefore, no adverse health effects are anticipated for the public (e.g., from releases to air or surface water).

Radiological

As determined in the DecomSA, the maximum total dose rate to the public during grouting and emplacement was calculated to be 5.76 $x10^{-6}$ mSv/y. The maximum total dose rate to the public during demolition was calculated to be 8.18 $x10^{-5}$ mSv/y. Both maximum total dose rates are well below the public dose rate limit of 1 mSv/y by 4 orders of magnitude. Thus, no adverse health effects are expected for members of the public in the Regional Study Area.

Institutional Controls and Post-Institutional Controls

Site and Local Study Area

The PostSA TSD examines several potential scenarios for the postclosure period (Institutional Controls and Post-Institutional Controls phases) as a way to capture and quantify uncertainties in the future conditions at the site (for detail on these scenarios, the reader is directed to the PostSA TSD) and assess the potential for radiological and non-radiological contamination to affect human health for these scenarios. The reader is directed to the PostSA TSD, which details the results of the assessment of radiological and non-radiological contamination on human health (among other environmental components) for these scenarios. Human health results are briefly summarized here.

The PostSA TSD considers several potential exposed groups, including:

- Site resident family: A highly conservative group that maximizes potential exposures. This is reflected by a small household (comprising two adults, a child and an infant) residing directly over the disposal facility and pursuing a self-sufficient lifestyle. This includes use of potentially contaminated river water for domestic and agricultural purposes.
- A hunting/recreational group, represented by a small number of adults and children making hunting and/or recreational use of the river and the area surrounding the NPD. Their exposure pathways, including obtaining wild foods, is also representative of the types of habits that might be exhibited by Indigenous Nations, communities and organizations.
- An offsite resident receptor group, represented by two households (adults and children) that reside alongside the Ottawa River at Deep River and Ottawa/Gatineau. These households are assumed to use river water from the Ottawa River for domestic use and as drinking water, and to use the Ottawa River for recreational swimming.

- An Indigenous receptor characterized using information from a dietary study completed by the AOPFN.
- A self-sufficient Indigenous receptor group: represented by adults and children using the area around the NPDDF, including the Ottawa River, for hunting and gathering, following a traditional lifestyle.

The PostSA also considers receptors which are inadvertent intruders to the site. The results of this scenario are presented as part of the site investigation disruptive event scenario below.

Radiological

In the normal evolution scenario, the highest dose rate was received by a Site Resident (0.00008 mSv/y). This is over 1,000 times lower than the dose rate criterion of 0.25 mSv/y.

The peak dose rate to a member of the hunter group is only 0.0000004 mSv/y. These are negligible levels of exposure.

The offsite receptor is also considered, living downstream of the NPDDF and using river water to drink and wash with. Therefore, the only exposure pathways considered are ingestion of the contaminated water, and/or external radiation from the water (e.g., bathing and swimming). As the offsite receptor lives beyond any region that can be subject to institutional control, exposures may occur earlier than 100 years after closure. The results indicate that the peak dose rate is 25 million times lower than the dose rate criterion of 0.25 mSv/y.

The peak dose rate to the indigenous receptor characterized using the AOPFN dietary study is over 10,000 times lower than the dose rate criterion of 0.25 mS/y. These are negligible levels of exposure.

In order to examine the sensitivity of the lifestyle assumptions, and to respond to Indigenous feedback on the project, the PostSA includes a sensitivity case examining a case where an Indigenous person – living what is intended to be representative of a traditional self-sufficient lifestyle – is assumed to live in the vicinity of the NPDDF. This self-sufficient Indigenous group is assumed to ingest a range of wild and naturally-occurring foodstuffs, such as deer, moose, grouse, duck, fish, berries, mushrooms and honey.

Results indicate that the peak dose to adults and children in the self-sufficient Indigenous receptor group is more than 1,000 times lower than the dose rate criterion of 0.25 mSv/y.

The PostSA also assessed several disruptive event scenarios (as described in Section 9.1 above). In all cases the dose results are below the corresponding criterion for disruptive event cases (see the PostSA TSD for further information).

Therefore, all dose rates estimated for the normal evolution and disruptive event scenarios were below the relevant dose rate criteria in the PostSA TSD.

The radiation dose to workers performing duties associated with Institutional Controls, within the Licensed Area, will be negligible based on the anticipated radiological zoning (CNL Radiological Zone 1).

Non-radiological

As discussed in Section 9.5.3.3, the PostSA TSD results show that for Normal Evolution the highest lead concentration in groundwater is 4 x 10^{-7} mg/L. The calculated concentrations of lead in all environmental media are far lower than the relevant MOE generic Site Condition Standards (2011 – Table 6, 7, 8, 9) for groundwater and the Health Canada (2017) drinking water guideline for lead.

The PostSA also assessed two disruptive event scenarios, as described in Section 9.1 above for the same receptors.

- In the site investigation scenario, the peak lead concentrations in all media are the same as for the normal evolution scenario, and well below criteria.
- In the extreme degradation of engineered barrier scenario, the peak lead concentrations in all media are below all applicable guidelines.

Regional Study Area

Since no effects on human health have been identified in the Site and Local Study Areas, no effects are expected in the Regional Study Area for the Post-Institutional Controls phase.

9.8.3.4 Prediction Confidence and Uncertainty

Uncertainty in the DecomSA TSD is addressed through conservative assumptions (i.e., variability in airborne contaminant concentrations in the facility is accounted for by the assumption that concentrations are equal to the most contaminated room for each contaminant).

There is some uncertainty in the characterization of potential effects to Indigenous Nations, communities and organizations, due to lack of site-specific information on diet and lifestyle. However, this has been accounted for by using conservative assumptions. For example, the DRL, which is used in the DecomSA calculations, is scaled to the most conservative receptor (taking into consideration country foods), and the PostSA TSD includes hunter/gatherer and site resident profiles, as well as an Indigenous receptor sensitivity case. Other Indigenous concerns such as effects on land use and socio-economic conditions are assessed separately in subsequent sections of this EIS.

In the PostSA TSD, uncertainties in postclosure conditions and events (e.g. floods, human intrusion) and key parameters (e.g. inventory of contamination) are addressed inherently by assessing several disruptive scenarios. Conservative assumptions are also used to address other uncertainties, such as sediment characteristics.

9.8.3.5 Residual Effects

Table 9.8-3 summarizes the effects assessment above and presents the residual effects that were identified in human health. The residual effects in Table 9.8-3 are grouped by effect rather than by individual interaction as listed in Table 9.8-2.

Table 9.8-3 Summary of Residual Effects in Human Health

Environmental Component	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Decommissioning Execution					
Human Health: Public (non-radiological)	All vehicle and equipment production of NO_x, SO_2, TSP, PM_{10}, and $PM_{2.5}$.	Localized changes in the atmospheric environment may affect nearby residents.	Mitigation measures (e.g. dust suppression, equipment maintenance) for the atmospheric environment are described in Section 9.2.3.2.	For all activities, no measurable changes in air quality are predicted, therefore no effects are expected.	No adverse residual effects.
Human Health: Worker (non-radiological)	All vehicle and equipment production of NO_x, SO_2, TSP, PM_{10}, and $PM_{2.5}$.	Localized effects are expected in the atmospheric environment which may affect workers.	Mitigation measures (e.g. dust suppression, equipment maintenance) for the atmospheric and surface water environments are described in Section 9.2.3.2.	No effects are expected on worker health from changes in air quality.	No adverse residual effects.
Human Health: Worker (radiological)	Establishing footprint.	Workers are expected to be exposed to small amounts of radiation during this activity.	Following work control documents and radiation protection protocol.	All doses are expected to be well below relevant dose criteria.	No adverse residual effects.
Human Health: Public (non-radiological)	Stockpile grout ingredients.	Runoff from stockpiles may affect surface water quality which may affect nearby residents.	Mitigation measures (e.g., runoff diversion, dust suppression) for the surface water environment are described in Section 9.4.3.2.	No measurable changes in water quality in the Ottawa River, therefore no effects to the public are predicted.	No adverse residual effects.

Environmental Component	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Human Health: Worker (non-radiological)	Stockpile grout ingredients.	Runoff from stockpiles may affect surface water quality which may affect workers.	Mitigation measures (e.g., runoff diversion, dust suppression) for the surface water environment are described in Section 9.4.3.2.	No measurable changes in water quality in the Ottawa River, therefore no effects to workers are predicted.	No adverse residual effects.
Human Health: Worker (radiological)	Provide slip pipe access to nuclear area.	Drilling holes for slip pipe access has the potential to increase radiation doses to workers.	Follow work control documents and radiation protection protocol.	All doses are expected to be well below relevant dose criteria.	No adverse residual effects.
Human Health: Public (non-radiological)	Construction and operation of washout pits.	Surface water quality may be affected by washout pit construction and operation which may affect nearby residents.	Mitigation measures (e.g., proper washout pit design and management) for the surface water environment are described in Section 9.4.3.2.	Localized site drainage effects are expected, but will not affect the surface water environment as a whole. No measurable changes on water quality in the Ottawa River, therefore, no effects on the public are predicted.	No adverse residual effects.
Human Health: Worker (non-radiological)	Construction and operation of washout pits.	Surface water quality may be affected by washout pit construction and operation which may affect workers.	Mitigation measures (e.g., proper washout pit design and management) for the surface water environment are described in Section 9.4.3.2.	No measurable changes in water quality in the Ottawa River, therefore no effects to workers are predicted.	No adverse residual effects.
Human Health: Public (radiological and non-radiological)	Grout fill nuclear area.	Displacement of air from the facility containing lead, asbestos and tritium which may affect nearby residents.	No mitigation measures have been identified.	Lead and asbestos are well below benchmark values for nearby residents. Tritium exposure calculations for the public are well below the minimum regulatory requirement.	No adverse residual effects.

Environmental Component	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Human Health: Worker (radiological and non-radiological)	Grout fill nuclear area.	Displacement of air from the facility containing lead, asbestos and tritium which may affect workers.	Follow work control documents and radiation protection protocol. Airborne monitoring for particulates and tritium in air (described in Section 9.8.3.2).	Lead and asbestos are well below benchmark values for workers. Tritium exposure calculations for workers are below worker dose criterion.	No adverse residual effects.
Human Health: Public (radiological)	Demolition of above grade structures.	Surface contamination of the structure may be released into the atmospheric environment which may affect the public.	Mitigation measures (e.g., runoff diversion, dust suppression) for the atmospheric environment are described in Section 9.3.3.2.	All doses are expected to be well below relevant dose criteria.	No adverse residual effects.
Human Health: Worker (radiological)	Demolition of above grade structures.	Surface contamination of the structure may be released into the atmospheric environment which may affect worker health.	Follow work control documents and radiation protection protocol.	All doses are expected to be well below relevant dose criteria.	No adverse residual effects.
Human Health: Public (radiological and non-radiological)	Demolition of above grade structures.	Runoff may affect surface water quality and the public.	Mitigation measures (e.g., runoff diversion, dust suppression) for the surface water environment are described in Section 9.3.3.2.	No measurable changes in water quality in the Ottawa River, therefore no effects to the public are predicted.	No adverse residual effects.
Human Health: Public (radiological and non-radiological)	Sizing of material.	Runoff and release of surface contamination may affect public health.	Relevant mitigation measures (e.g., runoff diversion, dust suppression) for the surface water environment are described in Section 9.4.3.2.	No measurable changes in water quality in the Ottawa River, therefore no effects to the public are predicted.	No adverse residual effects.

Environmental Component	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Human Health: Worker (radiological and non-radiological)	Sizing of material.	Runoff and release of surface contamination may affect worker health.	Relevant mitigation measures (e.g., runoff diversion, dust suppression) for the surface water environment are described in Section 9.4.3.2.	No measurable changes in water quality in the Ottawa River, therefore no effects to workers are predicted.	No adverse residual effects.
Human Health: Worker (radiological)	Clearance surveys on potentially recyclable material.	Conducting clearance surveys has the potential to increase radiation doses to workers.	Following work control documents and radiation protection protocol.	All doses are expected to be well below relevant dose criteria.	No adverse residual effects.
Institutional Controls and Post-Institutional Controls					
Human Health: Public (radiological)	Facility performance during the postclosure period.	Exposure to radionuclides in groundwater, surface water, sediment, food, as well as external radiation could affect human health.	In-design mitigations to isolate and contain the inventory in order to reduce the potential of groundwater contamination and effects on human health.	All doses are expected to be well below relevant dose criteria.	No adverse residual effects.
Human Health: Public Engineering Degradation (non-radiological)	Instantaneous degradation of the concrete and grout, altering the hydraulic properties and decreasing contaminant transport times.	Exposure to lead in groundwater, surface water, sediment, soil and food could affect human health.	In-design mitigations to isolate and contain the inventory in order to reduce the potential of groundwater contamination and effects on human health.	The PostSA TSD determined that there is no likely exposure pathway from groundwater to humans.	No adverse residual effects.

9.8.4 Assessment of Residual Effects

Based on the assessment described above, no adverse residual effects on human health have been predicted.

9.8.5 Monitoring and Follow-up

The VCs for human health are worker and public health. Monitoring and follow-up activities related to human health are discussed below. Further action will be triggered if parameters are above applicable guidelines or other notable changes are observed.

Other more general considerations of the EA Follow-up Program (e.g., sampling and analysis procedures, information management and reporting) are presented in Section 12.

Decommissioning Execution

CNL will continue to conduct radiation dose monitoring and indoor air quality monitoring during the Decommissioning Execution phase to confirm that there are no effects on worker health. This work will be undertaken as part of CNL's *Dosimetry Program*. Worker dose is evaluated as part of CNL's Dosimetry Program and will be evaluated based on action levels for workers in the NPD *Decommissioning Licensing Conditions Handbook* in place at the time, and within the *NSCA* (CNSC 1997).

Monitoring conducted in other environmental components (i.e., atmospheric environment and ambient radioactivity) will also confirm EIS predictions for effects on worker and public health during the Decommissioning Execution phase.

Institutional Controls

CNL will conduct radiation dose monitoring during the Institutional Controls phase to confirm that there are no effects on worker health. This work will be undertaken as part of CNL's *Dosimetry Program*. Worker dose is evaluated as part of CNL's Dosimetry Program and will be evaluated based on action levels for workers in the NPD *Decommissioning Licensing Conditions Handbook* in place at the time, and within the *NSCA* (CNSC 1997).

Monitoring conducted in other environmental components (i.e., atmospheric environment, geological and hydrogeological environment and ambient radioactivity), such as radiation protection surveys and groundwater monitoring, will also confirm EIS predictions for effects on worker and public health during the Institutional Controls phase.

9.8.6 Conclusion

As shown in Table 9.8-3, no adverse residual effects were identified for human health.

Monitoring activities in other environmental components (i.e., atmospheric, surface water, and geological, and hydrogeological environments and ambient radioactivity) will verify the accuracy of the EA predictions

and effectiveness of measures implemented to mitigate potential adverse environmental effects related to human health. If monitoring identifies concerns in the other environmental components, CNL will assess the implications to human health (e.g., using human health risk assessment as required).

9.9 Traditional Land and Resource Use

9.9.1 Selection of VCs

As outlined in Section 5.2.4, VCs for traditional land and resource use were selected based on consideration of a number of factors, including the:

- Knowledge of Indigenous traditional land and resource use practices that interact with the environment;
- Aboriginal and/or treaty rights;
- Engagement (as documented in the IER TSD); and,
- Consideration of other EAs.

The VCs for traditional land and resource use, with rationale for their selection, are listed in Table 9.9-1.

Table 9.9-1 VC Selection for Traditional Land and Resource Use

Environmental Component	VC	Rationale
Traditional Land and Resource Use by Indigenous peoples	Trapping	Trapping of fur bearing animals is a traditional and modern-day land and resource use activity practiced by Indigenous peoples in the Ottawa Valley. Trapping is a licenced activity in Ontario on provincial land although trapping on private land is allowed. Fur bearing animals may include marten, beaver, otter, fox, mink, etc. Trapping is an activity that provides important links to cultural continuity and Indigenous ways of life, including but not limited to clothing, gifts. Trapping was specifically identified as a rights-based activity in REGDOC, 3.2.2 (CNSC 2022).
	Hunting	Hunting is a traditional and modern-day land and resource use activity practiced by Indigenous peoples in the Ottawa Valley. The hunting of large game involves deer, moose and elk but also possibly black bear. Small game includes waterfowl, rabbits, grouse, etc. Hunting is an activity that provides important links to cultural continuity and Indigenous ways of life. Hunting was specifically identified as a rights-based activity in REGDOC, 3.2.2 (CNSC 2022).

Environmental Component	VC	Rationale
Traditional Land and Resource Use by Indigenous peoples	Fishing	Fishing is a traditional and modern-day land and resource activity practiced by Indigenous peoples in the Ottawa Valley. The Kichi-Sìbì (Ottawa River) was and is still used for sport and subsistence fishing. Fish species targeted on the Kichi-Sìbì (Ottawa River) in the present likely include walleye, northern pike and smallmouth bass (AECL 2010). Historically, sturgeon, American eel and possibly suckers would have also been an important part of the catch. Fishing was specifically identified as a rights-based activity in REGDOC, 3.2.2 (CNSC 2022).
	Gathering	Gathering is a traditional and modern-day land and resource use activity practiced by Indigenous peoples in the Ottawa Valley. The gathering of plants, berries, mushrooms, etc. is for subsistence, medicines, crafts and other purposes. Gathering is an activity that provides important links to cultural continuity and Indigenous ways of life. Gathering was specifically identified as a rights-based activity in REGDOC, 3.2.2 (CNSC 2022).
	Cultural Resources & Ceremonies	Indigenous peoples place a high degree of value on specific sites of cultural, historical, archaeological, spiritual, social or ecological significance. These sites may have broader cultural significance related to the practice of formal or informal ceremonies and as places to connect to the lands and waters in a culturally and spiritually important way at or near these sites. The conducting of cultural ceremonies was specifically identified as an activity in REGDOC, 3.2.2 (CNSC 2022). This VC will assess whether any known sites of significance and the associated cultural ceremonies will be affected by the proposed undertaking.

9.9.1.1 Indigenous Engagement Feedback – Key Interests and Concerns related to Traditional Land and Resource Use VCs

This section describes how the input from Indigenous engagement activities influenced the selection of VCs in the traditional land and resource use assessment. Table 9.9-2 summarizes the key interests and concerns raised by Indigenous peoples related to VCs for the evaluation of potential effects to the traditional land and resource use assessment (based on Table 6.3-1 above), and demonstrates how the interest or concern has been addressed in the present assessment.

Table 9.9-2 Summary of Interests and Concerns Raised During Indigenous Engagement Activities that Influenced the Scope of the Traditional Land and Resource Assessment

Interest or Concern	How the Interest Was Included in the Assessment
Loss of connection to and use of lands and water, and perceptions of safety and quality of the experience on the land	The EIS discusses concerns about potential loss of connection to land and water (e.g., feeling of discomfort or concern), and loss of land and water use in Section 9.9.5 of the EIS. Safety of using the land is assessed in the EIS using the Indigenous peoples Health VC (Section 9.10.2). CNL's Public Information Program enhances engagement with Indigenous peoples and is meant to address negative perceptions by providing educational opportunities and sufficient factual information. Changes to land and water use are discussed in the EIS as part of the expected outcomes of renaturalization during and after the Institutional Controls phase (Section 9.9.3).
Presence and preservation of cultural landscapes, sites and resources (e.g., burial sites, historically significant sites, spiritual sites) including the Kichi-Sìbì, and changes, past and present, to accessing these sites.	Impacts and access to cultural sites are discussed in the EIS by considering the presence of these sites on the NPD property (Section 8.9.2), and by assessing the effects of the project on the Cultural Resources and Ceremonies VC under traditional land and resource use (Section 9.9.3). No known cultural features have been identified at the NPD site, but the Kichi-Sìbì (Ottawa River) itself is recognized as an important cultural/heritage value for multiple reasons (Section 8.9.2). The EIS assesses potential effects of the project on nearby traditional land use activities (Section 9.9.3). CNL has developed mitigation measures to minimize potential nuisance effects on nearby traditional land uses (Section 9.9.3.3).
Commercial Trapping Wildlife and harvesting and fishing areas Plant and natural materials gathering areas	Potential effects on trapping (traditional and commercial), harvesting, gathering and trapping areas are assessed using the Trapping, Hunting, Fishing and Gathering VCs under the environmental component of traditional land and resource use (Section 9.9.3). CNL acknowledges that fishing, harvesting, traditional and commercial trapping, and gathering of plants and natural materials are valued traditional and modern-day land use activities (Section 8.9.2). It is noted that these activities do not currently occur on the NPD site, and particularly not in the Site Study Area, where proposed project activities will be conducted. CNL has developed mitigation measures to minimize potential nuisance effects on traditional land uses occurring nearby (Section 9.9.3.2).
Indigenous rights	CNL has not conducted an assessment of impacts on rights but has provided evidence in the EIS to support the conduct of a rights impact assessment by the CNSC.

Notes:

The table above provides a summary of the concerns expressed by multiple Indigenous Nations, communities and organizations. See Table 6.3-1 for a more detailed listing of key interests and concerns from each Indigenous Nation, community and organization.

9.9.2 Assessment Boundaries

Indigenous traditional knowledge was considered in the development of the assessment boundaries. CNL drew the assessment boundaries beyond the NPD property boundaries in order to include Crown land in Ontario and Quebec and also to include the Kichi-Sìbì (Ottawa River). As traditional activities most commonly occur on Crown lands and waters (as opposed to private lands), the inclusion of Crown lands beyond the NPD property allows for identification of potential traditional activities near the NPD site.

9.9.2.1 Spatial Boundaries

Similar to the traditional land and resource use baseline characterization in Section 8.9 above, the Site Study Area for this assessment is consistent with the general Site Study Area defined in Figure 5.2-1 above.

The Local Study Area has been defined as the Site Study Area plus an area with a 1-km radius beyond the Site Study Area (Figure 8.9-1).

The Regional Study Area has been defined as the Site Study Area plus an area with a 5-km radius beyond the Site Study Area (Figure 8.9-2).

9.9.2.2 Temporal Boundaries

The temporal boundaries are the same as the standard temporal boundaries outlined in Section 5.2.1.2 of this EIS. The temporal boundaries for the EA establish the timeframes for which the direct, indirect and cumulative effects are assessed. The following three phases were identified for the NPD Closure Project:

- Decommissioning Execution, which includes all activities associated with decommissioning including setup and operation of the grout batch mixing plant, grouting and demolition activities, installation of the concrete cap and engineered cover, as well as site restoration and demobilization;

- Institutional Controls, or a period of at least 100 years, but lasting as long as necessary (as determined by regulatory agencies), that follows the Decommissioning Execution phase. During this phase, long-term care and maintenance, oversight, and environmental monitoring would be performed by CNL in order to ensure that the disposal system performs as expected, that human safety is ensured until the short lived nuclear wastes decay to below the acceptance criteria and that problems that may impact the long-term stability of the facility can be rectified; and

- Post-Institutional Controls, is the period of time following the Institutional Control period, occurring after ~year 2128 and continuing indefinitely.

9.9.3 Identification of Residual Effects

9.9.3.1 Project-Environment Interactions

As shown in Table 5.2-1, potential effects to traditional Land and Resource Use may occur as a result of operations and activities in the Decommissioning Execution, Institutional Controls and Post-Institutional Controls phases, in particular:

- Installation and operation of the grout batch mixing plant;
- Grouting of below grade structures;
- Removal of above grade structures;
- Install concrete cap and engineered cover;
- Final site restoration;
- Renaturalization;
- Facility performance during the Institutional Controls phase; and
- Facility performance during the Post-Institutional Controls phase.

The rationale for these interactions is included in Table 9.9-3 below.

Table 9.9-3 Project-Environment Interactions with Traditional Land and Resource Use

		Project Works and Activities	Potential Interaction
Decommissioning Execution	**1**	**Grout Batch Mixing Plant**	
	1.1	Designate footprint, create access, temporary fencing (east side of main building).	On-site activities may produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	1.2	Assign storage area for raw materials, ship in sand. Likely east side of licensed area.	Raw material transport may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	1.4	Truck in necessary water supply or source water directly from river.	Trucking may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	1.5	Provide slip pipe access to reactor side.	On-site activities may produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	1.6	Construct washout pit. Lined excavation with water transfer. Likely near grout batch mixing station.	Earth-moving may produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	1.7	Level area for pumper.	Earth-moving may produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	1.8	Mix grout to required formula.	On-site activities may produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	1.9a	Truck grout to pumping station (20 trips per day).	Trucking may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	1.11	Sample and dewater the cleaning pit. Emplace sediments into voids in condenser room.	On-site activities may produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	1.12	Demobilize grout batch mixing plant after cap installation.	Demobilization activities may produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	2	**Grouting of Below Grade Structure**	
	2.1	Room preparation (e.g., sealing of pipes).	Equipment and material transportation may produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	2.3	Grout Fill Nuclear Area.	On-site activities may release air containing tritium, lead and asbestos, and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).

		Project Works and Activities	Potential Interaction
Decommissioning Execution	**3**	**Removal of Above Grade Structure**	
	3.1	Conventional heavy equipment knockdown of reactor hall.	Demolition may release surface contamination and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	3.2	Sizing of material such as cutting steel beams or crushing masonry for fitting into void areas.	Material sizing may release surface contamination and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	3.3	Set up laydown area and perform clearance surveys on materials for possible recycle.	On-site material transportation may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	3.4	Steel and rubble emplaced in condenser pit.	On-site material transportation may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	3.5	Grout first level of demolition material in condenser room.	On-site material transportation may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	3.6	Steel and rubble emplaced in condenser room.	On-site material transportation may result in roadkill and may produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	3.7	Grout second level of demolition material in condenser room.	On-site material transportation may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	3.8	Steel and rubble in condenser room.	On-site material transportation may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	3.9	Grout third level of demolition material in condenser room.	On-site material transportation may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	3.10	Demolish block walls and inside walls around control room and change rooms.	Demolition may release surface contamination and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).

		Project Works and Activities	Potential Interaction
Decommissioning Execution	3.11	Collapse ceilings of furnace room and adjacent rooms.	Demolition may release surface contamination and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	3.12	Emplace block wall rubble in furnace room or condenser room.	On-site material transportation may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	3.13	Remove recyclables from guard house.	On-site material transportation may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	3.14	Demolish guard house and emplace in furnace room and adjacent rooms.	Demolition may release surface contamination and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	3.15	Grout furnace room and adjacent areas to ground level.	On-site material transportation may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	3.16	Demolish above grade portion of pressure relief pit. Fill with grout.	Demolition may release surface contamination and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	4	**Install Concrete Cap and Engineered Cover**	
	4.1	Concrete Cap (construct forms, install rebar, and pour, level and slope concrete).	On-site material transportation may result in roadkill and produce nuisance effects for trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	4.2	Engineered Cover (ship in materials, layer and shape mound, install geotextile layer, grade property, install remaining earth layers and seed).	On-site material transportation may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	5	**Final Site Restoration**	
	5.1	Site Restoration (install fencing, install monitoring wells if required, remediate areas affected by previous operations or decommissioning activities, washout pit, complete closure surveys, etc.).	On-site material transportation may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).
	5.2	Demobilize Site (Remove temporary facilities, decontaminate equipment, remove power upgrades, poles and lines, return transformers).	On-site material transportation may result in roadkill and produce nuisance effects for nearby trapping, hunting, fishing, gathering, and cultural activities/ceremonies (noise and dust).

		Project Works and Activities	Potential Interaction
IC*	**6**	**Long-Term Care and Maintenance**	
	6.6	Renaturalization.	Land Use may change during and/or after the Institutional Controls phase. Renaturalization of site may lead to an increase of wildlife and may benefit trapping, hunting, and gathering activities.
	6.7	Facility performance during the Institutional Controls phase	Groundwater will start to enter and eventually resaturate the grouted structure. Contaminant release from the grouted structure may affect non-human biota (e.g., game and fish species) health and/or populations.
PIC**	**7**	**Post-Institutional Controls**	
	7.1	Facility performance during the Post-Institutional Controls phase.	Groundwater in the resaturated and eventually degraded grouted structure will become contaminated. Contaminant release from the grouted structure may affect non-human biota (e.g., game and fish species) health and/or populations.
		Renaturalization	Land Use may change during and/or after the Institutional Controls phase. Renaturalization of site may lead to an increase of wildlife and may benefit trapping, hunting, and gathering activities.

Notes:

* - IC: Institutional Controls phase
** - PIC: Post-Institutional Controls phase.

9.9.3.2 Proposed Mitigation Measures

The mitigation measures presented below are preliminary and have been developed based on the current understanding of the project. As the project approaches detailed work planning, details will be refined, and additional mitigation measures may be developed as required; including mitigations developed collaboratively with Indigenous peoples that encompass Indigenous Knowledge. CNL has initiated discussions with Indigenous Nations, communities and organizations on project commitments that will help address concerns such as those related to traditional land and resource use VCs (these commitments are identified in the 'Next Steps' column of the *Tables of Interests and Concerns* - Appendix C). CNL looks forward to discussing additional mitigation of effects with Indigenous peoples.

In addition to the in-design mitigation measures identified in Section 4.1, the following mitigation measures have been identified to ensure the protection of the traditional land and resource use environment:

- dust suppression measures as described in Section 9.2.3.2;
- If previously undocumented archaeological resources are discovered, then CNL will suspend decommissioning activities immediately and will engage a licensed consultant to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act,* and outlined

in CNL's procedure Management of Cultural Resources (CNL 2022a). CNL remains open to engagement with Indigenous Nations, communities and organizations in the event of a discovery of an archaeological resource. If any human remains are identified during construction, CNL will immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Public and Business Service Delivery, and Indigenous Nations, communities and organizations;

- construction activities will generally occur between 7 am and 7 pm with the overall objective of minimizing nuisance effects (i.e. noise and traffic) on traditional resource users in the Local and Regional Study Areas. It is noted that special or emergency circumstances may require deviation from this restriction; and,
- periodic communication updates on project construction activities to Indigenous Nations, communities and organizations are required, including construction schedule, activities, dedicated contact person for inquiries and emergencies, etc.

9.9.3.3 Effects After Mitigation

In this section, indirect effects to traditional land and resource use are discussed for each phase of the project.

Decommissioning Execution Phase

Site/Local Study Area

As discussed above in Section 9.9.4.2, CNL will minimize potential nuisance effects (i.e., noise) on nearby traditional land uses (e.g., hunting, trapping, fishing, gathering, ceremonies) by instituting restrictions on construction hours and days of the week. Other nuisance-related mitigation measures (e.g., dust suppression) are discussed in Section 9.2.3.2.

Construction activities will not impede traditional resource harvesting activities on adjacent provincial and private lands. Construction activities at the NPD site will be very localized, controlled and temporary in duration. Therefore, any disturbance effects will be minor, localized and temporary in duration.

Any effects on the terrestrial and aquatic environments (i.e., fish and wildlife displacement, contamination) would also affect the ability to hunt and fish in the Local Study Area.

Regional Study Area

As noted in the Socio-economic TSD, the traffic and transportation effects associated with the project are expected to be greatest by far during the Decommissioning Execution phase. Within the Regional Study Area, the transportation/haul route will be limited to Highway 17 and the NPD site access road from the highway. As discussed below in Section 9.11.3.2, CNL will minimize traffic nuisance effects on nearby traditional land users in the Regional Study Area by instituting restrictions on construction hours and days of the week.

There will be nuisance effects (noise and dust) in the Regional Study Area for nearby traditional land uses (e.g., hunting, trapping, fishing, gathering, ceremonies) that should largely be mitigated by a variety of general and specific construction mitigation measures identified in Section 9.9.3.2.

Institutional Controls and Post-Institutional Controls

Site/Local Study Area

As determined in the EcoRA TSD, no adverse residual effects have been predicted for terrestrial or aquatic biota. As the exposure assessment undertaken in the EcoRA TSD demonstrates that the proposed project has no adverse effect on game or sportfish species, the project is not expected to have any adverse effects to Indigenous peoples traditional harvesting that could potentially occur during the Institutional Controls and Post-Institutional Controls phases. Therefore, no potential effects are expected on traditional land and resource use in the Site and Local Study Areas in the postclosure period (Institutional Controls and Post-Institutional Controls phases).

Renaturalization may increase vegetation and habitat for wildlife, providing a potential benefit to traditional hunters, trappers and gatherers in the NPD site and Local Study Areas in the postclosure period.

During the Institutional Controls phase, land in the Local Study Area surrounding the licensed area may be released for other uses by AECL. As lands will only be released as applicable under the soil and groundwater quality guidelines, no residual effects are expected.

Regional Study Area

Since there are no effects expected in the Site and Local Study Areas, no effects to traditional land and resource use are expected in the Regional Study Area for the postclosure period (Institutional Controls and Post-Institutional Controls phases).

9.9.3.4 Prediction Confidence and Uncertainty

There are private lands immediately adjacent to the NPD site and Federal lands, and it is possible but unknown whether traditional land uses occur on these lands. It is conservatively assumed that adjacent lands and waters will be used by hunters, trappers, anglers and gatherers.

REGDOC-2.9.1 on *Environmental Principles, Assessments and Protection Measures* (CNSC 2020a, Appendix C.8) requires identification of any concerns raised by Indigenous peoples about the facility or activity in relation to any Indigenous or treaty rights. This information is provided in the IER TSD.

9.9.3.5 Residual Effects

Table 9.9-4 summarizes the effects assessment above and presents the residual effects that were identified on traditional land and resource use. The residual effects in Table 9.9-4 are grouped by effect rather than by individual interaction as listed in Table 9.9-3.

Table 9.9-4 Summary of Residual Effects on Traditional Land and Resource Use

Environmental Component	Source of Effect	Potentially Affected VCs	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Decommissioning Execution						
Traditional Land and Resource Use	On-site transportation, demolition, material sizing.	Trapping Hunting Fishing Gathering	Nuisance effects (dust, and noise).	Dust suppression, restricting hours of activity, communication with Indigenous Nations, communities and organizations.	Minor, temporary and localized nuisance effect on nearby Indigenous land users.	No adverse residual effects.
Traditional Land and Resource Use	All interactions with the terrestrial environment (see Section 9.6.3.1.	Trapping Hunting	Wildlife displacement, contamination, or mortality affecting hunting activities.	See mitigation measures identified for the terrestrial environment in Section 9.6.3.2.	No measurable habitat or exposure effects, and therefore no effects on hunting or trapping, are expected.	No adverse residual effects.
Traditional Land and Resource Use	All interactions with the aquatic environment (see Section 9.3.3.1.	Fishing	Fish displacement, contamination, or mortality affecting traditional angling activities.	See mitigation measures identified for the aquatic environment in Section 9.4.3.2.	No measurable habitat or exposure effects, and therefore no effects on fishing, are expected.	No adverse residual effect.
Institutional Controls and Post-Institutional Controls phase						
Traditional Land and Resource Use	Renaturalization	Trapping Hunting Gathering	During the Institutional Controls and Post-Institutional Controls phases, renaturalization of site may lead to an increase of wildlife and may benefit trapping, hunting, and gathering activities.	No proposed mitigation.	Potential benefit for traditional hunting, trapping and gathering activities. Access to the licensed area will be restricted, which will limit the total additional area of use, thus no measurable effects are expected.	No adverse residual effects.

9.9.4 Assessment of Residual Effects

Based on the assessment described above, no adverse residual effects on traditional land and resource use have been predicted.

9.9.5 Monitoring and Follow-up

Monitoring and follow up programs are not specifically identified for traditional land and resource use; rather, monitoring for environmental media (e.g., for air quality, surface water quality , groundwater quality) will be implemented to verify the environmental effect predictions made by the EIS for land and resource use, and to promote land user comfort around the safety of the Local Study Area, Regional Study Area and surrounding areas for traditional land and resource use (i.e., to reduce perceptions of adverse NPD Closure Project effects on traditional land and resource use that are not anticipated to occur).

CNL has been carrying out discussions with some Indigenous Nations, communities and organizations (AOO, AOPFN and MNO) on greater involvement by them in the environmental follow up monitoring both in the development and implementation of the programs. CNL also recognizes that Indigenous Knowledge is an important aspect to be incorporated into its existing proposed follow-up monitoring program. To date, no specific environmental monitoring has been identified for traditional land and resource use, although preliminary discussions have occurred. Monitoring in other environmental components will confirm the EIS predictions (i.e., that no effects are expected on traditional land and resource use). CNL has workshops planned to gather feedback on its proposed follow-up monitoring program, which will not be finalized until an Environmental Assessment decision is made for this project. CNL looks forward to working together with Indigenous Nations, communities and organizations to integrate an Indigenous Knowledge component into the follow-up monitoring at NPD.

The evidence in the AKLUS indicates, and AOPFN and MNO have explicitly stated, that their citizens have negative perceptions associated with performing traditional activities (such as harvesting) near the NPD site. Some participants in the AOO and AOPFN AKLUS indicated concerns about contamination and the risk associated with harvesting and consuming foods from the area. For the different Indigenous Nations, communities and organizations, this may result in individuals not using an area such as suggested in the MNO study (KnowHistory 2019), or Indigenous peoples harvesting less food in the area, or just promote a feeling of discomfort or concern associated with contamination and risk (SVS, AOO, 2020; SVS, AOPFN, 2020). The perceptions and willingness to consume traditional foods can partially be addressed by an Indigenous-driven risk-informed communication program for the NPD Closure Project which CNL agrees is an important activity to pursue. CNL acknowledges that the AOPFN have identified the key role of the country foods monitoring program in mitigating the concerns of the AOPFN. CNL will continue discussions on the implementation of a Guardian program at the NPD site and more broadly on all CNL sites located in Algonquin traditional territory. An Indigenous driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near the AECL properties and build confidence that the decommissioning strategy and mitigation measures are effective.

Monitoring to verify effects predictions will be on-going during the decommissioning and institutional control phases, and the need for and duration of monitoring will be reviewed based on an annual review of monitoring data. This monitoring will be integrated into the CNL Environmental Monitoring Program.

9.9.6 AOPFN Perspective on Effects to Traditional Land and Resource Use

The following subsections (9.9.6.1, 9.9.6.2, and 9.9.6.3) present the AOPFN's view in their own words. The AOPFN has completed three studies (Algonquin Knowledge and Land Use (SVS AOPFN 2020), Diet and Harvest (Fediuk *et al*., 2021) and Culture and Rights (Malone *et al*., 2021) that draw on AOPFN Algonquin Knowledge to expand the understanding of Traditional Land and Resource Use in the NPD Closure Project Study Area. These sections summarize key findings of the studies and differences in the perspective and approach used by the AOPFN to assess potential effects on Traditional Land and Resource Use. These are initial comments only; a more formal AOPFN-relevant effects characterization process for Traditional Land and Resource Use will be provided in the final EIS (if CNL engages with AOPFN in this process) or in an AOPFN submission to the Commission.

9.9.6.1 AOPFN Concerns with CNL's Assessment Approach

It is AOPFN's position that the original Draft EIS for the NPD Closure Project and recent revisions to Sections 8.9 and 9.9 do not yet adequately interpret or consider AOPFN Algonquin Knowledge as reflected in the AOPFN AKLUS Report, the Culture and Rights Study, or the Diet and Harvest Study. While there is reference to each of the three AOPFN studies in the revised Sections 8.9 and 9.9, there are gaps and errors that suggest a more detailed analysis is required. Such analysis would properly integrate the studies' findings into the EIS as they relate to consideration of impacts on traditional land and resource use.

AOPFN has raised these concerns directly with CNL. In summary (and in no particular order) they include the following:

- Specific VCs (listed below) identified by AOPFN Knowledge holders in the three AOPFN studies were not covered in the Draft EIS in a meaningful way, and not adequately considered in the effects assessment on TLRU:
    - Fish spawning areas and fish habitat of importance to AOPFN;
    - Fish Species of Cultural Importance (Including Ashigan (Bass), Lake Trout, and Speckled Trout);
    - Culturally Important Plants (including Cattails and Muskrat root/Sweet flag);
    - Furbearers of Cultural Importance (including Amik (Beaver), Pashkwajàsh (Coyote), Odjìg (Fisher), Wàbisheshi (Marten), Nigig (Otter), Wàbòz (Rabbit), Esiban (Racoon), Wàgosh (Fox), Adjidimò (Squirrel),and Shingosi (Weasel);
    - Mónz and Mónz Habitat;
    - Wawáshkeshi Habitat;
    - Partridge;
    - AOPFN preferred harvesting sites;
    - AOPFN preferred fishing sites;
    - Kichi-Sìbì as a cultural landscape; and
    - AOPFN member cultural continuity and way of life.
- CNL does not identify any valid primary or secondary impact pathways on traditional land and resource use from the proposed project. In contrast, as discussed further in Section 9.9.6.2 below, AOPFN sees obvious primary and secondary pathways for reduced long-term ability and

willingness to conduct Traditional Land and Resource Use practices at and around the NPD site. This is based on AOPFN's understanding that the project will continue in perpetuity to see the location fenced off and in an unnatural condition, and that in-situ disposal will physically turn the site from a temporary radioactive waste storage site to a permanent radioactive waste disposal facility.

- CNL uses the term "renaturalization" to refer to what will occur at the NPD site with in-situ disposal. This is neither defined nor contextualized, and the concept seems to differ from AOPFN's understanding of what is "natural". From AOPFN's perspective, in a future with in-situ disposal, the underground conditions will be unnatural, and on the surface, portions of the site will be unnaturally fenced off, covered with a concrete cap and unable to return to a forested condition. These are unnatural conditions that will lead to longer-term/permanent access restrictions and visible impediments to use and occupancy for AOPFN members.
- CNL suggests that its identified lack of scientifically measurable impact pathways on biophysical VCs can be used as a proxy for impacts on Traditional Land and Resource Use. From AOPFN's perspective, no assessment of Traditional Land and Resource Use can be accurately completed without considering additional factors such as faith in country foods, visible condition of an area, and sense of safety and security on the land. AOPFN has continually advised CNL that using a biophysical proxy for the human endeavour of traditional land and resource use is not a defensible approach to this type of impact assessment. In the NPD Culture and Rights Study, AOPFN identified 17 distinct "Sufficiency Resources" considered by AOPFN members when deciding whether, when and where to harvest, with the intention that impact assessors also consider these when looking at impacts on Traditional Land and Resource Use (Malone *et al.*, 2021). Many of these sufficiency resources go far "beyond the biophysical", but CNL's assessment approach still does not.
- CNL claims that "Indigenous knowledge was considered in the development of the assessment boundaries". This is not an accurate statement. CNL has chosen to ignore the larger Local Study Area and Regional Study Area used by AOPFN peoples in three studies, thus rejecting AOPFN Algonquin Knowledge. The result is Local Study Areas and Regional Study Areas that are 25 times smaller than those chosen by the AOPFN Algonquin knowledge holders themselves. This contributes to the continued lack of understanding of just how large the impact zone on Traditional Land and Resource Use is around the NPD site, which remains an open question in this EA.
- CNL does not integrate into its effects characterization any of the impact pathways identified by AOPFN in the three AOPFN studies, nor is there evidence overall that CNL considered the three AOPFN studies in any meaningful way in Section 9.9.
- CNL suggests that because the site is already off limits to AOPFN members, additional adverse effects on Traditional Land and Resource Use cannot occur in a future with in-situ disposal essentially by definition. The reality is that in the Institutional Control Period, and potentially in the Post-Institutional Control Period, in-situ disposal represents a continuation of several existing barriers to AOPFN Traditional Land and Resource Use, depriving AOPFN of the ability to meaningfully reconnect to an area from which they have been alienated by Canada's actions since the 1960s. This temporal extension of an existing adverse effect is entirely material to this impact assessment and cannot be magically explained away as "no impact" simply because AOPFN members cannot currently access the site for traditional purposes. To suggest that this is the case

is a highly cynical and disrespectful approach to impact assessment that is not reconcilable to the findings of AOPFN's three studies.

- CNL does not identify any concrete new mitigation or monitoring measures over and above what it already has in place. Given that the current version does not include any Indigenous-led monitoring or communication mechanisms to reduce or better monitor impacts on Traditional Land and Resource Use, this mitigation and monitoring must be held in low confidence. For example, CNL's suggestion that its Public Information Program is an effective mitigative measure to reduce fear and stigma associated with NPD is not supported by any evidence, and is contrasted by findings of geographically focused use, occupancy and harvesting avoidance centred around the NPD location (see Fediuk *et al*., 2021 and Malone *et al*., 2021).
- In the end, the only effect identified by CNL on Traditional Land and Resource Use is a beneficial one through eventual "renaturalization", and from AOPFN's perspective this is indicative of the wrong-headedness of CNL's approach to this assessment. In reality, during Institutional Control and possibly permanently, existing adverse effects on access and willingness to harvest from the project area are extremely likely to continue due to a variety of observable and perceptual factors. Such factors are well known to impact on Indigenous use and occupancy, and CNL's inability to recognize or characterize this as an adverse effect is indicative of an assessment approach that is fundamentally flawed. It does not help, nor is it acceptable to AOPFN, that CNL did not engage the traditional land and resource users themselves in developing the methods or conducting the assessment.

Due to the concerns outlined above, substantial gaps thus remain in the Proponent's approach to the assessment on Traditional Land and Resource Use in the current iteration of the EIS. Revised EIS sections continue to place a strong focus on biophysical factors and physical access, ignoring other factors that may diminish or impede AOPFN traditional use such as sensory experience (changes in noise, smell, visual appearance of the landscape) and AOPFN members' sense of safety on the land (fears of contamination real or "perceived"). As has been expressed by members of the AAC directly to CNL (in a meeting on July 22, 2021), impacts from the development of a permanent radioactive waste disposal facility are not just about risk perception; they are about changes to the environment that contradict AOPFN Algonquin values and understandings of how things should be. The three AOPFN studies capture many of AOPFN's concerns about how the project will affect the quality and accessibility of the land, and these concerns should have been incorporated in the effects assessment section of the EIS. Best practice dictates that all potential impact pathways should be considered, and that for impacts on the human environment, these pathways should be considered by the people who would be impacted themselves, not solely by outsiders with no traditional knowledge of how local Indigenous peoples use and value the location and its surroundings.

AOPFN asserts that past and current uses of the NPD area do not define AOPFN's future use or limit the future exercise of Traditional Land and Resource Use practices in the area. AOPFN has a reasonable expectation of resuming the exercise of these Traditional Land and Resource Use practices in the future, as was the case in the past. AOPFN can see from the evidence that portions of the land covered by and impacted on by the project will not be re-naturalized over time or returned to near-natural conditions that allow AOPFN members to reconnect with – or be willing to reconnect with – this site.

9.9.6.2 AOPFN Findings in Relation to Traditional Land and Resource Use

The findings of the three AOPFN studies demonstrates that there is significant AOPFN Algonquin knowledge, land use and occupancy within the NPD Study Area. The site is important to the health, wellbeing, way of life and AOPFN Algonquin rights for AOPFN members. The data provided in the three AOPFN studies also demonstrates that there is a deep cultural connection to the area. According to AOPFN Algonquin knowledge holders, the relationships that participants have with the land extend beyond the simple harvesting of resources. In many instances, these harvesting activities foster relationships with the land in ways that non-Algonquin people do not immediately understand or recognize.

The Culture and Rights Study and Diet and Harvest Study both identified extensive alienation from and loss of use of the area at and around the NPD site, as reported by AOPFN members. For example, the Diet and Harvest Study involved a survey of 250 AOPFN families, the results of which show (among other findings) that the area around the NPD site is one of two areas (the other being the vicinity of Chalk River Laboratories) where AOPFN members have the highest levels of concern about contamination (real or perceived) of country food resources. Perceived risk of contamination plays a critical role in identifying impact pathways. It makes people change their practices and influences the acceptability of the project, and these effects cannot be discounted from their impact on food security, health, and transmission of skills and knowledge to future generations.

Because of the risk of contamination (real or perceived), the NPD site has had a contributory role in the historical reduction of AOPFN members' ability to practice AOPFN rights, both at the site itself and in a yet-to-be-determined zone of influence around the site. Further research to establish the geographic boundaries of this zone of influence and to characterize these historic harms is essential. Such research would require assessing not only the extent of loss of use and alienation from the NPD site and its surroundings over time, but also the factors influencing this loss of use and alienation (such as psychosocial impacts caused by the fear and stigma associated with the NPD site). This would result in a better characterization of the factors that have led to this alienation and loss of use, and better understanding of the implications of psychosocial impacts on AOPFN socio-cultural health and well-being, thus informing the recognition and reconciliation framework.

The Culture and Rights Study (Malone *et al*., 2021) identified the following existing impact pathways related to Traditional Land and Resource Use in the Study Area:

- Lack of access to the NPD site since 1962;
- Diminished quality and quantity of game species in preferred hunting areas;
- Lack of confidence in the health of animals, fish, medicines, and waters, and in their safety for human consumption;
- Diminished access to preferred hunting and fishing areas in the broader Study Area, due to provincial boundaries, land privatization, industrial activity, and increased traffic.

With these existing impact pathways in mind, AOPFN members considered a future with in-situ disposal and identified additional effects of alienation due to contamination (real or perceived) for a number of values (e.g., cultural continuity, fishing, hunting etc.). According to AOPFN members, NPD Closure Project

interactions could impact AOPFN harvesting and traditional use rights in the Study Area by exacerbating concerns about contamination of water, fish, wildlife, and medicines in proximity to the project. Given that oral and experiential transmission of knowledge between generations of Algonquins is the primary source of learning about how and where to use the land and water, these concerns about perceived contamination would also almost certainly carry forward and impact future generations' ability to harvest in the area. These concerns can be further described as follows:

- AOPFN members are concerned about their continued ability to harvest and consume wildlife and natural materials from the area, given the location of the project the unceded Algonquin traditional territory where AOPFN members harvest food, medicines, and other natural materials. Specifically,
    - Some AOPFN members hunt in the vicinity of the project as a source of sustenance. Environmental impacts related to the NPD Closure Project have the potential to impact members' food security;
    - Some AOPFN members harvest plant medicines in the vicinity of the project, and are concerned about the safety and effectiveness of medicines growing close to a nuclear in-situ disposal site;
    - Some AOPFN members are already opting to release their fish catches from this area instead of consuming due to contamination concerns. Such concerns related to bioaccumulation in fish normally harvested from the Kichi-Sìbì could limit both intake and what species are fished, thereby affecting diet and food security;
- Harvesting sites could become compromised in the future, leading to concerns over safety that would impact members' abilities to pass on AOPFN knowledge on harvesting to children. This would in turn affect the ability of future generations to use the area; and
- Project-related activities would exacerbate the issue of alienation and further limit members' access to the area, and perpetuate the difficulty of exercising their Aboriginal rights.

In summary, for AOPFN members, NPD Closure Project impacts related to Traditional Land and Resource Use are likely to include:

- Continuing negative impacts on AOPFN nutrition and food security, harvesting and traditional use due to long-term physical alienation from the land, and uncertainty about contamination of water, land, plants, and wildlife in proximity to the project, including an extension of the period of time the area is both physically and psycho-socially "off limits" to AOPFN members for the practice of harvesting rights; and
- Ongoing impacts on AOPFN cultural continuity at the NPD site due to continued alienation and impacts to the health of the land, water, and resources, thus impacting future generations' ability to learn and practice their culture or harvest resources at and near the NPD sites. The storage of radioactive wastes permanently at the site may extend the number of members who deem it unacceptable to harvest in the vicinity of the NPD site.

9.9.6.3 AOPFN Summary and Recommended Next Steps

As demonstrated in the preceding Sections 9.9.6.1-9.9.6.2, the three AOPFN study findings support the concerns AOPFN has raised over the CNL's underestimation of the project's impacts on traditional land and resource use, as well as on culture and heritage resources. The AOPFN studies confirm the following:

- Not all AOPFN VCs were captured in the EIS;
- Highly valued key cultural areas exist in close proximity to the project;
- AOPFN concerns, including contamination (real and perceived) and stigma associated with permanent radioactive waste disposal at this location, have not been adequately addressed in the EIS; and
- AOPFN members are highly concerned with cumulative effects from the NPD, and existing alienation and loss of use (and related impacts) have not been properly characterized in the draft EIS as an important cumulative effects contextual factor.

The AOPFN studies indicate that there will be both direct and indirect effects on Traditional Land and Resource Use from the proposed decommissioning plan, given that the temporal continuation of existing adverse effects (which, from AOPFN's perspective, can and should be removed through decommissioning) will be maintained into the long-term, effectively permanent future, through: a. fencing in of portions of the site; and b. physically turning the facility into a permanent radioactive waste disposal facility. These will likely have direct effects on the following attributes of Traditional Land and Resource Use:

1) Permanent continuation of lack of physical access to a portion of the NPD site;
2) Permanent continuation of unwillingness of AOPFN members to harvest from around the area covered by a permanent radioactive waste disposal facility and its surroundings (to an areal extent that has yet to be established or even contemplated by CNL);
3) Long-term continuation of in reduced faith in country foods harvesting at and around the NPD site (to an areal extent that has yet to be established or even contemplated by CNL); and
4) The above effects will have associated likely impacts such as increased reliance on store-bought foods, lack of cultural connection to an important part of the AOPFN cultural landscape, inability to pass on Algonquin knowledge about the site, and fear, stigma and alienation effects on individual and community health, among other spin off effects.

AOPFN finds that perception of risk and observation of the nature of the facility by its members are real phenomena. As Algonquin people, AOPFN members are naturally risk-averse when it comes to alterations of the land from natural conditions because:

a. They are highly attuned to what is natural and normal due to their long-term use and occupancy of – and strong cultural connection to – their lands and waters; and
b. They have been subject to many micro- and macro- harms caused by settlers, industries, and governments in the past, that make them both wary of and highly concerned about risk of any future changes.

Add to this the primary impact pathways from the NPD Closure Project – specifically the long-term continuation of an avoidable location-specific effect in the form of fencing off and not allowing the NPD site to return to a natural condition, and the permanent cementing in place of radioactive materials very close to the Kichi-Sìbì, converting the site from a temporary radioactive waste storage facility to a permanent radioactive waste disposal site – and there are legitimate reasons for AOPFN members to have concerns about a future with the project.

AOPFN remains open to working with CNL so that CNL can better understand and integrate the findings of the three AOPFN studies, and the understandings of AOPFN Algonquin knowledge holders (e.g., the people who actually practice Traditional Land and Resource Use in the project area), into a revised approach to assessing impacts on Traditional Land and Resource Use in the EIS. If CNL engages us on this, we expect that this section of the draft EIS will be updated in the final EIS. If it is not, AOPFN will engage the Commission on this in a direct fashion.

AOPFN will also continue to engage with CNL to improve the mitigation and monitoring measures that AOPFN feels need to be in place to improve conditions for – and understanding of – Traditional Land and Resource Use practices by our members in the future, no matter what decommissioning strategy is eventually adopted at the NPD site.

9.9.7 Conclusion

As shown in Table 9.9-4, no adverse residual effects were identified for traditional land and resource use.

CNL's assessment of potential effects to traditional land and resource use (Section 9.9.3.5) evaluated how project activities may affect traditional land and resource use VCs and adheres to the requirements of *CEAA,* 2012. CNL supported several Indigenous Nations, communities, and organizations (AOO, AOPFN and MNO) to complete traditional knowledge and land use studies that include unique community perspectives, incorporating their observations and beliefs, into an assessment of effects to traditional land and resource use. Indigenous Nations, communities and organizations often prefer a different approach, consider different factors and evaluate against a different baseline than CNL and subsequently the findings of the communities and CNL can differ. CNL invited the AOPFN to share their perspective and has included that material within this EIS (Section 9.9.6). CNL is continuing to engage with the AOPFN and other Indigenous Nations, communities, and organizations on the topic of effects to traditional land and resource use and to develop commitments that will alleviate concerns and gain trust about the safety of traditional land use near the NPD site.

Traditional land and resource use VCs were selected based on the potential for the NPD Closure Project to interact with the features of the land and resource use environment. In addition, VCs for traditional land and resource use were selected based on a consideration of knowledge of traditional land and resource use practices that interact with the environment, Indigenous and/or Treaty rights and community engagement. Concerns expressed by Indigenous Nations, communities, and organizations during engagement activities are recorded and taken into consideration (Table 9.9-2).

The NPD Closure Project Site Study Area is located entirely within the Exclusion Zone. Therefore, aside from the operations and activities undertaken by CNL, other land uses of the NPD site are prohibited due to restricted public access. The lands of the Local Study Area have minimal public, Crown and private lands and as such, there is likely limited if any traditional land and resource use occurring there. However, redesignation of the land may occur in the future. Within the Regional Study Area there are provincial Crown lands where traditional land and resource use likely occurs, however, the NPD Closure Project will not have activities that occur on these lands. Furthermore, the project is not predicted to have any biophysical effects beyond the NPD site that would impact on traditional land and resource use including consumption.

Monitoring activities in other environmental components (i.e., atmospheric, surface water, geological and hydrogeological and terrestrial environments, and ambient radioactivity) will verify the accuracy of the EA predictions and effectiveness of measures implemented to mitigate potential adverse environmental effects related to traditional land and resource use. If monitoring identifies concerns in the other environmental components, CNL will assess the implications to traditional land and resource use (e.g., through ongoing Indigenous engagement activities).

9.10 Indigenous Socio-economic and Health

9.10.1 Indigenous Socio-economic Assessment

As required under paragraph 5(1)(c) of *CEAA,* 2012, the EIS should describe the effects of any changes the project may cause to the environment, with respect to Aboriginal Peoples, on socio-economic conditions.

9.10.1.1 Selection of VCs

Six VCs were selected with respect to the Indigenous socio-economic environment. these included: population and demographics; economy and employment; housing and infrastructure; Indigenous resident and use and enjoyment of private property; decision-making, and resource industries. These were selected for three reasons. Some input from Indigenous peoples and the CNSC was provided on Indigenous socio-economic considerations. Most of these are typical socio-economic considerations. Lastly, they were selected to include hard (housing and infrastructure) considerations; quantitative factors (economy, population and demographic); and, softer social considerations (decision-making and use and enjoyment of private property).

The Indigenous socio-economic effects assessment includes both direct effects on socio-economic VCs (e.g., the Economy and Employment VC as affected by potential employment opportunities) and indirect socio-economic effects related to a change in the environment (e.g., Indigenous Resident Use and Enjoyment of the Property as affected by changes in air and noise emissions; and Resource Industries).

While not required under *CEAA* (2012), the scope of the NPD socio-economic effects assessment was expanded to include potential direct socio-economic effects given these effects are of interest to stakeholders and Indigenous Nations, communities and organizations and peoples.

Table 9.10-1 Selection and Rationale of VCs for the Indigenous Socio-economic Environment

Environmental Component	VC	Rationale
Indigenous Socio-economic Environment	Population and Demographics	Population and demography are one of the most common ways to describe a community.
	Economy and Employment	Most Indigenous Nations, communities and organizations strive for improved employment and economic development opportunities.
	Housing and Infrastructure	Housing is a key concern of Indigenous peoples. Physical infrastructure within Indigenous communities is often inadequate, dated and difficult to finance. Water infrastructure might be a concern.
	Indigenous Resident – Use and Enjoyment of Private Property	There may be Indigenous peoples who live within a few kilometers of the NPD site and might experience nuisance effects. Project-related effects on quality of life are driven by potential project-induced changes in environment (i.e., changes in air quality, ambient noise, increases in traffic volume and visual disturbances)
	Decision-Making	Indigenous Nations, communities and organizations often have a decentralized decision-making structure.
	Resource Industries	Indigenous peoples often participate in resource based industries that can be potentially affected by changes to the environment. Resource industries can include: trapping, commercial fishing, commercial resource based tourism and gathering. Resource use industries are different than traditional use as they represent commercial uses associated with these natural resources. Project-related effects on resource based industries are driven by potential project-induced changes in the environment. These changes could include: direct effect on natural resources such as fish, wildlife or animals upon which these resources industries are dependent. As well, project-induced changes in the environment might limit access to these natural resources.

9.10.1.1.1 Indigenous Engagement Feedback – Key Interests and Concerns Related to Indigenous Socio-economic VCs

This section describes how the input from Indigenous engagement activities influenced the selection of VCs in the Indigenous socio-economic environment assessment. Table 9.10-2 summarizes the key interests and concerns raised by Indigenous peoples related to VCs for the evaluation of potential effects to the Indigenous socio-economic environment (based on Table 6.3-1 above), and demonstrates how the interest or concern has been addressed in the present assessment.

Table 9.10-2 Summary of Interests and Concerns Raised During Indigenous Engagement Activities that Influenced the Scope of the Indigenous Socio-economic Assessment

Interest or Concern	How the Interest Was Included in the Assessment
Socio-economic conditions of Indigenous Nations, communities and organizations that are interacting with the NPD site	Based on feedback from Indigenous Nations, communities and organizations, CNL has added sections on Indigenous Socio-economic and Health Conditions and Effects to the EIS (Sections 8.10 and 9.10). The EIS presents information on baseline socio-economic conditions in nearby Indigenous communities. Information that was provided to CNL by Indigenous Nations, communities and organizations has been incorporated into Section 8.10. Indigenous socio-economic interactions are described and assessed in Section 9.10.1.3. Indigenous health interactions are described and assessed in Section 9.10.2.3
Use and enjoyment of the area surrounding the NPD site by Indigenous people	Based on feedback from Indigenous Nations, communities and organizations, CNL added sections on Indigenous Socio-economic Conditions and Effects to the EIS (Sections 8.10.1 and 9.10.1). Indigenous resident use and enjoyment of the area is included as a VC under this new Indigenous socio-economic component.
Inclusion of data provided by Indigenous Nations, communities and organizations	Data from studies provided by Indigenous Nations, communities and organizations have been incorporated into the NPD EIS (Sections 6 and 8). This includes traditional knowledge and land use information (Section 8.9), and information on baseline socio-economic conditions (Section 8.10.1).

Notes:

The table above provides a summary of the concerns expressed by multiple Indigenous Nations, communities and organizations. See Table 6.3-1 for a more detailed listing of key interests and concerns from each Indigenous Nation, community and organization.

9.10.1.2 Assessment Boundaries

9.10.1.2.1 Spatial Boundaries

The Site Study Area for the Indigenous socio-economic environment is the same as the general Site Study Area defined in Figure 5.2-1. The Local Study Area has been defined as the Site Study Area plus a 1 km area beyond the Site Study Area and is the same as that used for traditional land and resource use (see Figure 8.9-1 above) and socio-economic environment (Section 8.10.1). Both the traditional land and resource use and socio-economic environmental components utilized a Regional Study Area that was defined as the Site Study Area and a 5 km radius beyond that. However, there are no Indigenous communities such as First Nations reserves within a 5 km radius of the NPD site. The closest Indigenous community to the NPD site is the AOPFN located on Golden Lake. AOPFN is located 75 km (measured as a straight line) from the NPD site. It is possible that there are some Indigenous peoples that do live within 5 km of the NPD site. Negative socio-economic effects are unlikely outside of the 5 km radius of the site, however, the Regional Study Area extends 100 km beyond the NPD site.

9.10.1.2.2 Temporal Boundaries

The temporal boundaries are the same as the standard temporal boundaries outlined in Section 5.2.1.2 of this EIS.

9.10.1.3 Identification of Residual Effects

9.10.1.3.1 Project-Environment Interactions

As shown in Table 9.10-3, potential effects to the socio-economic environment may occur as a result of operations and activities in the Decommissioning Execution, Institutional Controls and Post-Institutional Controls phases, in particular:

- Installation and operation of the grout batch mixing plant;
- Grouting of below grade structures;
- Removal of above grade structures;
- Install concrete cap and engineered cover;
- Final site restoration;
- Renaturalization;
- Facility performance during the Institutional Controls; and
- Facility performance during the Post-Institutional Controls phase.

Table 9.10-3 Project-Environment Interactions in the Indigenous Socio-economic Environment

		Project Works and Activities	Potential Interaction
	n/a	Engagement with the project	Engaging with the project takes time and may place undue demands on Indigenous leadership and impact the administrative capacity of Indigenous Nations, communities and organizations. This may impact the decision-making VC.
Decommissioning Execution	**1**	**Grout Batch Mixing Plant**	
	1.1	Designate footprint, create access, temporary fencing (east side of main building).	Establishing the project footprint and installing fencing may affect the landscape and visual setting from the Kichi-Sìbì (Ottawa River). On-site activities may produce nuisance effects for nearby Indigenous residents (noise, dust and traffic) or Indigenous resource industries.
	1.2	Assign storage area for raw materials, ship in sand. Likely east side of licensed area.	Raw material transport may produce nuisance effects for nearby Indigenous residents or Indigenous resource industries.
	1.4	Truck in necessary water supply or source water directly from river.	Trucking in water supply will affect traffic and transportation and produce exhaust and dust. Trucking may produce nuisance effects for nearby Indigenous residents or Indigenous resource industries.
	1.5	Provide slip pipe access to reactor side.	On-site activities may produce nuisance effects for nearby Indigenous residents or Indigenous resource industries.

		Project Works and Activities	Potential Interaction
	1.6	Construct washout pit. Lined excavation with water transfer. Likely near grout batch mixing plant.	Earth-moving may produce nuisance effects for nearby Indigenous residents or Indigenous resource industries.
	1.7	Level area for pumper.	Earth-moving may produce nuisance effects for nearby Indigenous residents or Indigenous resource industries.
	1.8	Mix grout to required formula.	On-site activities may produce nuisance effects for nearby Indigenous residents or Indigenous resource industries.
	1.9a	Truck grout to pumping station (20 trips per day).	Trucking will affect traffic and transportation and produce exhaust and dust. Trucking may produce nuisance effects for nearby Indigenous residents (noise and dust) or Indigenous resource industries.
	1.11	Sample and dewater the cleaning pit. Emplace sediments into voids in condenser room.	On-site activities may produce nuisance effects for nearby Indigenous residents (noise) or Indigenous resource industries.
	1.12	Demobilize grout batch mixing plant after cap installation.	Demobilization will require removal of equipment and materials from the site via truck, thereby affecting traffic and transportation. Demobilization activities may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	2	**Grouting of Below Grade Structure**	
	2.1	Room preparation (e.g., sealing of pipes).	Equipment and material transportation may produce nuisance effects for nearby Indigenous residents (traffic).
	2.3	Grout Fill Nuclear Area.	On-site activities may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	3	**Removal of Above Grade Structure**	
	3.1	Conventional heavy equipment knockdown of reactor hall.	Demolition equipment transportation to the site, and on-site material transportation will affect traffic. Demolition may produce nuisance effects for nearby Indigenous residents/land users (noise, dust, traffic) or Indigenous resource industries.
	3.2	Sizing of material such as cutting steel beams or crushing masonry for fitting into void areas.	Material sizing may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	3.3	Set up laydown area and perform clearance surveys on materials for possible recycle.	On-site material transportation may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	3.4	Steel and rubble emplaced in condenser room.	On-site material transportation may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	3.5	Grout first level of demolition material in condenser room.	On-site material transportation may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.

		Project Works and Activities	Potential Interaction
	3.6	Steel and rubble emplaced in condenser room.	On-site material transportation may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	3.7	Grout second level of demolition material in condenser room.	On-site material transportation may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	3.8	Steel and rubble in condenser room.	On-site material transportation may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	3.9	Grout third level of demolition material in condenser room.	On-site material transportation may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	3.10	Demolish block walls and inside walls around control room and change rooms.	Demolition equipment transportation to the site, and on-site material transportation will affect traffic and transportation. Demolition may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	3.11	Collapse ceilings of furnace room and adjacent rooms.	Demolition equipment transportation to the site, and on-site material transportation will affect traffic and transportation. Demolition may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	3.12	Emplace block wall rubble in furnace room or condenser room.	On-site material transportation may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	3.13	Remove recyclables from guard house.	On-site material transportation may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	3.14	Demolish guard house and emplace in furnace room and adjacent rooms.	Demolition equipment transportation to the site, and on-site material transportation will affect traffic and transportation. Demolition may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	3.15	Grout furnace room and adjacent areas to ground level.	On-site material transportation may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	3.16	Demolish above grade portion of pressure relief pit. Fill with grout.	Demolition equipment transportation to the site, and on-site material transportation will affect traffic and transportation. Demolition may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.

		Project Works and Activities	Potential Interaction
	4	**Install Concrete Cap and Engineered Cover**	
	4.1	Concrete Cap (construct forms, install rebar, and pour, level and slope concrete).	On-site material transportation may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	4.2	Engineered Cover (ship in materials, layer and shape mound, install geotextile layer, grade property, install remaining earth layers and seed).	Shipping in materials will affect traffic and on-site material transportation may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	5	**Final Site Restoration**	
	5.1	Site Restoration (install fencing, install monitoring wells if required, remediate areas affected by previous operations or decommissioning activities, washout pit, complete closure surveys, etc.).	On-site material transportation may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
	5.2	Demobilize Site (Remove temporary facilities, decontaminate equipment, remove power upgrades, poles and lines, return transformers).	Removal of temporary facilities, equipment and utilities will improve the landscape and visual setting. On-site material transportation will affect transportation safety and may produce nuisance effects for nearby Indigenous residents (noise, dust, traffic) or Indigenous resource industries.
IC*	**6**	**Long-Term Care and Maintenance**	
	6.6	Renaturalization.	Land Use designation may change during the Institutional Controls phase.
	6.7	Facility performance during the Institutional Controls phase.	Groundwater will start to enter and eventually resaturate the grouted structure. Contaminant release from the grouted structure may affect non-human biota (e.g., game and fish species) health and/or populations.
PIC**	**7**	**Post-Institutional Controls**	
	7.1	Facility performance and renaturalization during the Post-Institutional Controls phase.	Groundwater in the resaturated and eventually degraded grouted structure will become contaminated. Contaminant release from the grouted structure may affect non-human biota (e.g., game and fish species) health and/or populations.
	7.2	Renaturalization	Land Use may change during and/or after the Institutional Controls phase. Renaturalization of site may lead to an increase of wildlife and may benefit Indigenous land users (e.g. hunters, trappers, etc.).

Notes:

N/A – not applicable
* - IC: Institutional Controls phase
** - PIC: Post-Institutional Controls phase

9.10.1.3.2 Proposed Mitigation Measures

The mitigation measures presented below are preliminary and have been developed based on the current understanding of the project. As the project approaches detailed work planning, details will be refined, and additional mitigation measures may be developed as required.

In addition to the in-design mitigation measures identified in Section 4.1 above, the following mitigation measures have been identified to ensure the protection of the Indigenous socio-economic environment:

- dust suppression measures as described in Section 9.2.3.2;
- post speed limits on-site as described in Section 9.6.3.2;
- if previously undocumented archaeological resources are discovered, then CNL will suspend decommissioning activities immediately and will engage a licensed consultant to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act,* and outlined in CNL's procedure Management of Cultural Resources (CNL 2022a). CNL remains open to engagement with Indigenous Nations, communities and organizations in the event of a discovery of an archaeological resource. If any human remains are identified during construction, CNL will immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Public and Business Service Delivery, and Indigenous Nations, communities and organizations;
- the greatest effect of traffic and transportation associated with the project will occur during the Decommissioning Execution phase. Within the Local and Regional Study Areas, the transportation/haul route is limited to Highway 17 and the NPD site access road from the highway;
- review of a company's safety records which includes any traffic accidents or driver's records, as per CNL's contracting and hiring practices;
- construction activities will generally occur between 7 am and 7 pm wherever possible, with the overall objective of minimizing nuisance effects (i.e. noise and traffic) on residents in the Local and Regional Study Areas. It is noted that special or emergency circumstances may require deviation from this restriction;
- when a significant amount of off-site transportation is required (e.g., during raw material delivery), the timing of equipment and material shipping to the site should be staggered to minimize the contribution of the project to peak traffic volumes;
- during the Decommissioning Execution and Institutional Controls phases, restrict access to the licensed area via a fence with a locked gate to deter trespassing;
- periodic communication updates on project construction activities to local residents including local Indigenous residents are recommended, including construction schedule, activities, dedicated contact person for inquiries and emergencies etc. Periodic communication updates can occur with Indigenous Nations, communities and organizations if requested;
- the NPD Closure Project may provide contracting and supplier opportunities to Indigenous local and regional businesses. CNL has been working with Indigenous Nations, communities and organizations on facilitating such economic and contracting opportunities; and,
- CNL and the CNSC have provided funding for Indigenous participation in the NPD Closure Project, including funding for consultation and engagement sessions, participation in third-party reviews, preparation of traditional knowledge and land use studies.

As there are potentially positive economic and employment benefits to Indigenous peoples there are enhancement measures that could be employed in order to capitalize on these potential opportunities. Some discussions have occurred on the types of economic opportunities associated with the NPD Closure Project. CNL will proactively seek, engage and support meaningful discussion on issues and opportunities related to the NPD Closure Project as part of the Public Information Program, which can be found on the CNL website (www.CNL.ca). CNL, as part of the Public Information Program, will notify residents of NPD Closure Project decommissioning commencement via door-to-door delivery of letters, where stakeholders will be have the opportunity to voice their questions or concerns about activities related to the decommissioning execution part of the notification, the letter will include all CNL contact details (e.g., website, telephone, email etc.) to provide clear direction on how to contact CNL if they have questions, concerns or complaints related to the NPD Closure Project. A web link to a Feedback Form that is currently on the NPD Closure Project webpage on www.CNL.ca will also be included in the notification and will outline the above process of when an issue or concern is submitted. CNL will continually evaluate both the process and the outcome of the ongoing engagement and communication activities to address and manage issues as they arise.

9.10.1.3.3 Effects After Mitigation

In this section, potential Indigenous socio-economic effects are discussed for each phase of the project. Potential effects of the project are assessed relating to population and demographics, economy and employment, housing and infrastructure, use of private property, decision-making and resource industries.

9.10.1.3.3.1 Discussion of Indigenous Socio-economic Effects

Population and Demographics

The NPD Closure Project would have no negative effect on the populations or demographic characteristics of the Indigenous populations in any of the study areas. It is possible that economic opportunities associated with the project might provide some employment opportunities and therefore keep more Indigenous peoples living in the region. This would be a positive effect, but these individuals may stay in the region anyways. Overall, no effect on population and demographic characteristics is predicted.

Economy and Employment

The project could have a minor positive effect on Indigenous economic and employment opportunities in the region. These could include contract construction, monitoring and other opportunities.

Housing and Infrastructure

There are no known Indigenous-owned/managed water intake structures or other infrastructure downstream of the NPD site. The closest Indigenous community to the NPD site is Pikwàkanagàn First Nation which is 75 kilometers southwest of the NPD site on Golden Lake. There would be no effect of the project on either the housing or infrastructure of the AOPFN or any other Indigenous community, all of which are a greater distance away.

Indigenous Resident – Use and Enjoyment of Private Property

As demonstrated in Table 9.10-3, the proposed project without mitigation may result in some nuisance effects that might impact Indigenous peoples who own or rent homes within a few kilometers of the NPD site. Those assessment of residual effects are described further below.

Decision-Making

The project would have no effects on the governance structures within Indigenous Nations, communities or organizations. Participant funding has been provided by the CNSC and CNL to help Indigenous Nations, communities and organizations review materials associated with the NPD Closure Project.

Resource Industries

The project is predicted to have no effect on Indigenous resource industries.

As indicated in the Traditional Land Resource Use section, the NPD Closure Project Site Study Area is located entirely within the Exclusion Zone. Therefore, aside from the operations and activities undertaken by CNL, other land uses of the site are prohibited due to restricted public access. The lands of the Local Study Area have minimal public Crown and private lands and as such, there is likely limited if any resource use industry activities occurring there. Within the Regional Study Area there are provincial Crown lands where traditional land and resource use likely occurs, however, the NPD Closure Project will not have activities that occur on these lands. Furthermore, the project is not predicted to have any biological effects beyond the NPD site that would impact on resource industry uses including consumption.

With respect to the different resource industries: there is no commercial fishery on the Kichi-Sìbì (Ottawa River); the two traplines surrounding the NPD site have not been identified as Indigenous; there are no known Indigenous tourism enterprises operating in close proximity to the NPD site; and, it is possible that there is some gathering activity occurring in the local and regional study areas.

Renaturalization of the site may increase vegetation and habitat for wildlife, providing a potential benefit to resource activities should they develop in the area.

Decommissioning Execution Phase

Site Study Area

No effects after mitigation are expected in the Site Study Area during the Decommissioning Execution phase. As discussed in the Socio-economic TSD, the project may affect transportation operations and safety through the transportation of materials and equipment on-site. This will largely be mitigated by posting and adhering to speed limits on-site. The remaining effect is minor and inherent in vehicle operation.

There are no Indigenous residents within the Site Study Area, and no nuisance effects are expected on land users (i.e. anglers, hunters, trappers, tourists) in the Site Study Area.

Local Study Area

As discussed on the Socio-economic TSD, the traffic and transportation effects associated with the project are expected to be greatest during the Decommissioning Execution phase. Within the Local Study Area, the transportation/haul route will be limited to Highway 17 and the NPD site access road from the highway.

There are approximately ten residents within the Local Study Area, and there may be nuisance effects (i.e. noise, traffic) associated with the Decommissioning Execution phase. It is unknown what percent of these ten may be Indigenous, but 2021 Census data identified that 11.8% of the population of Town of Laurentian Hills identified itself as Indigenous.

The project is expected to result in increased traffic volumes, which may be reflected in a potential increase in incidents and delays, even after mitigation measures. The increase traffic volume is expected to be temporary and minor, thus the effects on transportation safety and Highway 17 traffic not significant. The MTO has reviewed the project and concluded that it has no traffic or transportation-related concerns with respect to the project (MTO 2016).

Regional Study Area

As discussed in the Socio-economic TSD, the traffic and transportation effects associated with the project are expected to be greatest during the Decommissioning Execution phase. The transportation/haul route will be limited to Highway 17 and the NPD site access road from the highway. As discussed in Section 9.11.3.2, CNL will minimize potential traffic nuisance effects on residents and by instituting restrictions on construction hours and days of the week. No measurable noise or dust nuisance effects are expected for residents and land users in the Regional Study Area.

The project is expected to result in increased traffic volumes and an increased likelihood of incidents and delays, even after mitigation measures. The MTO has reviewed the project, and concluded that it has no traffic or transportation-related concerns with respect to the project (MTO 2016).

There will be nuisance effects (noise, dust, traffic) for Indigenous residents if they live within a few kilometers of the NPD site, however they should largely be mitigated by a variety of general and specific construction mitigation measures identified in Section 9.10.1.3.2 above.

Institutional Controls Phase and Post-Institutional Controls Phase

Site and Local Study Areas

No potential Indigenous socio-economic effects have been identified in the Site and Local Study Areas for the Institutional Controls and Post-Institutional Controls phases.

Regional Study Area

No potential Indigenous socio-economic effects have been identified in the Regional Study Area for the Institutional Controls and Post-Institutional Controls phases.

9.10.1.3.4 Prediction Confidence and Uncertainty

There are private lands immediately adjacent to the NPD property and it is unknown whether the residents Indigenous or non- Indigenous, however this assessment has assumed that they may be Indigenous.

9.10.1.3.5 Residual Effects

Table 9.10-4 summarizes the effects assessment above and presents the residual effects that were identified for the Indigenous socio-economic environment. The residual effects in Table 9.10-4 are grouped by effect rather than by individual interaction as listed in Table 9.10-3.

9.10.1.4 Assessment of Residual Effects

Based on the assessment described above, no adverse residual effects on the Indigenous socio-economic environment have been predicted.

9.10.1.5 Monitoring and Follow-Up

No specific environmental monitoring has been identified for the Indigenous socio-economic environment. Monitoring in other environmental components will confirm the EIS predictions (i.e., that no effects are expected in the Indigenous socio-economic environment). Ongoing Indigenous, public and stakeholder engagement activities will take place throughout the Decommissioning Execution and Institutional Controls phases to identify any changing concerns or perceptions related to the project. CNL is willing to discuss socioeconomic monitoring measures during construction activities with Indigenous Nations, communities and organizations.

Other more general considerations of the EA Follow-up Program (e.g., sampling and analysis procedures, information management and reporting) are presented in Section 12.

9.10.1.6 Conclusion

As shown in Table 9.10-4, no adverse residual effects were identified for the Indigenous socio-economic environment.

The assessment took into consideration the concerns expressed by Indigenous Nations, communities, and organizations during engagement activities (Section 9.10.1.1.1).

Monitoring activities in other environmental components (i.e., atmospheric, surface water, geological and hydrogeological and terrestrial environments, ambient radioactivity and human health) will verify the accuracy of the EA predictions and effectiveness of measures implemented to mitigate potential adverse environmental effects related to the socio-economic environment. If monitoring identifies concerns in the other environmental components, CNL will assess the implications to the Indigenous socio-economic environment (e.g., through ongoing Indigenous, public and stakeholder engagement activities).

Table 9.10-4 Summary of Residual Effects in the Indigenous Socio-economic Environment

Environmental Component	Source of Effect	Potentially Affected VCs	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Decommissioning Execution						
Indigenous Socio-economic Environment	Employee, material and equipment transportation to and from site	Traffic and transportation	Increased traffic volume could affect the safety of road users	Timing of shipments will be staggered when possible	Traffic delays and the probability of traffic incidents may increase temporarily during the Decommissioning Execution phase as a result of increased volume	No adverse residual effects
Indigenous Socio-economic Environment	On-site transportation, demolition, material sizing	Residents – use/enjoyment of property	Nuisance effects (dust, noise and traffic)	Dust suppression, restricting hours of activity, communication with public	Minor, temporary and localized nuisance effect on residents and nearby land users use and enjoyment of land	No adverse residual effects
Institutional Controls						
Indigenous Socio-economic Environment	Renaturalization	None	None	No proposed mitigation	None	No adverse residual effects
Post-Institutional Controls						
Indigenous Socio-economic Environment	Renaturalization	None	None	No proposed mitigation	None	No adverse residual effects

9.10.2 Indigenous Health

As required under paragraph 5(1)(c) of *CEAA,* 2012, the EIS should describe the effects of any changes the project may cause to the environment, with respect to Aboriginal Peoples, on health.

9.10.2.1 Selection of VCs

As outlined in Section 5.2.4, VCs for Indigenous Health were selected to encompass the potential effects of the project on Indigenous health as well as exposure via pathways from environmental components (e.g., atmospheric, surface water environment, geological and hydrogeological environment, ambient radioactivity). The VCs for Indigenous health, along with rationale for their selection, are listed in Table 9.10-5.

Table 9.10-5 Selection and Rationale of VCs for Indigenous Health

Environmental Component	Sub-Category	VC and Rationale
Indigenous Health	Indigenous People	Indigenous People may be exposed to health risk as a result of the project. The potential effects on humans associated with changes in atmospheric, surface water, geological and hydrogeological conditions (radiological and chemical releases and concentrations), and external gamma radiation are considered.
	Indigenous Worker	Indigenous workers may be exposed to health risk as a result of performing their duties relative to the project. The potential effects on humans associated with changes in atmospheric, surface water, geological and hydrogeological conditions (radiological and chemical releases and concentrations) and external gamma radiation are considered.

Note:

Effects on human health from possible accidents and malfunctions are discussed in Section 9.11 below.

9.10.2.1.1 Indigenous Engagement Feedback – Key Interests and Concerns related to Indigenous Health VCs

This section describes how the input from Indigenous engagement activities influenced the selection of VCs in the Indigenous Health assessment. Table 9.10-6 summarizes the key interests and concerns raised by Indigenous peoples related to VCs for the evaluation of potential effects to Indigenous health (based on Table 6.3-1 above), and demonstrates how the interest or concern has been addressed in the present assessment.

Table 9.10-6 Summary of Interests and Concerns Raised During Indigenous Engagement Activities that Influenced the Scope of Indigenous Health Assessment

Interest or Concern	How the Interest Was Included in the Assessment
Separate consideration of Indigenous Health Conditions	In response to feedback received during Indigenous engagement activities, CNL has added new environmental components (and associated VCs) to the EIS, describing current Indigenous health conditions (Section 8.10.2) and potential effects to Indigenous health VCs (Section 9.10.2).
Inclusion of Indigenous group receptor	In response to feedback from Indigenous Nations, communities and organizations, CNL has created a new environmental component: Indigenous Health. The VCs identified for the assessment of Indigenous Health are Indigenous People and Indigenous Workers. Potential impacts to Indigenous People and Indigenous Workers are assessed in Section 9.10.2.3. Additionally, CNL has incorporated information on Indigenous health indicators provided by Indigenous Nations, communities and organizations into the description of baseline Indigenous health (Section 8.10.2).
Safety of harvesting and consuming harvested foods.	Safety of harvesting and consuming harvested foods is assessed using the Human Health Public VCs (Section 9.8.3) and Indigenous peoples Health VCs (Section 9.10.2.3). The Indigenous peoples Health VC, which was added to the EIS based on Indigenous Nation, community and organization feedback on VCs (new Section 9.10.2).
Concerns due to introduction of tritium into the Kichi-Sìbì (Ottawa River)	Potential effects on Indigenous peoples health from tritium in the Kichi-Sìbì (Ottawa River) are assessed using the new Indigenous peoples Health VC that was added to the EIS in response to feedback from Indigenous Nations, communities and organizations on VCs (Section 9.10.2). The assessment of risk to human receptors includes consideration of exposures received from domestic and agricultural use of the Kichi-Sìbì (Ottawa River), including irrigation, drinking, swimming and fishing activities. Wherever possible, conservative assumptions about future lifestyles and habits have been adopted in the assessment, to help ensure that potential exposures have not been underestimated (Section 9.8.3.3, 9.10.2.3).
Concern about the assumptions related to dietary pathways (and changes due to perceived contamination), occupancy factors, locations of activities.	The assumptions made in developing the exposure profiles for the Indigenous Health VCs (i.e., Indigenous peoples and Indigenous Workers) are summarized in Section 8.10.2 (food sources and water use) and Section 9.10.2 (dietary intake values, time spent at various outdoor activity locations). CNL acknowledges that there is uncertainty in the assessment of potential effects to Indigenous VCs. This has been accounted for by using conservative assumptions wherever possible. For example, with the exception of hunters, receptors during the Post-Institutional Controls phase were assumed to obtain 100% of their water from the Kichi-Sìbì (Ottawa River), and all foods except grain were obtained 100% locally (Section 9.10.2.3.3). CNL has reviewed the results of a harvest and diet study that was conducted by a nearby Indigenous group. The results are used to validate the conservative assumptions used to characterize the diet of the Indigenous VCs (as described above).

Notes:

The table above provides a summary of the concerns expressed by multiple Indigenous Nations, communities and organizations. See Table 6.3-1 for a more detailed listing of key interests and concerns from each Indigenous Nation, community and organization.

9.10.2.2 Assessment Boundaries

9.10.2.2.1 Spatial Boundaries

The spatial boundaries with respect to the Indigenous Health are the same as employed for Human Health.

Similar to the human health baseline characterization in Section 8.2 above, the Site and Local Study Areas for this assessment are consistent with the general spatial boundaries outlined in Section 5.2.1.1. As this area is all owned by the Federal Government, there are no residents present. Workers (including Indigenous workers) are, and will continue to be, present in this area for the duration of the decommissioning, and as such the Site/Local Study Areas will describe baseline worker health.

The Regional Study Area for this assessment consists of the Renfrew County and District Health Unit, and Région de l'Outaouis Health Unit, illustrated in Figure 8.8-1 and Figure 8.8-2.

9.10.2.2.2 Temporal Boundaries

The temporal boundaries for this assessment are the standard temporal boundaries outlined in Section 5.2.1.2 of this EIS.

9.10.2.3 Identification of Residual Effects

9.10.2.3.1 Project-Environment Interactions

As shown in Table 9.10-7, potential effects to Indigenous health may occur as a result of interaction with Decommissioning Execution operations and activities associated with:

- Grout batch mixing plant;
- Grouting of below grade structures;
- Removal of above grade structures;
- Installation of concrete cap and engineered cover;
- Final site restoration;
- Facility performance during the Institutional Controls phase; and
- Facility performance during the Post-Institutional Controls phase.

Table 9.10-7 Project-Environment Interactions in Indigenous Health

		Project Works and Activities	Potential Interaction
Decommissioning Execution	**1**	**Grout Batch Mixing Plant**	
	1.1	Designate footprint, create access, temporary fencing (east side of main building).	Work conducted near the facility has the potential to release dust, increase radiation doses to Indigenous workers.
	1.2	Assign storage area for raw materials, ship in sand. Likely east side of licensed area.	Work conducted near the facility has the potential to increase radiation doses to Indigenous workers. Dust and vehicle emissions may affect Indigenous worker health.
	1.3	Set up mixing stations, hook up electrical power or diesel power.	Work conducted near the facility has the potential to increase radiation doses to Indigenous workers.
	1.4	Truck in necessary water supply or source water directly from river.	Work conducted near the facility has the potential to increase radiation doses to workers. Dust and vehicle emissions may affect Indigenous worker health.
	1.5	Provide slip pipe access to nuclear area.	This activity has the potential to release dust and increase radiation doses to Indigenous workers. Specifically, to the Indigenous workers drilling holes for slip pipe access and workers nearby.
	1.6	Construct washout pit. Lined excavation with water transfer. Likely near grout batch mixing station.	Work conducted near the facility has the potential to increase radiation doses to Indigenous workers. Dust and vehicle emissions may affect Indigenous worker health.
	1.7	Level area for pumper.	Work conducted near the facility has the potential to increase radiation doses to Indigenous workers. Dust and vehicle emissions may affect Indigenous worker health.
	1.8	Mix grout to required formula.	Work conducted near the facility has the potential to increase radiation doses to Indigenous workers. Dust and equipment emissions may affect Indigenous worker health.
	1.9a	Truck grout to pumping station (20 trips per day).	Work conducted near the facility has the potential to increase radiation doses to Indigenous workers. Dust and vehicle emissions may affect Indigenous worker health.
	1.11	Sample and dewater the cleaning pit. Emplace sediments into voids in condenser room.	Work conducted near the facility has the potential to increase radiation doses to Indigenous workers. Dust and vehicle emissions may affect Indigenous worker health.
	1.12	Demobilize grout batch mixing plant after cap installation.	Work conducted near the facility has the potential to increase radiation doses to Indigenous workers. Dust and vehicle emissions may affect Indigenous worker health.

		Project Works and Activities	Potential Interaction
Decommissioning Execution	**2**	**Grouting of Below Grade Structure**	
	2.1	Room preparation (e.g., sealing of pipes).	Work conducted within the facility has the potential to increase radiation doses to Indigenous workers.
	2.2	Systems Preparation Large Vessels.	The activities associated with this task are routine construction activities. Potential effects on Indigenous workers as part of this task are grouped with activity **1.5** (Provide slip pipe access to nuclear area).
	2.3	Grout Fill Nuclear Area.	Displacement of air containing dust, tritium, lead and asbestos may result in effects to Indigenous peoples and workers.
	3	**Removal of Above Grade Structure**	
	3.1	Conventional heavy equipment knockdown of reactor hall.	Release of surface contamination may increase exposure to dust, radioactivity and other potential contaminants to Indigenous peoples and workers.
	3.2	Sizing of material such as cutting steel beams or crushing masonry for fitting into void areas.	Release of surface contamination may increase exposure to dust, radioactivity and other potential contaminants to Indigenous peoples and workers.
	3.3	Set up laydown area and perform clearance surveys on materials for possible recycle.	Conducting clearance surveys has the potential to increase radiation doses to Indigenous workers.
	3.4	Steel and rubble emplaced in condenser room.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to Indigenous peoples and workers.
	3.5	Grout first level of demolition material in condenser room.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to Indigenous peoples and workers.
	3.6	Steel and rubble emplaced in condenser room.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to Indigenous peoples and workers.
	3.7	Grout second level of demolition material in condenser room.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to Indigenous peoples and workers.
	3.8	Steel and rubble in condenser room.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to Indigenous peoples and workers.
	3.9	Grout third level of demolition material in condenser room.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to Indigenous peoples and workers.
	3.10	Demolish block walls and inside walls around control room and change rooms.	Release of dust and surface contamination may increase exposure to Indigenous peoples and workers.

		Project Works and Activities	Potential Interaction
Decommissioning Execution	**3.11**	Collapse ceilings of furnace room and adjacent rooms.	Release of dust and surface contamination may increase exposure to Indigenous peoples and workers.
	3.12	Emplace block wall rubble in furnace room or condenser room.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to Indigenous peoples and workers.
	3.14	Demolish guard house and emplace in furnace room and adjacent rooms.	Release of surface contamination may increase radiation doses to Indigenous peoples and workers.
	3.15	Grout furnace room and adjacent areas to ground level.	Displacement of dust, lead, asbestos and tritium in air from the facility has the potential to increase exposure to Indigenous peoples and workers.
	3.16	Demolish above grade portion of pressure relief pit. Fill with grout.	Release of dust and surface contamination may increase exposure to Indigenous peoples and workers.
	4	**Install Concrete Cap and Engineered Cover**	
	4.1	Concrete Cap (construct forms, install rebar, and pour, level and slope concrete).	Work conducted near the facility has the potential to release dust and increase radiation doses to Indigenous workers.
	4.2	Engineered Cover (ship in materials, layer and shape mound, install geotextile layer, grade property, install remaining earth layers and seed).	Work conducted near the facility has the potential to release dust and increase radiation doses to Indigenous workers.
	5	**Final Site Restoration**	
	5.2	Demobilize Site (Remove temporary facilities, decontaminate equipment, remove power upgrades, poles and lines, return transformers).	Work conducted near the facility has the potential to release dust and increase radiation doses to Indigenous workers.
IC*	**6**	**Long-Term Care and Maintenance**	
	6.8	Facility performance during the Institutional Controls phase	Groundwater will start to enter and eventually resaturate the grouted structure. Contaminated groundwater will flow out and has the potential to affect Indigenous peoples.
PIC**	**7**	**Post-Institutional Controls**	
	7.1	Facility performance during the Post-Institutional Controls phase	Groundwater in the resaturated and eventually degraded grouted structure will become contaminated. Contaminated groundwater will flow out and has the potential to affect Indigenous peoples.

Notes:

*Institutional Controls
**PIC: Post-Institutional Controls

9.10.2.3.2 Proposed Mitigation Measures

The same mitigation measures as proposed with Human Health are proposed below.

The mitigation measures presented below are preliminary and have been developed based on the current understanding of the project. As the project approaches detailed work planning, details will be refined, and additional mitigation measures may be developed as required.

In addition to the in-design mitigation measures identified in Section 4.1 above, mitigation measures identified in other environmental components, such as dust suppression and vehicle maintenance may also reduce the potential for effects on Indigenous worker and people health. The following mitigation measures are outlined in the DecomSA TSD.

- *General:*
  - Staff and contractors will receive orientation to ensure they are aware of decommissioning activities, hazards, and emergency procedures.
  - Signs will be posted to indicate where decommissioning work is taking place and to alert people to detours where applicable.
  - Work control documents will be developed to guide safe execution of the decommissioning activities.
  - Hazards to personnel will be identified through work control documents and eliminated or controlled using engineered controls, administrative controls, and PPE.
  - Regular updates will be given to site personnel on updates in the proposed decommissioning work plans.
  - CNL health and safety programs are in place to prevent and mitigate injury to personnel.
  - An NPD Emergency Procedure is in place and is consistent with CNL's Emergency Preparedness Program. This procedure will be updated to include decommissioning activities.
  - Emergency response is available through local municipal Fire Department.
  - Stop work procedures will be followed for power outages.
  - Overall site 'good housekeeping' will be upheld.
  - Contractor Health & Safety Management Program, reviewed by supply chain management and meeting CNL requirements.
  - Periodic communication updates to local residents on the project construction activities, including construction schedule, activities, dedicated contact person for inquiries and emergencies etc.
  - Communications with Indigenous Nations, communities and organizations and individuals (to be discussed further with Indigenous Nations, communities and organizations).
- *Structural:*
  - Structural assessments will be performed to ensure that all demolition work is done in accordance with safe work practices and civil/engineering requirements.
  - Appropriate methods will be used during the demolition process to provide support and ensure that unintended structural failure does not occur.

- If inclement weather occurs during the performance of project work, activities would be stopped (if deemed necessary) in order to minimize weather-related risks.
- A demolition plan is prepared in accordance with PEO standards and approved by a Professional Engineer qualified in this discipline.
- An exclusion zone will be established for decommissioning activities.

o *Radiation Dose:*

Radiological work assessments will be performed as detailed work packages are developed. They will include specific measures to reduce collective and individual Indigenous worker dose to ensure that the dose is below relevant dose threshold standards. As per current practice at the NPD site, all internal and external doses received by NPD workers will be monitored and reported as part of the operational dose management program. This system will be in effect during the Decommissioning Execution phase of the project:

- As mentioned above, work control documents will be prepared for all activities. Where there is the potential for workers to encounter radiological hazards, the preparation of work control documents include a radiological assessment completed by CNL health physics personnel. Work control documents are then developed to include radiological aspects as appropriate.
- Hazards to personnel will be identified through work control documents and eliminated or controlled using engineered controls, administrative controls, and PPE.
- Utilization of air monitors (including particulate contamination as well as tritium-in-air), dosimeters, and bioassay will be used as required to detect the spread and uptake of contamination before it exceeds limits.
- Emergency response capability is available from local municipalities.
- An NPD Emergency Procedure is in place and is consistent with CNL's Emergency Preparedness Program. This procedure will be updated to include decommissioning activities.

o *Asbestos:*

- Signage will be installed to indicate asbestos laydown/interim-storage areas.
- Procedures will be in place for handling and storage of abated asbestos (bagged).
- Work control documents will be developed for all activities, including those involving handling of abated (bagged) asbestos and transite.

o *PCBs:*

- Work control documents will be developed for all activities, including those involving handling PCB-containing materials.
- Sources of PCBs will be confirmed through characterization and will be clearly identified prior to executing activities involving handling of PCB-containing materials (e.g., caulking, paint, cables, etc.).
- Appropriate personal protection equipment (e.g., respirators and Tyveks) will be available and used.

o *Lead:*

- Work control documents will be developed for all activities, including those involving lead-containing materials.

- Sources of lead are known and will be clearly identified prior to executing decommissioning activities.
- Appropriate personal protection equipment will be used, based on the nature of the activities (e.g. gloves, respirators, etc.).

o *Mercury:*
- Work control documents will be developed for all activities, including those involving mercury-containing equipment/instrumentation.
- Sources of mercury are known and will be clearly identified prior to executing decommissioning activities.

o *Hydrogen Generation:*
- Ensuring proper ventilation during grouting.
- Pouring grout in batches to allow a set up time between pours.

9.10.2.3.3 Effects After Mitigation

Decommissioning Execution

Site and Local Study Area

Non-radiological

During the Decommissioning Execution phase, the site and local study areas will be occupied primarily by workers. Vehicle and equipment operation and on-site transportation will release NO_x, SO_2, VOCs, TSP, PM_{10}, and $PM_{2.5}$. These activities are discussed in Section 9.2 above. In the DecomSA TSD, it is conservatively assumed that these activities will occur simultaneously (i.e., the maximum potential emissions and releases are considered). Worker exposure to NO_x, SO_2, VOCs, TSP, PM_{10}, and $PM_{2.5}$ for all activities is considered here. The release of these contaminants will be mitigated by standard dust suppression measures listed for the atmospheric environment in Section 9.2.3.2, as well as proper vehicle maintenance to reduce emissions. No adverse health effects to Indigenous workers are anticipated in the Site and Local Study Areas.

Grouting and removal of the above grade structure will result in the displacement of air from inside the facility, which contains suspended lead and asbestos. This was assessed in Sections 8.5.2 and 8.6.1 of the DecomSA TSD. Exposure to workers will be limited by following the appropriate work control documents described in 9.8.3.2 above. Worker exposures were compared to benchmark values (8-hr limits in this case) to produce (unitless) SI values. An SI of 1 means that the worker exposure is equal to the benchmark value. The maximum SIs for lead and asbestos for near-field workers were 3.88 $x10^{-5}$ and 2.14 $x10^{-8}$ respectively, indicating that no adverse health effects to workers are expected.

Radiological

Activities that may result in radiation exposure for workers are assessed in the DecomSA TSD. These activities include drilling holes in below grade structures, displacement of air from the facility during grouting and emplacement, and demolition. Radiation protection protocols, work control documents, safeguards

and mitigation will reduce the extent of exposure for the workers and are described in Section 9.10.2.3.2 above.

The maximum total dose rate for workers received during grouting and emplacement was predicted to be 1.35 x 10^{-5} mSv/y in the DecomSA TSD. The maximum total dose received by a driller while creating slip pipe access was 0.527 mSv. Contaminant release during demolition calculated to result in a maximum total dose of 5.92x10^{-5} mSv. On an annual basis, these doses are well below the regulatory limit of 50 mSv/y for NEW (CNSC 2015); therefore, no adverse health effects to Indigenous workers are anticipated.

Regional Study Area

Non-Radiological

The DecomSA TSD assesses chemical exposure of members of the public in the Regional Study Area during the Decommissioning Execution phase. During grouting, exposure to lead and asbestos for members of the public was compared to benchmark values, resulting in maximum SI of 2.09 x10^{-4} and 4.7 x10^{-7} respectively. During demolition, the maximum SI for lead for members of the public was 1.71 x10^{-1}. All exposure concentrations are lower than the public benchmark values.

Lastly, the deposition of lead to soil was assessed at receptor locations and compared against the MOE (2011) Table 8 soil criterion for lead of 120 µg/g. The maximum soil concentration calculated from demolition or grouting was four orders of magnitude below this criterion.

Therefore, no adverse health effects are anticipated for Indigenous peoples (e.g., from releases to air or surface water).

Radiological

As determined in the DecomSA, the maximum total dose rate to the public during grouting and emplacement was calculated to be 5.76 x10^{-6} mSv/y. The maximum total dose rate to the public during demolition was calculated to be 8.18 x10^{-5} mSv/y. Both maximum total dose rates are well below the public dose rate limit of 1 mSv/y by 4 orders of magnitude. Thus, no adverse health effects are expected for Indigenous peoples in the Regional Study Area.

Institutional Controls and Post-Institutional Controls

Site and Local Study Area

The PostSA TSD examines several potential scenarios for the postclosure period (Institutional Controls and Post-Institutional Controls phases) as a way to capture and quantify uncertainties in the future conditions at the site (for detail on these scenarios, the reader is directed to the PostSA TSD) and assess the potential for radiological and non-radiological contamination to affect human health (including Indigenous health) for these scenarios. The reader is directed to the PostSA TSD, which details the results of the assessment of radiological and non-radiological contamination on human health (among other environmental components) for these scenarios. Human health results are briefly summarized here.

The PostSA TSD considers several potential exposure groups, for example:

- Site resident family: A highly conservative group that maximizes potential exposures. This is reflected by a small household (comprising two adults, a child and an infant) residing directly over the disposal facility and pursuing a self-sufficient lifestyle. This includes use of potentially contaminated river water for domestic and agricultural purposes.
- A hunting/recreational group, represented by a small number of adults and children making hunting and/or recreational use of the river and the area surrounding the NPD. Their exposure pathways, including obtaining wild foods, is also representative of the types of habits that might be exhibited by Indigenous Nations, communities and organizations.
- An offsite resident receptor group, represented by two households (adults and children) that reside alongside the Kichi-Sìbì (Ottawa River) at Deep River and Ottawa/Gatineau. These households are assumed to use river water from the Kichi-Sìbì (Ottawa River) for domestic use and as drinking water, and to use the Kichi-Sìbì (Ottawa River) for recreational swimming.
- An Indigenous receptor characterized using information from a dietary study completed by the AOPFN. In keeping with the study's findings, it is assumed that the indigenous receptor supplements their diet with additional (uncontaminated) groceries purchased from local shops. This receptor also includes additional pathways for smoke inhalation and rubbing of medicinal plants into the skin. Their exposure pathways include:
    - time spent on the shoreline for recreation and fishing;
    - time spent swimming in the river;
    - ingestion of fish caught from the river;
    - hunting of game that uses the river for drinking water, foraging of wildfoods and honey;
    - inhalation of smoke from burning medicinal plants; and
    - rubbing medicinal plants into the skin.
- A self-sufficient Indigenous receptor group (investigated as a sensitivity case), represented by adults and children following a traditional lifestyle using the area around the NPD, including the Kichi-Sìbì (Ottawa River), for hunting and gathering. The exposure pathways for the self-sufficient Indigenous receptor group include:
    - time spent on the shoreline for recreation and fishing;
    - time spent swimming in the river;
    - ingestion of fish caught from the river; and
    - hunting of game that uses the river for drinking water, foraging of wildfoods and honey.

For the normal evolution scenario, potential wildlife exposures are limited to those that may occur in the river and at the shoreline. The radionuclide concentrations in the surface environment are expected to be highest in these areas. Aside from the hunter/recreational receptor group, all other receptors are assumed to obtain 100% of their water from the Kichi-Sìbì (Ottawa River) for the normal evolution.

In the postclosure period, dietary intake values for site resident group were adopted from CSA (2022), which were conservatively based on 95th percentile energy intakes. The assessment also conservatively assumed that all foods except grain were obtained 100% locally by site resident, as shown in Table 9.10-8 below.

Table 9.10-8 Dietary Intakes for the Site Resident Group (Table E-48 in PostSA TSD)

Category	Local Fraction	Infant	Child	Adult	Notes
Fish (g/d)	1	6.4	18.5	28.1	1
Shellfish (g/d)	1	0.6	2.1	5.7	1
Cows' milk (g/d)	1	837.5	787.6	464.5	2
Goat's milk (g/d)	1	93.1	87.5	51.6	2
Beef (g/d)	1	18	53.2	194.9	3
Beef liver (g/d)	1	1.9	5.5	8.5	1
Pork (g/d)	1	13.4	40.1	81.4	1
Lamb (g/d)	1	0.1	3.9	2.4	1
Poultry (g/d)	1	31.6	83.8	159.8	1
Eggs (g/d)	1	8.2	30.9	79	1
Grain (g/d)	0	211.7	539.7	671.8	4
Fruit & vegetables (g/d)	1	308.5	607.9	935	5
Potatoes (g/d)	1	33.1	118.4	196.7	1
Honey (g/d)	1	1.8	5.2	6.7	1

Notes:

1 Table G.9c of CSA (2022).
2 Total milk from Table G.9c of CSA (2022) split assuming that 90% comes from cows' milk and the remaining 10% comes from goat's milk.
3 Combines beef and veal from Table G.9c of CSA (2022).
4 The climate and small self-sufficient lifestyle are not amenable to providing grain.
5 Combines fruit and berries plus vegetables Table G.9c of CSA (2022).

Table 9.10-9 presents the dietary intakes for the recreational/hunter receptor and Table 9.10-10 presents the dietary intakes for the self-sufficient Indigenous receptor.

Table 9.10-9 Dietary Intakes for the Recreational/Hunter Group (Table E-49 in PostSA TSD)

Category	Local Fraction [1]	Infant	Child	Adult	Notes
Fish (g/d)	0.1	6.4	18.5	28.1	2
Shellfish (g/d)	0.1	0.6	2.1	5.7	2
Deer (g/d)	0.1	0.09	0.3	1.14	3
Rabbit (g/d)	0.1	0.24	0.75	2.82	3
Goose (g/d)	0.1	15.8	41.9	79.9	4
Duck (g/d)	0.1	15.8	41.9	79.9	4

Notes:

1 The recreational/hunter group is taken to spend 10% of their recreational/hunting time in the potentially contaminated area.
2 Based on the default dietary intakes in Table G.9c of CSA (2022).
3 High intake rates of deer and rabbit are assumed. These are taken to be three times the default dietary intakes in Table G.9c of CSA (2022).
4 The default poultry intake in Table G.9c of CSA (2022) is taken to be equally distributed between goose and duck meat.

Table 9.10-10 Dietary Intakes for the Self-Sufficient Indigenous Receptor Group (Table E-62 in PostSA TSD)

Category	Local Fraction*	Ingestion Rate (g/day)		
		Infant	Child	Adult
Deer[1]	0.1 [1]	189.7 [5]	270.4	557.3
Moose[1]	0.1 [1]	189.7 [5]	270.4	557.3
Grouse	0.44 [1]	94.9 [5]	135.4	278.7
Duck	0.44 [1]	147.6 [6]	278.7	278.7
Fish [2]	1	207.03 [5]	295.1	608.2
Berries[3]	0.2 [1]	918.6 [6]	1,734.2	1,038.1
Mushrooms[4]	1	1.0	3.9	4.8
Honey	1	1.8	5.2	6.7

Notes:

* Local fractions are based on the scenario description and on the nature of the receptor.
1 The local fraction for deer and moose assumes that all hunting occurs in the contaminated area, however, is set to 0.1 to account for the likely use of less contaminated foraging sites within a large home range, as recommended in CSA 2022. The local fraction of grouse, duck and berries are taken from CSA 2022.
2 Fish are assumed to be taken from the Kichi-Sìbì (Ottawa River).
3 Berries will be considered separately from other fruits and vegetables, and will be modeled as strawberries (as per CSA 2022).
4 Modeled as Generic Fruit and Vegetables from CSA (2022).
5 Derived by scaling the adult intake value.
6 Derived by scaling the child intake value.

Radiological

In the normal evolution scenario dose rate estimates, the highest dose rate was received by a Site Resident (0.00008 mSv/y). This is over 1,000 times lower than the dose rate criterion of 0.25 mSv/y.

The peak dose rate to a member of the hunter group is only 0.0000004 mSv/y. These are negligible levels of exposure.

The offsite receptor is also considered, living downstream of the NPDDF and using river water to drink and wash with. Therefore, the only exposure pathways considered are ingestion of the contaminated water, and/or external radiation from the water (e.g., bathing and swimming). As the offsite receptor lives beyond any region that can be subject to institutional control, exposures may occur earlier than 100 years after closure. The results indicate that the peak dose rate is around 25 million times lower than the dose rate criterion of 0.25 mSv/y.

The peak dose rate to the indigenous receptor characterized using the AOPFN dietary study occurs at is over 10,000 times lower than the dose rate criterion of 0.25 mSv/y. These are negligible levels of exposure.

In order to examine the sensitivity of the lifestyle assumptions, and to respond to Indigenous feedback on the project, the PostSA includes a sensitivity case examining a case where an Indigenous person – living what is intended to be representative of a traditional self-sufficient lifestyle – is assumed to live in the vicinity of the NPDDF. This self-sufficient Indigenous group is assumed to ingest a range of wild and naturally-occurring foodstuffs, such as deer, moose, grouse, duck, fish, berries, mushrooms and honey.

Results indicate that the peak dose to adults and children in the self-sufficient Indigenous receptor group is more than 1,000 times lower than the dose rate criterion of 0.25 mSv/y.

The PostSA also assessed several disruptive event scenarios (as described in Section 9.1 above). In all cases the dose results are below the corresponding criterion for disruptive event cases (see the PostSA TSD for further information).

Therefore, all dose rates estimated for the normal evolution and disruptive event scenarios were below the relevant dose rate criteria in the PostSA TSD.

The radiation dose to workers performing duties associated with Institutional Controls, within the Licensed Area, will be negligible based on the anticipated radiological zoning (CNL Radiological Zone 1).

Non-radiological

As discussed in Section 9.5.3.3, the PostSA TSD results show that for Normal Evolution the highest lead concentration in groundwater is 4 x 10^{-7} mg/L and occurs in the overburden at 12,000 years after closure. The calculated concentrations of lead in all environmental media are far lower than the relevant MOE generic Site Condition Standards (2011 – Table 6, 7, 8, 9) for groundwater and the Health Canada (2017) drinking water guideline for lead.

The PostSA also assessed two disruptive event scenarios, as described in Section 9.1 above for the same receptors.

- In the site investigation scenario, the peak lead concentrations in all media are the same as for the normal evolution scenario, and well below criteria.
- In the extreme degradation of engineered barrier scenario, the peak lead concentrations in all media are below all applicable guidelines.

Regional Study Area

Since no effects on Indigenous human health have been identified in the Site and Local Study Areas, no effects are expected in the Regional Study Area for the Post-Institutional Controls phase. The offsite receptor (Deep River and Ottawa/Gatineau resident) is discussed above.

9.10.2.3.4 Prediction Confidence and Uncertainty

Uncertainty in the DecomSA TSD is addressed through conservative assumptions (i.e., variability in airborne contaminant concentrations in the facility is accounted for by the assumption that concentrations are equal to the most contaminated room for each contaminant).

There is some uncertainty in the characterization of potential effects to Indigenous Nations, communities and organizations, due to lack of site-specific information on diet and lifestyle. However, this has been accounted for this using conservative assumptions of a self-sufficient Indigenous traditional lifestyle. Other Indigenous concerns such as effects on land use and socio-economic conditions are assessed separately in subsequent sections of this EIS.

In the PostSA TSD, uncertainties in postclosure conditions and events (e.g. floods, human intrusion) and key parameters (e.g. inventory of contamination) are addressed inherently by assessing several disruptive scenarios. Conservative assumptions are also used to address other uncertainties, such as sediment characteristics.

*9.10.2.3.5 R*esidual Effects

Table 9.10-11 summarizes the effects assessment above and presents the residual effects that were identified in human health. The residual effects in Table 9.10-11 are grouped by effect rather than by individual interaction as listed in Table 9.10-7.

Table 9.10-11 Summary of Residual Effects in Indigenous Health

Environmental Component	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Decommissioning Execution					
Indigenous Health: Public (non-radiological)	All vehicle and equipment production of NO_x, SO_2, TSP, PM_{10}, and $PM_{2.5}$.	Localized changes in the atmospheric environment may affect nearby Indigenous residents.	Mitigation measures (e.g. dust suppression, equipment maintenance) for the atmospheric environment are described in Section 9.2.3.2.	For all activities, no measurable changes in air quality are predicted, therefore no effects are expected.	No adverse residual effects.
Indigenous Health: Worker (non-radiological)	All vehicle and equipment production of NO_x, SO_2, TSP, PM_{10}, and $PM_{2.5}$.	Localized effects are expected in the atmospheric environment which may affect Indigenous workers.	Mitigation measures (e.g. dust suppression, equipment maintenance) for the atmospheric and surface water environments are described in Section 9.2.3.2.	No effects are expected on worker health from changes in air quality.	No adverse residual effects.
Indigenous Health: Worker (radiological)	Establishing footprint.	Indigenous workers are expected to be exposed to small amounts of radiation during this activity.	Following work control documents and radiation protection protocol.	All doses are expected to be well below relevant dose criteria.	No adverse residual effects.
Indigenous Health: Public (non-radiological)	Stockpile grout ingredients.	Runoff from stockpiles may affect surface water quality which may affect nearby Indigenous residents.	Mitigation measures (e.g., runoff diversion, dust suppression) for the surface water environment are described in Section 9.4.3.2.	No measurable changes in water quality in the Kichi-Sìbì (Ottawa River), therefore no effects to the public/Indigenous are predicted.	No adverse residual effects.
Indigenous Health: Worker (non-radiological)	Stockpile grout ingredients.	Runoff from stockpiles may affect surface water quality which may affect Indigenous workers.	Mitigation measures (e.g., runoff diversion, dust suppression) for the surface water environment are described in Section 9.4.3.2.	No measurable changes in water quality in the Kichi-Sìbì (Ottawa River), therefore no effects to Indigenous workers are predicted.	No adverse residual effects.

Environmental Component	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Indigenous Health: Worker (radiological)	Provide slip pipe access to nuclear area.	Drilling holes for slip pipe access has the potential to increase radiation doses to Indigenous workers.	Follow work control documents and radiation protection protocol.	All doses are expected to be well below relevant dose criteria.	No adverse residual effects.
Indigenous Health: Public (non-radiological)	Construction and operation of washout pits.	Surface water quality may be affected by washout pit construction and operation which may affect nearby Indigenous residents.	Mitigation measures (e.g., proper washout pit design and management) for the surface water environment are described in Section 9.4.3.2.	Localized site drainage effects are expected but will not affect the surface water environment as a whole. No measurable changes on water quality in the Kichi-Sìbì (Ottawa River), therefore, no effects on the public are predicted.	No adverse residual effects.
Indigenous Health: Worker (non-radiological)	Construction and operation of washout pits.	Surface water quality may be affected by washout pit construction and operation which may affect Indigenous workers.	Mitigation measures (e.g., proper washout pit design and management) for the surface water environment are described in Section 9.4.3.2.	No measurable changes in water quality in the Kichi-Sìbì (Ottawa River), therefore no effects to workers are predicted.	No adverse residual effects.
Indigenous Health: Public (radiological and non-radiological)	Grout fill nuclear area.	Displacement of air from the facility containing lead, asbestos and tritium which may affect nearby Indigenous residents.	No mitigation measures have been identified.	Lead and asbestos are well below benchmark values for nearby residents. Tritium exposure calculations for the public are well below the minimum regulatory requirement.	No adverse residual effects.
Indigenous Health: Worker (radiological and non-radiological)	Grout fill nuclear area.	Displacement of air from the facility containing lead, asbestos and tritium which may affect Indigenous workers.	Follow work control documents and radiation protection protocol.	Lead and asbestos are well below benchmark values for workers. Tritium exposure calculations for workers are below worker dose criterion.	No adverse residual effects.
Indigenous Health: Public (radiological)	Demolition of above grade structures.	Surface contamination of the structure may be released into the atmospheric environment which may affect Indigenous peoples.	Mitigation measures (e.g., runoff diversion, dust suppression) for the atmospheric environment are described in Section 9.3.3.2.	All doses are expected to be well below relevant dose criteria.	No adverse residual effects.
Indigenous Health: Worker (radiological)	Demolition of above grade structures.	Surface contamination of the structure may be released into the atmospheric environment which may affect Indigenous worker health.	Follow work control documents and radiation protection protocol.	All doses are expected to be well below relevant dose criteria.	No adverse residual effects.

Environmental Component	Source of Effect	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Indigenous Health: Public (radiological and non-radiological)	Demolition of above grade structures.	Runoff may affect surface water quality and Indigenous peoples.	Mitigation measures (e.g., runoff diversion, dust suppression) for the surface water environment are described in Section 9.3.3.2.	No measurable changes in water quality in the Kichi-Sìbì (Ottawa River), therefore no effects to the public are predicted.	No adverse residual effects.
Indigenous Health: Public (radiological and non-radiological)	Sizing of material.	Runoff and release of surface contamination may affect Indigenous peoples health.	Relevant mitigation measures (e.g., runoff diversion, dust suppression) for the surface water environment are described in Section 9.4.3.2.	No measurable changes in water quality in the Kichi-Sìbì (Ottawa River), therefore no effects to the public are predicted.	No adverse residual effects.
Indigenous Health: Worker (radiological and non-radiological)	Sizing of material.	Runoff and release of surface contamination may affect Indigenous worker health.	Relevant mitigation measures (e.g., runoff diversion, dust suppression) for the surface water environment are described in Section 9.4.3.2.	No measurable changes in water quality in the Kichi-Sìbì (Ottawa River), therefore no effects to workers are predicted.	No adverse residual effects.
Indigenous Health: Worker (radiological)	Clearance surveys on potentially recyclable material.	Conducting clearance surveys has the potential to increase radiation doses to Indigenous workers.	Following work control documents and radiation protection protocol.	All doses are expected to be well below relevant dose criteria.	No adverse residual effects.
Institutional Controls and Post-Institutional Controls					
Indigenous Health: Public (radiological)	Facility performance during the postclosure period.	Exposure to radionuclides in groundwater, surface water, sediment, food, as well as external radiation could affect Indigenous health.	In-design mitigations to isolate and contain the inventory in order to reduce the potential of groundwater contamination and effects on Indigenous health.	All doses are expected to be well below relevant dose criteria.	No adverse residual effects.
Indigenous Health: Public (non-radiological)	Instantaneous degradation of the concrete and grout, altering the hydraulic properties and decreasing contaminant transport times.	Exposure to lead in groundwater, surface water, sediment, soil and food could affect Indigenous health.	In-design mitigations to isolate and contain the inventory in order to reduce the potential of groundwater contamination and effects on Indigenous health.	The PostSA TSD determined that there is no likely exposure pathway from groundwater to humans.	No adverse residual effects.

9.10.2.4 Assessment of Residual Effects

Based on the assessment described above, no adverse residual effects on Indigenous health have been predicted.

9.10.2.5 Monitoring and Follow-Up

The VCs for Indigenous Health are worker and Indigenous peoples (general) health. Monitoring and follow-up activities related to human health are discussed below and in Table 9.10-12. Further action will be triggered if parameters are above applicable guidelines or other notable changes are observed.

Other more general considerations of the EA Follow-up Program (e.g., sampling and analysis procedures, information management and reporting) are presented in Section 12.

Decommissioning Execution

CNL will continue to conduct radiation dose monitoring and indoor air quality monitoring during the Decommissioning Execution phase to confirm that there are no effects on worker health.

Monitoring conducted in other environmental components (i.e., atmospheric environment and ambient radioactivity) will also confirm EIS predictions for effects on Indigenous worker and public health during the Decommissioning Execution phase.

Institutional Controls

CNL will conduct radiation dose monitoring during the Institutional Controls phase to confirm that there are no effects on worker health.

Monitoring conducted in other environmental components (i.e., atmospheric environment, geological and hydrogeological environment and ambient radioactivity), such as radiation protection surveys and groundwater monitoring, will also confirm EIS predictions for effects on Indigenous worker and Indigenous public health during the Institutional Controls phase.

Table 9.10-12 Monitoring and Follow-up Activities in Human Health

Environmental Component	Environmental Subcomponent	Conceptual Monitoring Program	Monitoring Program Objective	Suggested Duration	Relation to Current NPD Monitoring Program
Decommissioning Execution Phase					
Indigenous Health	Indigenous Worker health	Potential Source(s) of Effects: - Grout batch mixing plant. - Grouting of below grade structures. - Removal of above grade structures. - Installation of concrete cap and engineered cover. - Final site restoration Proposed monitoring: - Perform routine bioassays as well as TLDs to monitor whole-body dose. Routine radiation protection surveys, as per ambient radioactivity above. - Monitor indoor air quality. - Estimate combustible gases (e.g., based on project-related traffic and equipment), as per atmospheric environment above. - Monitor parameters of concern (e.g., lead, asbestos, tritium) in air displaced from grouting the below grade structure and removal of the above grade structure, as per atmospheric environment above. - Wildlife: noise monitoring, as per atmospheric environment above. - Conduct monitoring for each new activity for a short time period to confirm no effect, as per atmospheric environment above. Trigger for further action: Investigation if parameters are above applicable guidelines identified.	Verify EA prediction (i.e., no adverse residual effect on worker health).	Air quality parameters and industrial hygiene: For each new activity, monitor for minimum one week. Estimation of combustible gases: event-based (e.g., as required for reporting). Routine radiation protection surveys: periodic.	Workers within the NPDWF are currently monitored by CNL Dosimetry Services, which includes routine bioassay as well as assignment of TLDs to monitor whole-body dose. NPDWF currently conducts annual industrial hygiene assessment of lead, asbestos and mould in air within the facility.
Institutional Controls phase					
Indigenous Health	Indigenous Worker health	Potential Source(s) of Effects: - Radiological exposure during worker presence on-site (e.g., for monitoring and long-term care and maintenance of the site). Proposed monitoring: - Perform routine bioassays as well as TLDs to monitor whole-body dose. - Routine radiation protection surveys, as per ambient radioactivity above. - Monitor parameters of concern in air, as per the atmospheric environment above. Trigger for further action: Investigation if parameters are above applicable guidelines identified.	Verify EA prediction (i.e., no adverse residual effect on worker health).	Air quality parameters: For each new activity, monitor for minimum one week. Routine radiation protection surveys: periodic.	Workers within the NPDWF are currently monitored by CNL Dosimetry Services, which includes routine bioassay as well as assignment of TLDs to monitor whole-body dose.
Indigenous Health	Indigenous General Public health	Potential Source(s) of Effects: - Potential leaching of soluble contaminants from degradation of grouted structure. Proposed Monitoring: - Routine groundwater analyses for parameters of concern (chemical and/or radiological) as per the geological and hydrogeological environment.	Verify EA prediction (i.e., no adverse residual effect on groundwater quality or related VCs).	Sampling and analysis of groundwater: periodic.	NPDWF currently conducts non-periodic (i.e., occasional event-based) groundwater monitoring.

9.10.2.6 Conclusion

As shown in Table 9.10-11, no adverse residual effects were identified on Indigenous health.

The assessment took into consideration the concerns expressed by Indigenous Nations, communities, and organizations during engagement activities (Section 9.10.2.1.1). For example, other medicinal pathways have been added to CNL's assessment in addition to ingestion (inhalation and skin application).

Monitoring activities in other environmental components (i.e., atmospheric, surface water, and geological, and hydrogeological environments and ambient radioactivity) will verify the accuracy of the EA predictions and effectiveness of measures implemented to mitigate potential adverse environmental effects related to Indigenous health. If monitoring identifies concerns in the other environmental components, CNL will assess the implications to Indigenous health (e.g., using human health risk assessment as required).

9.11 Socio-economic Environment

Section 9.5 of the Generic Guidelines for the Preparation of the Environmental Impact Statement states the following:

"The proponent will use the information in appendix A, section A.3.7, Socio-economic environment, of the CNSC (2016b) REGDOC-2.9.1 on *Environmental Principles, Assessments and Protection Measures*, to assess the project's indirect socio-economic effects." In Section A.3.7 of CNSC (2020a), it is stated that:

"The applicant should characterize the socio-economic environment and identify all indirect socio-economic effects. An indirect effect is a secondary environmental effect that occurs as a result of a change that a project may cause in the environment. Paragraph 5(2)(b) of CEAA 2012 refers to any change to the environment caused by the project on health and socio-economic conditions, physical and cultural heritage, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance. For additional guidance, refer to Technical Guidance for Assessing Physical and Cultural Heritage or any Structure, Site or Thing that is of Historical, Archaeological, Paleontological or Architectural Significance under the Canadian Environment Assessment Act, 2012 [22]."

In this EIS and in the Socio-economic TSD, the socio-economic factors examined include those that are potentially affected by the effects of the project to the natural environment. Requirements specific to socio-economic conditions under CNSC REGDOC-2.9.1 are addressed in the EIS and TSD.

9.11.1 Selection of VCs

As outlined in Section 5.2.4, VCs in the socio-economic environment were selected to encompass potential effects on human uses and enjoyment of the land (e.g., hunting, tourism, forestry, etc.), land use designations, and traffic and transportation. The VCs for the socio-economic environment, with rationale for their selection, are listed in Table 9.11-1.

Table 9.11-1 Socio-economic VC Selection

Environmental Component	VC	Rationale
Socio-economic Environment	Walleye	Socio-economic importance as a sportfish.
	White-tailed deer	Socio-economic importance as a game species.
	Residents – Use/ Enjoyment of Property	Potential disruption to use and enjoyment of property because of nuisance-related effects (e.g., dust, noise, traffic) during the Decommissioning Execution phase for residents living in the Regional Study Area. This includes residents potentially hunting/trapping in the Local Study Area.
	Land Use and Planning Regime	The proposed project may allow for redesignation of some or all of the NPD property for other uses following the Decommissioning Execution and Institutional Controls phases.
	Landscape and Visual Setting	Due to the proximity of the site to the Ottawa River, the project may affect the quality of views from the river. It is not visible from Highway 17.
	Highway 17	Highway 17 is the main vehicular artery in the area. Project-related increases in traffic may affect capacity and safety of the Highway and represents a risk to human health and safety (e.g., accidents), as well as a risk to the natural environment (e.g., spills, wildlife mortality from increased volume, sensory disturbance from increased noise, increased emissions).

Note:

In response to feedback received during Indigenous engagement activities, CNL has added Indigenous socio-economic VCs (see Section 9.10.1).

9.11.2 Assessment Boundaries

9.11.2.1 Spatial Boundaries

Similar to the socio-economic environment baseline characterization in Section 8.10 above, the Site Study Area for this assessment are consistent with the general Site Study Area outlined in Section 5.2.1.1. The Local and Regional Study Areas for the socio-economic environment are the same as those outlined for traditional land and resource use (Section 8.9.1).

9.11.2.2 Temporal Boundaries

The temporal boundaries are the same as the standard temporal boundaries outlined in Section 5.2.1.2 of this EIS.

9.11.3 Identification of Residual Effects

9.11.3.1 Project-Environment Interactions

As shown in Table 5.2-1, potential effects to the socio-economic environment may occur as a result of operations and activities in the Decommissioning Execution, Institutional Controls and Post-Institutional Controls phases, in particular:

- Installation and operation of the grout batch mixing plant;
- Grouting of below grade structures;

- Removal of above grade structures;
- Install concrete cap and engineered cover;
- Final site restoration;
- Renaturalization;
- Facility performance during the Institutional Controls; and
- Facility performance during the Post-Institutional Controls phase.

The rationale for these interactions is included in Table 9.11-2 below.

Table 9.11-2 Project-Environment Interactions in the Socio-economic Environment

		Project Works and Activities	Potential Interaction
Decommissioning Execution	**1**	**Grout Batch Mixing Plant**	
	1.1	Designate footprint, create access, temporary fencing (east side of main building).	Establishing the project footprint and installing fencing may affect the landscape and visual setting from the Ottawa River. On-site activities may produce nuisance effects for nearby residents/land users (noise, dust and traffic).
	1.2	Assign storage area for raw materials, ship in sand. Likely east side of licensed area.	Trucking in raw materials will affect traffic and transportation. Raw material transport may produce nuisance effects for nearby residents/land users (noise, dust, traffic). A minor depletion of local grout materials reserves may occur.
	1.4	Truck in necessary water supply or source water directly from river.	Trucking in water supply will affect traffic and transportation, and produce exhaust and dust. Trucking may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	1.5	Provide slip pipe access to reactor side.	On-site activities may produce nuisance effects for nearby residents/land users (noise, dust).
	1.6	Construct washout pit. Lined excavation with water transfer. Likely near grout batch mixing station.	Earth-moving may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	1.7	Level area for pumper.	Earth-moving may produce nuisance effects for nearby residents/land users (noise, dust).
	1.8	Mix grout to required formula.	On-site activities may produce nuisance effects for nearby residents/land users (noise, dust).
	1.9a	Truck grout to pumping station (20 trips per day).	Trucking will affect traffic and transportation, and produce exhaust and dust. Trucking may produce nuisance effects for nearby residents/land users (noise and dust).
	1.11	Sample and dewater the cleaning pit. Emplace sediments into voids in condenser room.	On-site activities may produce nuisance effects for nearby residents/land users (noise).

		Project Works and Activities	Potential Interaction
Decommissioning Execution	1.12	Demobilize grout batch mixing plant after cap installation.	Demobilization will require removal of equipment and materials from the site via truck, thereby affecting traffic and transportation. Demobilization activities may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	2	**Grouting of Below Grade Structure**	
	2.1	Room preparation (e.g., sealing of pipes).	Equipment and material transportation may produce nuisance effects for nearby residents/land users (traffic).
	2.3	Grout Fill Nuclear Area.	On-site activities may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3	**Removal of Above Grade Structure**	
	3.1	Conventional heavy equipment knockdown of reactor hall.	Demolition equipment transportation to the site, and on-site material transportation will affect traffic. Demolition may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3.2	Sizing of material such as cutting steel beams or crushing masonry for fitting into void areas.	Material sizing may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3.3	Set up laydown area and perform clearance surveys on materials for possible recycle.	On-site material transportation may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3.4	Steel and rubble emplaced in condenser room.	On-site material transportation may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3.5	Grout first level of demolition material in condenser room.	On-site material transportation y and may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3.6	Steel and rubble emplaced in condenser room.	On-site material transportation may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3.7	Grout second level of demolition material in condenser room.	On-site material transportation may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3.8	Steel and rubble in condenser room.	On-site material transportation may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3.9	Grout third level of demolition material in condenser room.	On-site material transportation may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3.10	Demolish block walls and inside walls around control room and change rooms.	Demolition equipment transportation to the site, and on-site material transportation will affect traffic and transportation. Demolition may produce nuisance effects for nearby residents/land users (noise, dust, traffic).

		Project Works and Activities	Potential Interaction
Decommissioning Execution	3.11	Collapse ceilings of furnace room and adjacent rooms.	Demolition equipment transportation to the site, and on-site material transportation will affect traffic and transportation. Demolition may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3.12	Emplace block wall rubble in furnace room or condenser room.	On-site material transportation may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3.13	Remove recyclables from guard house.	On-site material transportation may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3.14	Demolish guard house and emplace in furnace room and adjacent rooms.	Demolition equipment transportation to the site, and on-site material transportation will affect traffic and transportation. Demolition may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3.15	Grout furnace room and adjacent areas to ground level.	On-site material transportation may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	3.16	Demolish above grade portion of pressure relief pit. Fill with grout.	Demolition equipment transportation to the site, and on-site material transportation will affect traffic and transportation. Demolition may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	4	**Install Concrete Cap and Engineered Cover**	
	4.1	Concrete Cap (construct forms, install rebar, and pour, level and slope concrete).	On-site material transportation may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	4.2	Engineered Cover (ship in materials, layer and shape mound, install geotextile layer, grade property, install remaining earth layers and seed).	Shipping in materials will affect traffic and on-site material transportation may produce nuisance effects for nearby residents/land users (noise, dust, traffic).

		Project Works and Activities	Potential Interaction
Decommissioning Execution	**5**	**Final Site Restoration**	
	5.1	Site Restoration (install fencing, install monitoring wells if required, remediate areas affected by previous operations or decommissioning activities, washout pit, complete closure surveys, etc.).	On-site material transportation may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
	5.2	Demobilize Site (Remove temporary facilities, decontaminate equipment, remove power upgrades, poles and lines, return transformers).	Removal of temporary facilities, equipment and utilities will improve the landscape and visual setting. On-site material transportation will affect transportation safety and may produce nuisance effects for nearby residents/land users (noise, dust, traffic).
IC*	**6**	**Long-Term Care and Maintenance**	
	6.6	Renaturalization.	Renaturalization may attract bird watchers to the site. Land Use designation may change during the Institutional Controls phase.
	6.7	Facility performance during the Institutional Controls phase.	Groundwater will start to enter and eventually resaturate the grouted structure. Contaminant release from the grouted structure may affect non-human biota (e.g., game and fish species) health and/or populations.
PIC**	**7**	**Post-Institutional Controls phase**	
	7.1	Facility performance and renaturalization during the Post-Institutional Controls phase.	Groundwater in the resaturated and eventually degraded grouted structure will become contaminated. Contaminant release from the grouted structure may affect non-human biota (e.g., game and fish species) health and/or populations.
		Renaturalization	Land Use may change during and/or after the Institutional Controls phase. Renaturalization of site may lead to an increase of wildlife and may benefit land users and tourism (e.g. hunters, trappers, bird watchers, etc.).

Notes:

* - IC: Institutional Controls phase
** - PIC: Post-Institutional Controls phase

9.11.3.2 Proposed Mitigation Measures

The mitigation measures presented below are preliminary and have been developed based on the current understanding of the project. As the project approaches detailed work planning, details will be refined, and additional mitigation measures may be developed as required.

In addition to the in-design mitigation measures identified in Section 4.1 above, the following mitigation measures have been identified to ensure the protection of the socio-economic environment:

- dust suppression measures as described in Section 9.2.3.2;
- post speed limits on-site as described in Section 9.6.3.2;
- if previously undocumented archaeological resources are discovered, then CNL will suspend decommissioning activities immediately and will engage a licensed consultant to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act,* and outlined in CNL's procedure Management of Cultural Resources (CNL 2022a). CNL remains open to engagement with Indigenous Nations, communities and organizations in the event of a discovery of an archaeological resource. If any human remains are identified during construction, CNL will immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Public and Business Service Delivery, and Indigenous Nations, communities and organizations;
- the greatest effect of traffic and transportation associated with the project will occur during the Decommissioning Execution phase. Within the Local and Regional Study Areas, the transportation/haul route is limited to Highway 17 and the NPD site access road from the highway;
- review of a company's safety records which includes any traffic accidents or driver's records, as per CNL's contracting and hiring practices;
- construction activities will generally occur between 7 am and 7 pm wherever possible, with the overall objective of minimizing nuisance effects (i.e., noise and traffic) on residents in the Local and Regional Study Areas. It is noted that special or emergency circumstances may require deviation from this restriction;
- when a significant amount of off-site transportation is required (e.g., during raw material delivery), the timing of equipment and material shipping to the site should be staggered to minimize the contribution of the project to peak traffic volumes;
- during the Decommissioning Execution and Institutional Controls phases, restrict access to the licensed area via a fence with a locked gate to deter trespassing; and,
- periodic communication updates on project construction activities to local residents are recommended, including construction schedule, activities, dedicated contact person for inquiries and emergencies etc.

No mitigation measures have been identified for land use in the study area, as formal changes in land use designation are not expected to occur during the Decommissioning Execution. Land use redesignation will only be applied as appropriate during the Institutional Controls phase. During the Institutional Controls phase, land in the Local Study Area surrounding the licensed area may be released for other uses.

No mitigation measures have been identified with respect to depletion of grout materials, as the effect is expected to be minor, and accompanied by positive economic benefits.

9.11.3.3 Effects After Mitigation

In this section, potential indirect socio-economic effects are discussed for each phase of the project. The Socio-economic TSD assesses potential effects of the project relating to land use, forestry, trapping, hunting, fishing, tourism and recreation, grout materials, minerals and residences.

Decommissioning Execution Phase

Site Study Area

No effects after mitigation are expected in the Site Study Area during the Decommissioning Execution phase. As discussed in the Socio-economic TSD, the project may affect transportation operations and safety through the transportation of materials and equipment on-site. This will largely be mitigated by posting and adhering to speed limits on-site. The remaining effect is minor and inherent in vehicle operation.

There are no residents within the Site Study Area, and no nuisance effects are expected on land users (i.e. anglers, hunters, trappers, tourists) in the Site Study Area.

A Stage 1 archaeological assessment was conducted for the NPD property, and it was determined that there are no expected impacts to the NPD property. Details are provided in the Archaeological TSD.

Local Study Area

As discussed on the Socio-economic TSD, the traffic and transportation effects associated with the project are expected to be greatest during the Decommissioning Execution phase. Within the Local Study Area, the transportation/haul route will be limited to Highway 17 and the NPD site access road from the highway.

There are approximately ten residents within the Local Study Area, and there may be nuisance effects (i.e. noise, traffic) associated with the Decommissioning Execution phase. Similarly, tourists in the Local Study Area may also experience nuisance effects. No nuisance effects are expected on land users (i.e. anglers, hunters, trappers) in the Local Study Area.

The project is expected to result in increased traffic volumes, which may be reflected in a potential increase in incidents and delays, even after mitigation measures. The increase traffic volume is expected to be temporary and minor, thus the effects on transportation safety and Highway 17 traffic is not significant. The MTO has reviewed the project, and concluded that it has no traffic or transportation-related concerns with respect to the project (MTO 2016).

There may be a minor depletion of grout materials in the Local Study Area should these be sourced locally. Grout materials will be sourced on the open market, and no residual effects are expected.

Within the Local Study Area, the landscape and visual setting may be affected by the general activities and footprint of the project. The visual character of the shoreline, as viewed from the Ottawa River, may decrease. In order to mitigate this potential effect, CNL will ensure that the existing natural buffer (made

up of the treed slope) remains in place during the Decommissioning Execution phase. The site is not visible from Highway 17; therefore, the visual setting from Highway 17 is not likely to be affected.

No effects are expected on walleye and white-tailed deer populations. Therefore, no effects are expected on the ability to hunt and fish in the Local Study Area.

As discussed earlier, the Stage 1 archaeological assessment (documented in the Archaeology TSD) states that no effects on archaeology are expected on the NPD property.

Regional Study Area

As discussed in the Socio-economic TSD, the traffic and transportation effects associated with the project are expected to be greatest during the Decommissioning Execution phase. Within the Regional Study Area, the transportation/haul route will be limited to Highway 17 and the NPD site access road from the highway. As discussed above in Section 9.11.3.2, CNL will minimize potential traffic nuisance effects on residents and nearby land users in the Regional Study Area by instituting restrictions on construction hours and days of the week. No measurable noise or dust nuisance effects are expected for residents and land users in the Regional Study Area.

The project is expected to result in increased traffic volumes and an increased likelihood of incidents and delays, even after mitigation measures. The MTO has reviewed the project, and concluded that it has no traffic or transportation-related concerns with respect to the project (MTO 2016).

In the Regional Study Area, there may be material depletion associated with the grouting and concreting activities during the Decommissioning Execution phase if grout materials are sourced locally. However, these effects are expected to be minor and also to provide positive economic benefit. Grout materials will be sourced on the open market.

There will be nuisance effects (noise, dust, traffic) in the Regional Study Area for residences and nearby land users (e.g. tourists, hunters, trappers, anglers) that should largely be mitigated by a variety of general and specific construction mitigation measures identified in Section 9.11.3.2 above.

Institutional Controls Phase and Post-Institutional Controls Phase

Site and Local Study Areas

Renaturalization may increase vegetation and habitat for wildlife, providing a potential benefit to hunters and trappers in the Site and Local Study Areas. Renaturalization on the site, and protection of chimney swift habitat may attract bird watchers to the site. This may be a potential minor economic benefit to nearby businesses.

Forest resources may become available for forestry activities in the Site and Local Study Areas during the Institutional Controls and Post-Institutional Controls phases. Renaturalization may also increase forest resources.

During the Institutional Controls and Post-Institutional Controls phases, it is assumed that the licensed area will be abandoned, making the land available for other uses. It is unknown how the licensed area might be redesignated. Changes in land use planning designation are not expected to result in residual effects.

As determined in the EcoRA TSD, no adverse residual effects have been predicted for the white-tailed deer or walleye.

Therefore, no potential effects are expected on the socio-economic environment in the Site and Local Study Areas in the Institutional Control and Post-Institutional Controls phases.

Regional Study Area

No potential socio-economic effects have been identified in the Regional Study Area for the Institutional Controls and Post-Institutional Controls phases.

9.11.3.4 Prediction Confidence and Uncertainty

There are private lands immediately adjacent to the NPD property, and it is possible but unknown whether private landowners hunt or trap on their property. It is conservatively assumed that adjacent lands and waters will be used by hunters, trappers and anglers.

There is uncertainty about locations where grout materials will be obtained. This may change the potential effects on local grout resource levels as well as traffic and transportation along Highway 17.

It is unknown whether or how land use may be redesignated during the Institutional Controls phase. During the Post-Institutional Controls period, it is unknown how the licensed area might be redesignated. This uncertainty in the Post-Institutional Controls phase is accounted for through the use of conservative assumptions, sensitive receptors and various scenarios.

The location of various elements of the Decommissioning Execution phase is undetermined, which could affect the project footprint, and the extent of the effect of the project on landscape and visual setting.

9.11.3.5 Residual Effects

Table 9.11-3 summarizes the effects assessment above and presents the residual effects that were identified for the socio-economic environment. The residual effects in Table 9.11-3 are grouped by effect rather than by individual interaction as listed in Table 9.11-2.

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Table 9.11-3 Summary of Residual Effects in the Socio-economic Environment

Environmental Component	Source of Effect	Potentially Affected VCs	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Decommissioning Execution						
Socio-economic Environment	General activities and project footprint.	Landscape and visual setting	A decrease in the visual character of the shoreline from the Ottawa River.	Maintaining current natural buffer for the duration of the Decommissioning Execution phase.	The project may be temporarily slightly more visible than the current facility.	No adverse residual effects.
Socio-economic Environment	Employee, material and equipment transportation to and from site.	Traffic and transportation	Increased traffic volume could affect the safety of road users.	Timing of shipments will be staggered when possible.	Traffic delays and the probability of traffic incidents may increase temporarily during the Decommissioning Execution phase as a result of increased volume.	No adverse residual effects.
Socio-economic Environment	On-site transportation, demolition, material sizing.	Residents – use/enjoyment of property	Nuisance effects (dust, noise and traffic).	Dust suppression, restricting hours of activity, communication with public.	Minor, temporary and localized nuisance effect on residents and nearby land users use and enjoyment of land.	No adverse residual effects.
Socio-economic Environment	All interactions with the terrestrial environment (see Section 9.6.3.1.	White-tailed deer	Wildlife displacement, contamination, or mortality affecting hunting activities.	See mitigation measures identified in Section 9.6.3.2.	No effects on hunting are expected, as there are no predicted habitat or exposure effects on white-tailed deer.	No adverse residual effects.

Environmental Component	Source of Effect	Potentially Affected VCs	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Socio-economic Environment	All interactions with the surface water environment (see Section 9.3.3.1.	Walleye	Fish displacement, contamination, or mortality affecting angling activities.	See mitigation measures identified in Section 9.3.3.2.	No effects on fishing are expected, as there are no predicted habitat or exposure effects on walleye.	No adverse residual effect.
Socio-economic Environment	Grout material use	N/A	Minor depletion of existing reserves of grout material.	No proposed mitigation.	A potential minor depletion of existing reserves of grout material, however there is a positive economic benefit.	No adverse residual effects.
Institutional Controls						
Socio-economic Environment	Land Use Redesignation	Land Use and Planning Regime	During the Institutional Controls phase, the project may allow for redesignation of the NPD property.	No proposed mitigation.	Land outside of the licensed area may become available for other uses.	No adverse residual effects.
Socio-economic Environment	Renaturalization	N/A	During the Institutional Controls phase, wildlife, bird watchers and tourists may be attracted to the site.	No proposed mitigation.	Potential benefit for tourism and recreation. Access to the licensed area will be restricted, which will limit exposure of bird watchers. Bird watchers will be present infrequently and irregularly for short periods of time, thus no measurable effects are expected.	No adverse residual effects.

Environmental Component	Source of Effect	Potentially Affected VCs	Potential Effect	Proposed Mitigation	Potential Effect After Mitigation	Residual Effect
Post-Institutional Controls						
Socio-economic: Land Use	Land Use Redesignation.	Land Use and Planning Regime.	During the Post-Institutional Controls phase, the project may allow for redesignation of the NPD property.	No proposed mitigation.	Land will be available for other uses.	No adverse residual effects.
Socio-economic Environment	Renaturalization	N/A	During the Post-Institutional Controls phase, wildlife, bird watchers and tourists may be attracted to the site.	No proposed mitigation.	Potential benefit for tourism and recreation, hunting and trapping.	No adverse residual effects.
Socio-economic Environment	Contaminant releases affecting the aquatic environment.	Walleye	Groundwater will flow into the eventually degraded structure. Contaminated groundwater will flow out and eventually into the Ottawa River.	In-design mitigations to isolate and contain the inventory in order to reduce the potential effects on the socio-economic environment.	No effect expected on walleye.	No adverse residual effects.
Socio-economic Environment	Contaminant releases affecting the terrestrial environment.	White-tailed deer	Eventual releases to the atmospheric environment through the cap system. Groundwater will flow into the eventually degraded structure. Contaminated groundwater will flow out and eventually into the Ottawa River, which could transfer to biota through drinking water.	In-design mitigations to isolate and contain the inventory in order to reduce the potential effects on the socio-economic environment.	No effect expected on white-tailed deer.	No adverse residual effects.

Note:

N/A - not applicable

9.11.4 Assessment of Residual Effects

Based on the assessment described above, no adverse residual effects on the socio-economic environment have been predicted.

9.11.5 Monitoring and Follow-up

No specific environmental monitoring has been identified for the socio-economic environment. Monitoring in other environmental components will confirm the EIS predictions (i.e., that no effects are expected in the socio-economic environment). Ongoing public and stakeholder engagement activities will take place throughout the Decommissioning Execution and Institutional Controls phases to identify any changing concerns or perceptions related to the NPD Closure Project.

CNL will proactively seek, engage and support meaningful discussion on issues and opportunities related to the NPD Closure Project as part of the Public Information Program, which can be found on the CNL website (www.CNL.ca). CNL, as part of the Public Information Program, will notify residents of the commencement of Decommissioning Execution activities via door-to-door delivery of letters, where stakeholders will have the opportunity to voice their questions or concerns. As part of the notification, the letter will include all CNL contact details (e.g., website, telephone, email etc.) to provide clear direction on how to contact CNL if they have questions, concerns or complaints related to the NPD Closure Project. A web link to a Feedback Form that is currently on the NPD Closure Project webpage on www.CNL.ca will also be included in the notification and will outline the above process of when an issue or concern is submitted. CNL will continually evaluate both the process and the outcome of the ongoing engagement and communication activities to address and manage issues as they arise.

Other more general considerations of the EA Follow-up Program (e.g., sampling and analysis procedures, information management and reporting) are presented in Section 12.

9.11.6 Conclusion

As shown in Table 9.11-3, no adverse residual effects were identified in the Socio-Economic Environment.

Monitoring activities in other environmental components (i.e., atmospheric, surface water, geological and hydrogeological and terrestrial environments, ambient radioactivity and human health) will verify the accuracy of the EA predictions and effectiveness of measures implemented to mitigate potential adverse environmental effects related to the socio-economic environment. If monitoring identifies concerns in the other environmental components, CNL will assess the implications to the socio-economic environment (e.g., through ongoing public and stakeholder engagement activities).

9.12 Accidents and Malfunctions

In accordance with the EIS Guidelines (CNSC 2016a) and associated regulatory documents (such as REGDOC-2.9.1, CNSC 2020a), the EIS includes an assessment of the potential environmental effects of accidents or malfunctions that may occur in connection with the designated project.

The assessment of potential accidents and malfunctions considered both radiological and chemical events:

- radiological accidents and malfunctions: events that involve radioactive substances and components and therefore could result in the acute release of radioactivity as well as non-radiological substances; and
- conventional accidents and malfunctions: events that involve only non-radiological substances, and therefore have no potential for release of radioactivity.

Accidents and malfunctions that may occur during the project were identified, characterized and evaluated in the DecomSA TSD for both the Decommissioning Execution and Institutional Controls phases. This is because the Decommissioning Execution phase is when work will actively be taking place, and when the facility will be most susceptible to initiating events. Following the Decommissioning Execution phase, monitoring and long-term care and maintenance will take place during the Institutional Controls phase. In addition, the PostSA TSD considered disruptive event scenarios and “what if” cases which examine the potential effects of unlikely disruptive events that lead to possible penetration of barriers and abnormal degradation and loss of containment. These disruptive scenarios are designed to test the robustness of the project plan. These disruptive scenarios are not considered accidents and malfunctions, and as such have been assessed throughout Section 9, above. In the Post-Institutional Controls phase, there will be no workers or activities on site, and as such there is no possibility for accidents or malfunctions to occur.

9.12.1 Regulatory Guidelines and CNL Procedures

The EIS Guidelines (CNSC 2016a) dictate that the information in Appendix A.3.4 of REGDOC-2.9.1 on *Environmental Principles, Assessments and Protection Measures* (CNSC 2020a) be used to assess the potential health and environmental effects from postulated accident and malfunction scenarios.

As per REGDOC-2.9.1 (CNSC 2020a), the applicant must provide an assessment of the potential health and environmental effects that occur from radiological and conventional accidents and malfunctions. The EIS should also include any mitigation measures such as monitoring, contingency, clean-up or restoration work in the surrounding environment that would be required during or immediately following the postulated malfunction and accident scenarios.

The assessments of accidents and malfunctions must provide a description of postulated accidents and malfunctions sequences, considering:

- initiating events: internal, external and human-induced;
- the frequency of these events; and
- either a bounding approach or facility-specific information.

Furthermore, the EIS should include details of the source, quantity, mechanism, pathway, rate, form and characteristics of any potential releases resulting during the hypothetical malfunction or accident.

The assessments of accidents and malfunctions focused on those events that are considered credible in the context of the project, i.e., those that have a reasonable probability of occurrence based on professional judgement in a context of project-specific conditions. The threshold identified by the CNSC for credibility of a nuclear accident scenario is that it has a one in one million (i.e., 1×10^{-6}) or greater chance of occurring in any year (CNSC 2020b).

If an accident or malfunction situation occurs, CNL has procedures in place which address requirements for immediate response and post-event clean-up or restoration. Of note, CNL's Emergency Preparedness Program (described in Section 10.2 below) has been designed for immediate response to emergency situations. The program ensures emergency readiness and emergency management to support programs such as reactor safety/accident management, decommissioning, radiation and environmental protection, fire and occupational health and safety. In terms of post-event clean-up or restoration CNL's Environmental Protection Program (see Section 10.2) includes procedures that address the identification, management and remediation of lands that are contaminated.

9.12.2 Postulated Accidents and Malfunctions

A bounding scenario approach has been selected for the assessment of accidents and malfunctions in the Decommissioning Execution and Institutional Controls phases.

Section 7 of the DecomSA TSD details the approach used to identify bounding scenarios. The identification of potential accident and malfunction scenarios began with a systematic review of activities during the Decommissioning Execution and Institutional Controls phases to identify hazards. Hazards were identified and characterized by assigning conservative (i.e., erring on the side of greater consequence and greater frequency) preliminary frequency, severity and risk ratings. Frequency ratings were estimated based on initiating event probabilities, and any other relevant probabilities. Initiating events considered in the hazard identification process included:

- Operational initiating events (such as power and equipment failure);
- Human Error initiating events (such as improper handling and spills); and,
- Natural, external, or environmental initiating events (such as earthquakes and forest fires).

Detailed information on these preliminary initiating event estimates is presented in Section 7 of the DecomSA TSD.

Credible scenarios (i.e., those with $>10^{-6}$ probability and non-negligible potential consequences) were grouped based on similar consequence types. Within these groups, the scenario with the greatest potential consequence was identified. These scenarios are called bounding scenarios, and are the focus of the accidents and malfunctions assessment in the DecomSA TSD. Each hazard identified is encompassed within the selected bounding scenarios (i.e., if a hazard is not selected as a bounding scenario, it is bounded by another scenario that is expected to have greater consequence). For each bounding scenario, the

potential source term release was estimated. The resulting concentrations at receptor locations - and the resulting exposure to these concentrations - were calculated and compared to appropriate criteria.

A total of 10 bounding scenarios were selected based on the expected risk identified through the hazard identification process (Table 9.12-1). All selected bounding scenarios occur in the Decommissioning Execution phase. Of the bounding scenarios identified below, scenarios 1, 2, 6, 7, 8, 9 and 10 are considered in the assessment of accidents and malfunctions in this section of the EIS because they could be caused by human activities. Bounding scenarios 1, 2, 3, 4, and 5 are discussed as part of effects of the environment on the project (in Section 9.14 of this EIS) because they are caused by natural events. Scenarios 1 and 2 involve forest fires, which could be caused by natural events or human activities, and so they are included in both sections.

Conventional accident and malfunction events identified are addressed collectively, and will be discussed further in Section 9.11.5.

Table 9.12-1 Resulting Bounding Scenarios

Number	Bounding Scenario	Consequence
1	Forest fire	Release of **radioactivity** due to fire spreading to the building and subsequently mobilizing and releasing radionuclides.
2	Forest fire	Release of **chemicals** (e.g. mercury, combustion by-products) due to fire spreading to the building and subsequently mobilizing and releasing chemicals.
3	Tornado	Release of **radioactivity** due to damage to the building and subsequently mobilizing and releasing radionuclides
4	Tornado	Release of **chemicals** due to damage to the building and subsequently mobilizing and releasing chemicals.
5	Flood	Release of **radioactivity** due to water ingress and subsequently mobilization of radionuclides.
6	Accidental exposure to **radioactivity.**	Radiological dose during demolition of walls, cutting holes, cutting vessels and pipes. *Note: though radiological doses are anticipated as part of normal operations, this accident scenario represents exposure* beyond *the levels anticipated as part of normal planned demolition activities. See Section 8 of the DecomSA TSD for assessment of normal operations.*
7	Accidental exposure to **chemicals.**	Exposure to chemicals during demolition of walls, cutting holes, cutting vessels and pipes. *Note: limited to exposure* beyond *the levels anticipated as part of normal planned demolition activities. See Section 8 of the DecomSA TSD for assessment of normal operations.*
8	Underground fire (including equipment fire).	Airborne release of **radionuclides** and subsequent exposure.
9	Underground fire (including equipment fire)	Airborne release of fire by-products (smoke and chemicals), as well as chemicals involved in the fire and subsequent exposure.
10	Collapse of ventilation stack.	Release of **radioactivity** and exposure.

In addition to the bounding scenarios listed above, the DecomSA TSD also considers hydrogen production and concentration during grouting. The primary measure that will be used to maintain the hydrogen levels at a safe concentration will be to control the environment in the vault with active ventilation that can sufficiently sweep out the produced hydrogen. Given the maximum hydrogen generation rate of 3.18×10^{-4} m^3/s, an air flow rate of 3.18×10^{-1} m^3/s (674 cubic feet per minute) would ensure the hydrogen concentration does not rise above 1%. Ventilation can be sized accordingly. A standard 2000 cubic feet per minute ventilator should be adequate. Additional measures to reduce hydrogen generation include pouring grout in batches to allow a set up time between pours or lowering grout temperature (< 20°C) which also reduces the hydrogen production rate. With the implementation of these hydrogen safety measures, adverse effects on workers are not anticipated.

9.12.3 Dose and Exposure Limits

9.12.3.1 Radiological Dose Criteria

Dose/acceptance criteria for assessing accidents and malfunctions were obtained from CNL's existing Safety Analysis Report (Athauda-Arachchige 2015); these are outlined in Table 9.12-2 below. These dose criteria depend on the frequency with which a receptor is exposed. Four event frequency ranges (with an associated dose band) are used to define the accidents and malfunctions. The upper bound of the dose band is considered as the safety goal, while the lower bound is considered as the safety target. Predicted doses below the safety target are acceptable, while doses above the safety target must be justified. Doses in excess of the safety goal are unacceptable.

Table 9.12-2 Dose Acceptance Criteria – Accidents and Malfunctions (based on Athauda-Arachchige 2015)

Frequency Range (Events/year)	Description of Event Occurrence	Dose Range per Event (mSv)	
		On-Site Personnel (Workers)	Off-Site Personnel (Public)
$>3\times10^{-1}$	**Frequent**; Events that are expected to occur several times during the lifetime of the facility. *(e.g. frequency of approx. 1 every 3 years)*	<1	<0.1
3×10^{-1} to 3×10^{-2}	**Occasional**; Events may occur a few times during the lifetime of the facility. *(e.g. frequency of approx. 1 every 3 years to 1 every 30 years)*	1 to 5	0.1 to 0.5
$<3\times10^{-2}$ to 10^{-4}	**Rare**; Events have slight chance of occurring during the lifetime of the facility. *(e.g. frequency of approx. 1 every 30 years to 1 every 10,000 years)*	>5 to 50	>0.5 to 5.0
$<10^{-4}$ to 10^{-6}	**Extremely Rare**; Events are not expected to occur during the lifetime of the facility. *(e.g. frequency of approx. 1 every 10,000 years to 1 every 1,000,000 years)*	>50 to 100	>5 to 100

Note:

Frequency ranges for rare and extremely rare events have been adjusted to avoid overlapping of these frequency ranges.

Furthermore, in addition to the dose criteria explained above, the NEW annual dose criteria (50 mSv/y) has been used to ensure that doses are sufficiently low.

9.12.3.2 Non-Radiological Benchmarks

The following non-radiological contaminants were identified in the COPC screening in Section 5.2.3 of this EIS for assessment of potential health effects to human receptors, based on the chemical inventory of the facility and on the nature of bounding scenario events (e.g. combustion products from fires):

- Lead;
- Mercury;
- Asbestos; and,
- PCBs (assumed >54%Cl).

The DecomSA also assessed dioxins and furans (by-products of PCBs combustion) for fire-related accident scenarios only.

Worker Receptors

For worker receptors, the chosen benchmarks are the Immediately Dangerous to Life or Health (IDLH) values. Where IDLH values were unavailable, the public Protective Action Criteria (PAC) -1 values were used (PAC values in the subsequent section). The chosen benchmarks are presented in Table 9.12-3.

Table 9.12-3 Non-Radiological Criteria – Worker Receptors – Accidents and Malfunctions

Chemical	Benchmark Value	Reference
Mercury Vapor	10 mg/m^3	IDLH (NIOSH 2016a)
PCB	13 mg/m^3	IDLH value not available. Public PAC-1 value used to fill gap.
Dioxins & Furans ***(as 2,3,7,8-Tetrachlorodibenzo-p-dioxin)***	0.00013 mg/m^3	IDLH value not available. Public PAC-1 value used to fill gap.
Asbestos	0.05 mg/m^3	IDLH value not available. Public PAC-1 value used to fill gap.
Lead	100 mg/m^3	IDLH (NIOSH 2016b)

Public Receptors

The benchmarks selected for assessing public exposure to non-radiological species under one-hour accidents and malfunctions scenarios (exposure time) are the U.S. DOE PACs (U.S. DOE 2016). PACs are developed and maintained by the U.S. Department of Energy (DOE) / National Nuclear Security Administration (NNSA). PACs are a comprehensive set of short-term public exposure guidelines based on hierarchical selection of criteria from among U.S. Environmental Protection Agency AEGLs (Acute

Exposure Guideline Levels), American Industrial Hygiene Association one-hour ERPGs (Emergency Response Planning Guidelines), or internal TEELs (Temporary Emergency Exposure Limits) where AEGLs or ERPGs are not available.

PAC values are divided into four different categories based on the associated type of health effects:

- PAC 0 – no adverse health effects;
- PAC 1 – mild, transient health effects;
- PAC 2 – irreversible or other serious health effects that could impair ability to take protective action;
- PAC 3 – life threatening health effects.

PAC-1 values are chosen for this assessment, as they represent the maximum concentration in air below which it is believed nearly all individuals could be exposed without experiencing other than mild transient adverse health effects or perceiving a clearly defined, objectionable odour. Table 9.12-4 presents the benchmark values identified for public receptors.

Table 9.12-4 Non-Radiological Criteria – Public Receptors – Accidents and Malfunctions

Chemical	PAC-1 Criteria (US DOE 2016) [in mg/m^3]
Mercury [a]	0.15
PCBs [b]	13
Dioxins & Furans [c]	0.00013
Asbestos	0.05
Lead	0.15

Notes:

[a] As mercury vapour; Hg_2O is not stable.
[b] DOE 2016 generic value for PCBs/Aroclor.
[c] As 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD).

Dioxins & Furans

Public (and worker) benchmark criteria for dioxins and furans are based on TCDD. Table 9.12-5 presents the toxic equivalence factors (TEQs), for other dioxin and furan congeners. TCDD has the highest toxicity, and thus a toxicity equivalence ratio of 1.0; the toxicity of the other congeners is less (i.e., TEQs less than 1.0). Therefore, it is conservative to use TCDD as the representative dioxin and furan compound.

Table 9.12-5 TEQs for Dioxin & Furan Congeners

Dioxins		Furans	
Congeners	**Toxic Equivalence Factor**	**Congeners**	**Toxic Equivalence Factor**
2,3,7,8-TCDD	1	2,3,7,8-TCDF	0.1
1,2,3,7,8-PeCDD	1	1,2,3,7,8-PeCDF	0.03
-	-	2,3,4,7,8-PeCDF	0.3
1,2,3,4,5,8-HxCDD	0.1	1,2,3,4,7,8-HxCDF	0.1
1,2,3,6,7,8-HxCDD	0.1	1,2,3,6,7,8-HxCDF	0.1
1,2,3,7,8,9-HxCDD	0.1	1,2,3,7,8,9-HxCDF	0.1
-	-	2,3,4,6,7,8-HxCDF	0.1
1,2,3,4,6,7,8-HpCDD	0.01	1,2,3,4,6,7,8-HpCDF	0.01
-	-	1,2,3,4,7,8,9-HpCDF	0.01
OCDD	0.0003	OCDF	0.0003

Note:

A dioxin counterpart does not exist for every furan congener because the dioxin structure is more symmetric than the furan structure.

9.12.4 Radiological Accidents and Malfunctions Effects

This section presents the expected effects of the radiological accidents and malfunctions. As discussed above, radiological accidents and malfunctions are events that involve radioactive substances and components and therefore could result in the acute release of radioactivity as well as non-radiological substances.

For detailed information and analysis of these scenarios, please see Section 9 and Appendix F of the DecomSA TSD. Mitigation measures for the bounding scenarios, including safeguards and CNL's planned responses, are discussed in Appendix B of the DecomSA TSD.

All scenarios were assessed for worker and public receptors, however only bounding scenarios 1 through 5, 8 and 9 (from Table 9.12-1) were determined to have the potential to affect non-human biota (EcoRA TSD).

The results below are presented as maximum SIs. An SI is the ratio (i.e., unitless) of an estimated exposure level (or an estimated environmental concentration) divided by a corresponding toxicity reference value or benchmark value. An SI of <1 means that no effects are expected. An SI of >1 means that effects may occur.

9.12.4.1 Forest Fire

Radiological

The forest fire bounding scenario (Scenario #1) results in doses to non-human biota, public, and workers that are below their respective acceptance criteria. The maximum calculated total dose received was 1.48×10^{-5} mSv for a worker. On an annual basis, this dose is below the regulatory limit of 50 mSv/y for NEW by 5 orders of magnitude.

Non-Radiological

The forest fire bounding scenario (Scenario #2) results in exposure concentrations for non-human biota, public and workers that are below the appropriate exposure limit for each contaminant. The maximum calculated SIs for any receptor are shown below in Table 9.12-6.

Table 9.12-6 Forest Fire - Screening Indices

Non-Rad Chemicals	**Maximum Screening Index** *[unitless; comparison of estimated concentration to benchmark value]*
Asbestos (inhalation)	6.00×10^{-1}
Lead (inhalation)	1.61×10^{-3}
Lead (soil)	1.45×10^{-8}

The above SI values are below 1, indicating that calculated potential non-human biota, public, and worker exposures are below the relevant benchmark values.

9.12.4.2 Accidental Exposure

Radiological

The accidental exposure to radiation bounding scenario (Scenario #6) results in doses to workers that are below their respective acceptance criteria. A worker spends additional time drilling, thereby increasing exposure time. The maximum calculated total dose is 2.19 mSv. On an annual basis, these doses are below the regulatory limit of 50 mSv/y for NEW by an order of magnitude.

Non-Radiological

As discussed in Section 9.3.7 of the DecomSA TSD, there is no exposure route to hazardous chemicals from the assessed activities. Therefore, no exposure to hazardous chemicals is expected in this bounding scenario.

9.12.4.3 Indoor Fire

Radiological

The indoor fire bounding scenario (Scenario #8) results in doses to non-human biota, public and workers that are below their respective acceptance criteria. The maximum calculated total dose is 1.12 x10^{-3} mSv. On an annual basis, this dose is below the regulatory limit of 50 mSv/y for NEW by 4 orders of magnitude.

Non-Radiological

The indoor fire bounding scenario (Scenario #9) results in exposure concentrations for non-human biota, public and workers that are below the appropriate exposure limit for each contaminant. Two scenarios are considered:

i) A fire in the fueling machine room results in the release of lead. The maximum SI is shown in Table 9.12-7.

Table 9.12-7 Indoor Fire in Fueling Machine Room - Screening Index

Non-Rad Chemicals	Maximum Screening Index *[unitless; comparison of estimated concentration to benchmark value]*
Lead (inhalation)	7.95 x 10^{-1}
Lead (soil)	6.53 x 10^{-8}

ii) The inhalation SI for a fire in the boiler room (resulting in mercury release) are shown in Table 9.12-8.

Table 9.12-8 Indoor Fire in Boiler Room – Inhalation Screening Index

Non-Rad Chemicals	Maximum Screening Index *[unitless; comparison of estimated concentration to benchmark value]*
Mercury	2.39 x 10^{-1}

9.12.4.4 Stack Collapse

Radiological

As per Section 4, the project does not plan to demolish the ventilation stack, however the DecomSA TSD does examine the probability of an accidental stack collapse event. Specifically, it focuses on 3 potential causes: Earthquake, Tornado, and accidental Heavy Equipment collision. There are specific probabilities determined for each of these.

The ventilation stack collapse bounding scenario (Scenario #10) results in doses to both public and workers that are below their respective acceptance criteria. The maximum calculated total dose is 5.16×10^{-2} mSv. On an annual basis, this dose is below the regulatory limit of 50 mSv/y for NEW by 3 orders of magnitude.

Section 7.4 of the DecomSA TSD discusses the safeguards taken during the decommissioning work. With respect to structural demolition, it notes that:

- Structural assessments will be performed to ensure that all demolition work is done in accordance with safe work practices and civil/ engineering requirements.
- Appropriate methods will be used during the demolition process to provide support and ensure that unintended structural failure does not occur.
- If inclement weather occurs during the performance of project work, activities would be stopped (if deemed necessary) in order to minimize weather-related risks.
- A plan for demolition of structural components will be developed and followed closely.
- An exclusion zone will be established for decommissioning activities.

The above text applies broadly to all of the above-grade structural elements. These safeguards will reduce the likelihood of an accidental Heavy Equipment collision during structural demolition of the main building.

9.12.4.5 Risk Evaluation Conclusions

Each of the 10 bounding scenarios underwent a consequence assessment to determine the source term (radiological and chemical) involved, estimated dispersion/transport to receptor locations, and corresponding dose estimates at each receptor location. These dose estimates were assigned severity ratings. Each of the 10 bounding scenarios then underwent a likelihood assessment to determine their probability of occurrence and the probability mechanisms involved, i.e. the initiating events and conditional probabilities, as applicable. These probability estimates were assigned frequency ratings. Lastly, the severity ratings and frequency ratings for each bounding scenario were used, in conjunction with a risk matrix, to calculate a risk rating for each bounding scenario. Table 9.12-9 presents the risk matrix overlaid with all 10 bounding scenarios (abbreviated as B.Scn), according to their severity, frequency, and risk ratings.

Table 9.12-9 Risk Matrix Showing all Bounding Scenarios

Frequency Ratings	Severity Ratings				
	S0	**S1**	**S2**	**S3**	**S4**
F0	R0	R0 **B.Scn.#3** **B.Scn.#4**	R0	R0	R1
F1	R0 **B.Scn.#5**	R0 **B.Scn.#1** **B.Scn.#2** **B.Scn.#10**	R0	R1	R2
F2	R0 **B.Scn.#7**	R0 **B.Scn.#8** **B.Scn.#9**	R1 **B.Scn.#6**	R2	R3
–F3	R0	R1	R2	R3	R3

Notes:

R0 - The risk is negligible; no further action is necessary.
R1 - The risk is tolerable, further protective measures are not essential but should be considered.
R2 - The risk for internal events is unacceptable, additional engineered solutions must be put in place to protect against the risk. For external events that cause damage and injury, but not due to failure of the process, the risk is tolerable.
R3 - The risk is unacceptable, the proposed process is inherently unsafe, major modifications to the proposed design are required.
Bounding Scenario #1 – Forest Fire (radiological releases)
Bounding Scenario #2 – Forest Fire (chemical releases)
Bounding Scenario #3 – Tornado (radiological releases)
Bounding Scenario #4 – Tornado (radiological releases)
Bounding Scenario #5 – Flood (radiological releases)
Bounding Scenario #6 – Drilling (exposure accident) (radiological releases)
Bounding Scenario #7 – Drilling (exposure accident) (chemical releases)
Bounding Scenario #8 – Indoor Fire (radiological releases)
Bounding Scenario #9 – Indoor Fire (chemical releases)
Bounding Scenario #10 – Collapse of Ventilation Stack (radiological releases)
See Table 7-4 in the DecomSA TSD for descriptions of Frequency Ratings.
See Table 7-5 in the DecomSA TSD for descriptions of Severity Ratings.

As shown in Table 9.12-9, all bounding scenarios except one were assessed to have negligible risk scores. Although scenario #6 was ranked as tolerable, due to the conservative assumptions used in its calculation (DecomSA TSD), consideration of further protective measures is not warranted. The potential risks to non-human biota are addressed in the EcoRA TSD.

9.12.5 Non-Radiological Accidents and Malfunctions Effects

This section presents the predicted effects of the non-radiological accidents and malfunctions as reported in the DecomSA. As discussed above, conventional accidents and malfunctions are events that involve only non-radiological substances, and therefore have no potential for release of radioactivity.

9.12.5.1 Conventional Accidents, Malfunctions & Safeguards

Conventional Accidents and Malfunctions Statistics for Construction Projects

Since statistics of conventional accidents during reactor decommissioning are scarce, generic fatality statistics from the construction industry are used for comparison.

Major construction projects (which includes decommissioning activities) involve the interaction of personnel with hazards such as moving and stationary heavy equipment/machinery, electricity and temporary power lines, working at heights, working in confined spaces, working with potentially unstable structures, working with pneumatic tools and techniques, etc. In contrast to specific industrial facilities where each activity/position is routine, with little variability, well characterized, and the occupational settings are well defined, construction projects can involve several ad-hoc tasks performed by workers as part of the execution of a larger overall activity. Such projects may also use equipment that are generally rotated from one site to another (e.g., cranes). In these situations, conventional occupational accidents and malfunctions are governed by the limits of human performance as well as the reliability of the equipment (related to its maintenance).

According to the Ontario Ministry of Labour (MOL) 2017-2018 report entitled *Occupational Health & Safety in Ontario* (MOL 2019), data from 2011 to 2017 indicate 26% to 36% of traumatic fatalities and 26% to 37% of occupational disease fatalities occurred in the construction sector while this sector accounted for 8.0% of total employment under provincial jurisdiction. These statistics indicate that higher fatality rates occur in the construction industry compared with other industrial sectors. The MOL (2019) report also noted that for the last 10 years, construction and transportation sectors has been the top two sectors in terms of the fatality rates.

As indicated by the MOL (2019) data, the fatality rate in the construction sector has not changed significantly over this time period. This consistency over time suggests that the rates of these accidents in these sectors are being controlled by human performance in typical industry-practices, and as such, rates have reached as-low-as- human performance limits allow, under the existing health and safety regulatory framework. Given the awareness of the roles of human factors in these accidents, provisions including training, procedures, and safeguards have been put in place by CNL to achieve as-low-as-reasonably-practicable accident rates.

It should also be noted that the work-place accident statistics mentioned above are aggregated data collected from a large number of industrial sectors, some of which may not have robust occupational health and safety programs. In contrast, the work carried out for the NPD Closure Project will be subject to additional oversight, as a result of the safety culture developed in the nuclear industry.

Fundamental Safety

Principles

The Fundamental Safety Principles outlined in the Safety Analysis Report (Athauda-Arachchige 2015) are expected to be followed for decommissioning activities. The DecomSA TSD includes information on these principles, based on Athauda-Arachchige (2015) but with revisions to apply to conventional safety of the planned decommissioning activities. This information from the DecomSA TSD is presented below.

A safety culture governs the actions of all individuals and organizations engaged in activities related to radioactive waste management. The principles relating to safety culture include operating organization responsibility, quality and management system, human factors, and safety analysis and verification. The CNSC has issued REGDOC-2.1.2, Safety Culture (CNSC 2018c), which provides a definition of safety culture and highlights general safety culture requirements that apply to all licensees. CNL abides by this document that describes the expected and suggested criteria for licensees to self-assess, establish corrective action plans and report on safety culture.

- Operating Organization Responsibility

The primary responsibility for assuring safety rests with CNL as the licensee. This responsibility includes, but is not limited to, the provision of trained, qualified staff and the provision of competent engineering and technical support staff.

The organization, responsibilities and processes are in place to: satisfy the CNL's policies on Health and Safety, and Environment; to ensure conformance with the Radiation Protection (RP) Program; to manage radiological hazards; and, to establish a safe working environment that ensures the protection of environment and personnel. See Section 10.2 for a description of relevant CNL management programs.

- Quality Assurance

A Management System meeting the requirements of the Canadian Standards Association Standard N286 is applied to the decommissioning phases of the project. All CNL employees must comply with the requirements of CNL's Quality Policy and those of the Management Manual (see Athauda-Arachchige 2015 for specific references).

- Feedback of Experience

CNL maintains an Operational Experience Database containing information obtained internally at CNL. In addition to this, CNL also has access to external operating experience. CNL has examined both of these sources of data to identify the lessons learned from previous operating experience that may be relevant for planning decommissioning activities.

- In-design Mitigation

Features are included in the project design for the purpose of pre-empting possible environmental effects (e.g., isolation and containment of inventory) (See Section 4.1.1 of this EIS).

Relevance to Project Decommissioning Activities

The activities identified for the NPD Closure Project share similarities to those of conventional construction and demolition projects. The hazard identification process presented in Section 7 and Appendix B of the

DecomSA TSD identified 29 conventional accident and malfunction scenarios, 13 of these 29 have the *potential* for severe consequences (e.g., fatalities). Five (5) of these 13 represent the potentially severe consequences of natural phenomena (i.e., from forest fires, tornados, flooding, and earthquakes), which are considered in Section 9.14 (Effects of the Environment on the Project) this EIS. The other 16 of the 29 scenarios represent the consequences of: conventional construction accidents and malfunctions (e.g., trips or fall or equipment-related injuries); electric shock; crane failure and load drop (and resulting crushing injuries); and structural collapse (and resulting crushing injuries) outlined in Appendix B of the DecomSA TSD.

In contrast to typical construction projects (and typical safeguards), the project's planned decommissioning activities will be performed with an *additional* degree of training, procedures, and safeguards in place since this project involves decommissioning of an historic nuclear reactor and radiation protection principles are involved. Staff and contractors will receive orientation to ensure they are aware of decommissioning activities, hazards, and emergency procedures. Additionally, hazards to personnel will be identified through work control documents, and eliminated or controlled using engineered controls, administrative controls, and PPE. This includes provisions for common construction hazards such as working at heights, working with electricity, confined spaces, etc.

To further emphasize the role of safety, a non-exhaustive list outlining many examples of safeguards that will be applied to the project is presented in Section 7.4 of the DecomSA TSD covering conventional accidents and malfunctions safeguards, routing/transportation safeguards, fueling safeguards, weather and natural event safeguards, security safeguards, grouting safeguards, and many other topics.

Therefore, given the fundamental safety principles that govern project planning and execution, and the many safeguards involved, conventional accidents are considered to be managed to as low as reasonably possible.

9.13 Cumulative Effects

9.13.1 Background

Section 19(1) of *CEAA* (2012) requires the assessment of cumulative environmental effects, defined in *CEAA* (2012) as effects that are "*likely to result from the designated project in combination with other physical activities that have been or will be carried out.*" Similarly, REGDOC-2.9.1 on *Environmental Principles, Assessments and Protection Measures* (CNSC 2020a) prescribes that:

- the applicant shall assess any residual adverse environmental effects of the project in combination with other past, present or reasonably foreseeable projects and/or activities within the study area, as per *CEAA* (2012), Paragraph 19(1)(a); and
- the approach and methods should be consistent with the CEAA's Interim Technical Guidance on Assessing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2018).

According to the CEAA (2018) Interim Technical Guidance:

"The approach and level of effort applied to assessing cumulative environmental effects in a project EA is established on a case-by-case basis taking into consideration:

- *the characteristics of the project;*
- *the risks associated with the potential cumulative environmental effects;*
- *the state (health, status or condition) of VCs that may be impacted by the cumulative environmental effects;*
- *the potential for mitigation and the extent to which mitigation measures may address potential environmental effects; and,*
- *the level of concern expressed by Aboriginal groups or the public.*

All cumulative environmental effects assessments should include the five steps described below – scoping, analysis, mitigation, significance, and follow-up. EA documentation must clearly explain and justify the methodologies that have been used to assess cumulative environmental effects.

1. ***Scoping** – identifying VCs for which residual environmental effects are predicted, determining spatial and temporal boundaries to capture potential cumulative environmental effects on these VCs, and examining the relationship of the residual environmental effects of the designated project with those of other physical activities.*
2. ***Analysis** – consideration of how the physical activities may affect the VCs identified in Step 1.*
3. ***Mitigation** – Mitigation measures must be identified for any significant adverse cumulative environmental effects.*
4. ***Significance** – considering the significance of likely cumulative environmental effects, taking mitigation measures into account.*
5. ***Follow-up** – developing follow-up programs that address the cumulative environmental effects."*

9.13.2 Assessment of Cumulative Effects

The NPD Closure Project has no measurable residual effects and therefore, a cumulative effects assessment is not required.

Although no cumulative effects are identified as a result of the NPD Closure Project, CNL understands that cumulative effects from its current and future projects and operations are a topic of significant interest for Indigenous Nations, communities, and organizations. Through established relationships and engagement with Indigenous Nations, communities, and organizations, CNL is sharing information on upcoming projects and/or activities. Engagement with Indigenous Nations, communities, and organizations is directly guided by their feedback on what topics or activities are of interest to that individual Nation, community and organization.

Reasonably foreseeable projects (Table 9.13-1) within the Regional Study Area are provided for context. Using the definition of 'reasonably foreseeable' from the Policy Framework for Assessing Cumulative Effects under the *Impact Assessment Act* (IAAC 2024), the CNL projects identified in Table 9.13-1 are those

where CNL has publicly disclosed its intention to seek the necessary impact assessment or other authorizations required to proceed. Table 9.13-1 also includes publicly available information regarding projects by third parties within the Regional Study Area.

The Regional Study Area includes the stretch of the Ottawa River from near the Des Joachims Generating Station, to 30 km downstream of the NPD site (which includes CRL) and extends across the river to include the Quebec shoreline (see Figure 8.3-1).

The temporal boundaries of the NPD Closure Project begin in 2026 (depending on the regulatory decision-making process) and encompass three phases: Decommissioning Execution, Institutional Controls, and Post-Institutional Controls phases, which are defined in Section 5.2.1.2.

Table 9.13-1 Reasonably Foreseeable Developments in the Regional Study Area

Type of Project	Location	Activity Description	Timeframe
Activities related to CNL's Long-Term Strategy (10-year Integrated Plan (CNL 2017))			
Near-Surface Disposal Facility (NSDF)	CRL	Construction and operation of a NSDF for the disposal of solid LLW at CRL. This project involves clearing of approximately 37 hectares.	2025 and onward
Micro Modular Reactor	CRL	Global First Power (GFP) is proposing to construct and operate a Small Modular Reactor (SMR) sited on the CRL property. Bounding estimated dates indicate site preparation and construction is planned to occur over approximately 2 years between 2025 and 2031. The construction of the SMR may overlap with the NPD Closure Project. The proposed project footprint is located on a previously disturbed area of the CRL site (i.e. paved parking lot), therefore only a limited amount of clearing and grubbing of vegetation would be part of the site preparation activities.	2025 to 2031 (approximately 2 years within this timeframe)
New/upgraded research and development facilities	CRL	Construction of an Advanced Nuclear Material Research Centre. This facility will be a modern laboratory research complex that will serve as the backbone of CNL's research and development infrastructure and a major facility in the delivery of its nuclear science and technology programs. It will be sited in the developed area of the CRL site. Minimal tree clearing is required for site preparation. As part of CNL's Tritiated Heavy Water Management Program, CNL is proposing the construction of a new facility in the developed area of the CRL site to carry out activities consistent with operations that are permitted under the current CRL licence. The proposed Modernized Combined Electrolysis & Catalytic Exchange Facility is intended to disposition AECL's inventory of heavy water acquired over the past 20-30 years, by reducing its tritium content into two reusable products.	2022 and onward
New support infrastructure	CRL	New support infrastructure includes office buildings, maintenance facility and a logistics facility. New support infrastructure and research and development facilities will generally be located within existing disturbed areas on the CRL site (i.e., no disturbance to largely undeveloped areas)	2018-2026
Infrastructure decommissioning	CRL	Over 100 buildings on CRL site have been decommissioned including nuclear laboratories and conventional buildings to make	2016-2028

Type of Project	Location	Activity Description	Timeframe
		room for new, renovated and repurposed facilities. The end-state plan for the CRL site will be to return lands disturbed by site activities to a condition that is physically stable and safe in keeping with the land use and landscape of the day. Once existing infrastructure is removed and the CRL site is reclaimed and ceases to be frequented by large numbers of employees, the level of anthropogenic disturbance within the site will be greatly reduced.	
Environmental remediation	CRL	Remediation of affected lands and non-operating waste management areas (WMAs). The end-state plan for the CRL site will be to return lands disturbed by site activities to a condition that is physically stable and safe in keeping with the land use and landscape of the day. Once existing infrastructure is removed and the CRL site is reclaimed and ceases to be frequented by large numbers of employees, the level of anthropogenic disturbance within the site will be greatly reduced.	ongoing
Other Projects			
OPG Dam repair	Vicinity of Des Joachims Dam, Rapides-des-Joachims, QC	Two dams upstream of the NPD site (Des Joachims dam and McConnell dam) are scheduled to undergo improvements from 2017 to 2026. These OPG projects involve in-water works, and additional spilling of water from the dam may be required to lower reservoir levels (Bradley 2017).	2017-2026

The Ottawa River is a highly valued resource for both the public and Indigenous Nations, communities and organizations, therefore, additional context summarizing potential project interactions with the Ottawa River is repeated here.

The spatial distribution of potential effects of the activities related to the NPD Closure Project on the surface water environment (e.g., wetlands, tributaries, and the Ottawa River) encompasses the aquatic environment for biota such as fish, and their habitats. The sustainability and health of the aquatic environment which hosts integral fish and aquatic habitat is highly dependent on and connected with the hydrology of the surrounding aquatic environment. The selection of the Local Study Area and Regional Study Area with regard to the connectivity of surface water bodies is based on the fundamentals of watershed eco-hydrology. Therefore, in order to ensure the health of biota such as fish, their habitats and migratory pathways, these key physical hydrology features are considered.

Fish productivity and community structure are common ecological measurement indicators that characterize the ecological health of fish communities in wetlands, tributaries, and the Ottawa River; if they change, then this will prompt further investigation of what would cause them to change. Therefore, because they did not change (i.e., there is no significant change in productivity of community structure), then it can be expected that these fish communities are not impacted by activities at the NPD site.

Surface water sampling locations are currently monitored routinely at the NPD site. CNL also undertook baseline studies of fish habitat, benthic macroinvertebrate, sediment quality and water quality in the Ottawa River in the summer of 2020. Samples were taken upstream, downstream and adjacent to the NPD facility. The results support the description of the baseline aquatic environment in the EIS. CNL's assessment addressed potential effects to VCs, including fish species and habitat, in the aquatic environment. No

measurable changes in surface water environment are predicted in the Ottawa River as a result of the NPD Closure Project.

If follow-up monitoring identifies a residual effect not predicted or anticipated by the EIS, the need for an NPD Closure Project cumulative effects assessment would be re-evaluated.

9.14 Effects of the Environment on the Project

In accordance with the EIS Guidelines (CNSC 2016a) and associated regulatory documents (such as REGDOC-2.9.1 on *Environmental Principles, Assessments and Protection Measures* CNSC 2020a), this EIS includes an assessment of the potential effects of the environment on the project. This assessment was carried out as an evaluation of how climate change, severe weather conditions and other environmental events may interact with and potentially alter the condition and function of the project, such that there would be resultant effects on the environment or human health and safety. The approach to the assessment of the effects of the environment on the project, detailed below, involved:

- Identifying and describing those environmental conditions (i.e., events) with a reasonable probability of occurring and that have potential to affect the project, including associated hazards to workers or the public;
- Describing the significance of any likely effects on the project, including hazards to workers and the public (if any).

The effects of the environment on the project are assessed in the:

- DecomSA TSD (for humans in the Decommissioning Execution phase);
- PostSA TSD (for humans in the Post-Institutional Controls phase); and
- EcoRA TSD (for non-human biota in both the Decommissioning Execution and Post-Institutional Controls phase).

Each TSD assesses a number of scenarios, including scenarios where the environment affects the facility. This section provides an overview of the results of these assessments for a number of environmental effects on the project, including climate change, forest fires, floods, earthquakes, severe weather such as tornados, lightning strikes, ice storms, and changes to the Ottawa River.

Additional discussion of potential effects of the environment on the project with respect to accidents and malfunctions is provided in Section 9.12.

9.14.1 Regulatory Guidelines and CNL Documents

The EIS Guidelines (CNSC 2016a) dictate that the information in Appendix A.3.9 of REGDOC-2.9.1 (CNSC 2020a) be used to assess the potential effects of the environment on the project. As per REGDOC-2.9.1 (CNSC 2020a):

> *the EIS shall take into account how the environment could adversely affect the project. The applicant shall also take into account any potential effects of climate change on the project, including an*

assessment of whether the project might be sensitive to changes in climate conditions during its lifecycle.

Some adverse environmental conditions are flooding, severe weather, biophysical hazards (such as algae), geotechnical hazards and seismic events.

9.14.2 Climate Change

Changes in the global and regional climate could affect the NPD Closure Project during the Institutional Controls and Post-Institutional Controls phases. The CNSC requires that effects assessments take into account any potential effects of climate change on a project, including an assessment of whether the project might be sensitive to changes in climate condition during its life span (CNSC 2017). As such, an effect assessment of climate change was originally completed that follows the guidance provided by the FPTCCCEA. This general guidance document is for practitioners incorporating climate change issues into an EA (FPTCCCEA 2003).

Since the original assessment using the FPTCCCEA, the Strategic Assessment of Climate Change (SACC), revised October 2020 (ECCC 2020) has been issued. The SACC requires that a climate change resiliency assessment be conducted that takes into account the vulnerabilities under both the mean climate conditions and extreme climate events over project's lifetime from construction to decommissioning and includes more details than the FPTCCCEA. The resiliency assessment should be based on future climate projections and associated impacts, and identifies how the project is resilient to the future climate. The general approach for conducting a climate change resiliency assessment can follow Infrastructure Canada's Climate Lens - General Guidance (Infrastructure Canada 2019).

Based on this new guidance, the effects assessment has been updated with a climate change resiliency assessment conducted for the NPD Closure Project based on the requirements of SACC 2020. The following sections, as well as Section 8.12.4.3, provide a summary of the climate change trends used to support the climate change resiliency assessment as well as the climate change resiliency assessment.

9.14.2.1 Climate Change Effects on the Project

Climate change may result in shifts in the frequency and/or intensity of the extreme weather events and forest fires. When evaluating the potential effects from climate change, project design features and mitigation as well as management and monitoring practices are also considered. The effects of climate change are typically measured over longer periods, with the potential for climate change effects increasing as the period over which they are measured increases.

Shifts in the frequency and/or intensity of extreme weather events are expected to accompany the general warming of surface air temperatures. Increased evaporation will result in more moisture in the air and warmer air can hold more moisture, therefore, more intense precipitation events (i.e., rainstorms and snowmelts) are expected. The surface drainage system and overburden for the NPDDF site will have physical characteristics similar to natural drainage systems in the general geographic region in terms of dynamic stability, robustness and longevity. A multi-component concrete cap and engineered cover system

will be located on top of the NPDDF, which will be graded to promote positive drainage from the site towards the Ottawa River.

The annual snowfall for Canada has increased by about 4% over the time period of 1950 to 2009 (Mekis and Vincent 2011) and the current climate General Circulation Models (GCM) for the project indicate that snowfall is increasing further.

Climate change has the potential to greatly influence forests, since even small changes in temperature and precipitation can affect forest growth and survival. A small increase in temperature can result in a longer growing season, increased plant growth and a shift in tree species occurrence and abundance (NRCan 2014). None of these biological changes could directly affect the NPD Closure Project; however, the probability of forest fires increases with dry conditions due to the warming of surface air temperatures and probability of lightning strike. A forest fire could affect the project infrastructure and workers' safety during closure (see Section 9.14.4 Forest Fires).

For background info, NSDF's Climate Change Assessment TSD (232-509220-TD-001) states that current climate parameters are recorded by the most representative climate station as the basis for further analysis to be performed.

The following sections provide further descriptions of the projected future climate change trends at the global, regional and site level. These more detailed projections, in addition to the climate discussion in this section and Section 8.12.4.3, are used to support the climate resilience assessment presented in Section 9.14.2.2.

9.14.2.2 Climate Change Resilience Assessment

CNL plans to start the decommissioning activities (Decommissioning Execution phase) in 2026 which would last till 2028. Following that, the Institutional Controls phase will last at least for 100 years. Post-institutional control will occur indefinitely; however, the timeframe defined for the assessment of potential effects, as part of the normal evolution of the PostSA TSD is 10,000 years.

As the Decommissioning Execution phase has a shorter time frame (2026-2028), it has a smaller potential for meaningful interactions with the climate trends outside of the normal seasonal variation experienced in the region. The climate change resilience assessment includes identifying the effects of climate change on project infrastructure during the Institutional Controls and Post-Institutional Controls phases.

Though climate projections for mean temperature and mean precipitation are available up to the year 2300 (IPCC 2013), climate projections for extremes (e.g., extreme rainfall events, freeze-thaw cycles) are only available up to 2100. Hence, the Mid Term likelihood rankings represent the Decommissioning Execution phase and early Institutional Controls phase (up to 2050), while the far-term rankings represent the Institutional Controls phase in the long run (2051-2080).

The climate projections between 2100 and 3000 indicate that temperatures will stabilize before 3000 (IPCC 2013). In the absence of further projections, these projections could be applied qualitatively for the 10,000-year time frame of the project's safety assessment. The models that have been used to predict long-term releases in the PostSA TSD include considerations for the potential changes in the climatic

setting (see Appendix E of the PostSA TSD). Climate change may result in an increased occurrence and/or severity of extreme weather phenomena, such as flooding, drought, and forest fires. In addition, several features, events or processes that will occur as a result of climate changes have been acknowledged in Appendix C of the PostSA TSD and thus incorporated into the scenarios evaluated in the PostSA TSD (e.g., flooding and surface erosion, changes to the Ottawa River).

As climate science continues to progress, projections further into the future will become available with decreased uncertainty (e.g., past 2100 or 3000). As part of a continual improvement process, this updated climate science could be considered to identify risks to the NPD Closure Project beyond 3000 or for the Post-Institutional Controls phase.

9.14.2.2.1 Approach for the Climate Change Resilience Assessment

The climate change resilience assessment employs a risk management approach that anticipates the future climatic conditions for the NPD area, and anticipates how climate change related impacts may affect the NPD Closure Project. A qualitative approach has been used based on the available design information. For the assessment, the high-level principles of Infrastructure Canada's Climate Lens - General Guidance (Infrastructure Canada 2019) and Mining Association of Canada's Guide on Climate Change Adaptation in the Mining Sector (MAC 2021) have been used. The following methodology was used to complete the assessment:

Future Climate Projections: A review of the current and future projected changes in climate is completed to identify potential climate hazards relevant to the NPD Closure Project region.

Climate-Infrastructure Interactions: Inventory of on-site infrastructure components (concrete cap and engineered cover, drainage system, and final site restoration) which may interact with various climate hazards are identified. Based on the site infrastructure and identified hazards, a list of climate-infrastructure interactions is developed for further consideration.

Risk Ranking Assessment: Likelihood and consequence rankings of climate-infrastructure interactions are then estimated to identify climate risks under future climate conditions. Likelihood rankings are estimated under two future periods, Mid Term (2021-2050) and Far Term (2051-2080). In absence of projections past 3000, these projections could be applied qualitatively and reviewed as part of a continual improvement process when updated climate projections become available. The current mitigation measures identified for the NPD Closure Project have been considered for the likelihood rankings.

Current Mitigation Measures: Using available NPD Closure Project information, current mitigation measures that would be implemented are identified and used in the risk ranking process.

9.14.2.2.2 Likelihood, Consequence and Risk Ranking Scales

Climate-infrastructure interactions include any potential interaction of a climate event (e.g., heavy rainfall, extreme temperature, high winds, storms and lightning, snow) with a given infrastructure component. The likelihood in which the interaction may occur, and the consequence associated with this interaction are then assigned qualitatively using a categorical numeric scale. The likelihood rankings for this assessment have

a scale from Very Low (1) to Very High (5) and are summarized in Table 9.14-1 . The consequence rankings for this assessment have a scale from Very Low (1) to Very High (5) and are summarized in Table 9.14-2.

Table 9.14-1 Likelihood Scale for Climate Infrastructure Interactions [Modified from Climate Lens - General Guidance (Infrastructure Canada 2019)]

Qualitative Descriptor	Description
Very Low	Less than 1% annual probability of the event occurring, event is not likely to occur
Low	Between 1 to 10% annual probability of the event occurring
Moderate	Between 10% to 50% annual probability of the event occurring
High	Between 50% to 90% annual probability of the event occurring
Very High	More than 90% annual probability of the event occurring, event may occur multiple times a year

Table 9.14-2 Consequence Scale for Climate Infrastructure Interactions [Modified from Climate Lens - General Guidance (Infrastructure Canada 2019)]

Qualitative Descriptor	Description
Very Low	Likely to cause no impacts on the project. No damage to infrastructure.
Low	Likely to cause few to no impacts on the project. Minimal damage or repair costs.
Moderate	Likely to cause disruptions to facility, or manageable damage to infrastructure but repair costs would be higher than previously budgeted.
High	Likely to cause impacts that would disrupt the facility operations leading to closures, or damage infrastructure that would require replacement and high repair costs.
Very High	Likely to cause impact that may require full replacement of infrastructure.

The consequence and likelihood of climate interactions are used to identify key climate risks. If an interaction has a high consequence, but very low likelihood, the overall risk would be assessed as low. Conversely, if an interaction has a very low consequence but its likelihood is very high, the risk is assessed as moderate. A risk matrix has been identified which illustrates this concept and is summarized in Table 9.14-3. This table has been used to identify climate risk based on the likelihood and consequence of an interaction. The risk rating descriptors are summarized in Table 9.14-4 .

Table 9.14-3 Climate Risk Matrix Based on Consequence and Likelihood Scales [Source: Climate Lens - General Guidance (Infrastructure Canada 2019)]

Likelihood	Consequence				
	Very Low	Low	Moderate	High	Very High
Very High	Moderate	High	High	Extreme	Extreme
High	Low	Moderate	High	High	Extreme
Moderate	Low	Low	Moderate	High	High
Low	Negligible	Low	Low	Moderate	Moderate
Very Low	Negligible	Negligible	Low	Low	Low

Table 9.14-4 Risk Rating Definitions [Modified from Climate Lens - General Guidance (Infrastructure Canada 2019)]

Qualitative Description	Descriptor
Negligible Risk	An identified interaction between the climate hazard and project component has a negligible risk if the hazard has: • A very low/low likelihood of occurrence and a very low consequence; or • A very low likelihood of occurrence and a low consequence. Negligible risk includes no permanent damage. Risks do not require further consideration.
Low Risk	An identified interaction between the climate hazard and project component has a low risk if the hazard has: • A moderate/high likelihood of occurrence and a very low consequence; • A low/moderate likelihood of occurrence and a low consequence; • A very low/low likelihood of occurrence and a moderate consequence; or • A very low likelihood of occurrence and a high/very high consequence. Low risk includes minor damage. Actions might not be required.
Moderate Risk	An identified interaction between the climate hazard and project component has a medium risk if the hazard has: • A very high likelihood of occurrence and a very low consequence; • A high likelihood of occurrence and a low consequence; • A moderate likelihood of occurrence and a moderate consequence; or • A low likelihood of occurrence and a high/ very high consequence. Medium risk includes limited damage to infrastructure/operations. Some adaptation actions might be required.
High Risk	An identified interaction between the climate hazard and project component has a high risk if the hazard has: • A very high likelihood of occurrence and a low/moderate consequence; • A high likelihood of occurrence and a moderate/high consequence; or • A moderate likelihood of occurrence and a high/very high consequence. High risk may result in permanent damage to infrastructure, assets, operations. High priority adaptation actions need to be implemented.
Extreme Risk	An identified interaction between the climate hazard and project component has an extreme risk if the hazard has: • A very high likelihood of occurrence and a high/very high consequence; or • A high likelihood of occurrence and a very high consequence. Extreme risk may result in permanent damage or loss of asset and operations. Immediate adaptation actions need to be implemented.

9.14.2.2.3 Climate-Infrastructure Interactions

Identifying potential interactions between site infrastructure and climate is an important step in assessing climate risk. Future climate projections indicate changes in temperature, precipitation, and extreme events, potentially interacting with different components of the NPD Closure Project. The Decommissioning Execution phase takes place during a short time frame, which has a smaller potential for meaningful interactions with the climate trends outside of the normal seasonal variation experienced in the region. There is a larger potential for changes in both the climate mean and extreme weather events during the Institutional Control phase.

Table 9.14-5 identifies the potential climate events and change factors that may interact with the infrastructure components. The presence of a climate interaction for a given infrastructure category is denoted by a checkmark. Through this process, it is demonstrated that each infrastructure category may be affected by various climate related events having an impact on different aspects of site operation.

Increase in freeze-thaw cycles and extreme weather events such as droughts and forest fires could cause physical damage to the concrete cap and engineered cover. The concrete cap would be protected from freeze-thaw cycles during the Institutional Controls phase. Changes in precipitation, including extreme rainfall events could cause changes to the on-site hydrology including increase in surface run-off leading to erosion of the concrete cap and engineered cover. Increased snowmelt events could also cause increase in the run-off events causing erosion of the concrete cap and the engineered cover. Changes to temperatures, precipitation, and extreme events such as drought could affect the on-site hydrology and the hydrogeology, impacting the drainage system and causing on-site erosion. Any erosion of the engineered cover occurring during the IC period would be repaired. Lastly, changes to temperature, precipitation, and extreme events such as drought could impact the selections of plant species for revegetation programs during the postclosure period. Increase in mean annual temperatures and extreme heat could impact selection of plant species, and more drought-resilient plant species might have to be selected for revegetation. Interactions with wind/ tornadoes are not considered as it is unlikely that they could affect the concrete cap and engineered cover and the drainage system.

Table 9.14-5 Climate-Infrastructure Interactions Matrix

Infrastructure Components	Potential Climate Events and Change Factors							
	Temperature				Precipitation		Extreme Events	
	Extreme Heat	Extended Cold Spell	Growing Season Length	Freeze-Thaw Cycles	Frequency/ Amount of Heavy Rainfall Events	Changes in Snowfall	Forest Fires	Droughts
Concrete Cap and Engineered Cover				✓	✓	✓	✓	
Drainage System	✓		✓		✓	✓		✓
Final Site Restoration (Planting/ Landscaping over the Site)	✓	✓	✓		✓		✓	✓

9.14.2.2.4 Climate Change Resilience Profile

A qualitative climate risk assessment based on likelihood and consequence rankings has been conducted and summarized in Table 9.14-6 . The likelihood of climate-infrastructure interactions occurring are evaluated qualitatively using the likelihood scale presented in Table 9.14-1 . The resulting likelihood rankings are provided for near-term (2050s) and far-term (2080s) time periods that represent the Decommissioning Execution and Institutional Controls phases for the NPD Closure Project. Due to the projected increasing frequency of temperature, precipitation, and extreme events, the likelihood rankings generally reflect an increase in likelihood from 2050s to 2080s. The consequence of climate-interactions is independent to their likelihood of occurrence and represent the severity of impacts if an interaction were to occur and are based on the consequence scales presented in Table 9.14-2. The likelihood and consequence rankings consider the mitigation measures that would be implemented for the project to reduce the climate impacts. Risk rankings are then derived by combining the likelihood and consequence rankings for each climate-infrastructure interaction.

In the near future (2050s) and far future (2080s), most interactions seem to have a negligible to moderate risk due to changes to temperature, precipitation, and extreme events. Overall, the lower level of risk is due to the existing mitigation measures and the monitoring and surveillance plans that would be in place during the Decommissioning Execution and Institutional Controls phases.

Table 9.14-6 Qualitative Climate Risk Assessment

Infrastructure	Climate Variable	Interaction Description	Current Mitigation Measures	Climate Rankings					
				Near-term (2026 to 2050)			Far-term (2051 2080)		
				Likelihood	Consequence	Risk	Likelihood	Consequence	Risk
Concrete Cap and Engineered Cover	Temperature	Increase in freeze-thaw cycles might cause physical damage to the concrete cap and engineered cover.	Changes in temperature will be tracked through the Environmental Assessment Follow-up Program to inform the need for adaptive management. The concrete cap and engineered cover for will be designed to limit damage due to natural freeze-thaw cycles. To limit damage from freeze-thaw cycles, the engineered cover includes layers of granular/soil materials of sufficient thickness above the concrete cap to effectively avoid frost penetration.	Low	Low	Low	Very Low	Low	Negligible
	Precipitation	Extreme rainfall events and increased snowfall could result in an increase in surface water runoff and subsequently cause erosion of the concrete cap and engineered cover.	The concrete cap and engineered cover system will be designed to minimize water infiltration, to direct infiltration away from the grouted structure and to resist degradation by surface geologic processes and biotic activity (e.g., deter intrusion by burrowing of animals). The concrete cap and engineered cover system have been designed to cover the nuclear area of the NPDWMF and the engineered cover will be graded to promote drainage.	Very Low	Moderate	Low	Low	Moderate	Low
	Extreme events	Forest fires could cause erosion of the soil cover and cause physical damage to the concrete cap and the engineered cover.	A Fire Protection Program would be implemented for the closure phase activities that would include preventing fire losses, providing responsible fire protection management, demonstrating compliance to applicable fire protection codes and standards and providing reliable facilities from a fire protection perspective. During the postclosure period, protection from forest fires will be provided by the thick soil cover over the concrete cap, and it is unlikely for the forest fires to cause complete erosion of the soil cover. Period maintenance during institutional control period will be provided to control vegetation growth and erosion of the soil cover. Changes in extreme events, will be tracked through the Environmental Assessment Follow-up Program to inform the need for adaptive management.	Low	Low	Low	Low	Low	Low
Drainage System	Temperature	Extreme heat could affect hydrology and subsequently hydrogeology (i.e., changes in water table). Increase in the growing season length could cause overgrowth in the ditches and impact the drainage system.	Changes in groundwater elevation will be tracked through the Environmental Assessment Follow-up Program to inform the need for adaptive management.	Low	Low	Low	Moderate	Low	Low
	Precipitation	Extreme precipitation events and changes in snowfall could affect hydrology and subsequently hydrogeology (i.e., changes in water table) and surface geology (i.e., erosion).	Changes in precipitation will be tracked through the Environmental Assessment Follow-up Program to inform the need for adaptive management.	Low	Moderate	Low	Moderate	Moderate	Moderate
	Extreme events	Increase in droughts could affect the site hydrology and subsequently hydrogeology (i.e., changes in water table).	Changes in groundwater elevation will be tracked through the Environmental Assessment Follow-up Program to inform the need for adaptive management.	Low	Moderate	Low	Moderate	Moderate	Moderate
Final Site Restoration	Temperature	Extreme heat or extended cold spells could impact the type of species selected for the restoration during the postclosure period. Changes to the length of the growing season could impact the species selection and rehabilitation of vegetation.	Changes in temperature will be tracked through the Environmental Assessment Follow-up Program to inform the need for adaptive management. Meteorological data will be collected on an annual basis to track local changes to hydrogeological and climatological processes during the institutional control period.	Low	Low	Low	Moderate	Low	Low
	Precipitation	Changes in extreme precipitation could impact the final site restoration and the type of species selected for the restoration during the postclosure period.	Changes in precipitation, will be tracked through the Environmental Assessment Follow-up Program to inform the need for adaptive management.	Low	Low	Low	Moderate	Low	Low
	Extreme events	Increased drought-like conditions could impact the type of species selected for the restoration during the postclosure period. Forest fires could cause damage to the restored areas.	As identified in Section 10.2, CNL has an existing Fire Protection Program which will continue to be implemented during closure phase. The Fire Protection Program is dedicated to providing the highest level of fire and life safety to all CNL employees and facilities, which subsequently also provides protection to the surrounding areas. Changes in extreme events, will be tracked through the Environmental Assessment Follow-up Program to inform the need for adaptive management.	Low	Moderate	Low	Moderate	Moderate	Moderate

9.14.2.2.5 Summary of Climate Change Resilience

A climate change resilience assessment was conducted to meet the requirements of the Strategic Assessment of Climate Change, Revised October 2020 (Government of Canada 2020). The assessment follows the approach outlined in Infrastructure Canada's Climate Lens - General Guidance (Infrastructure Canada 2019). The assessment includes identifying climate-infrastructure interactions of the project infrastructure with a range of climate variables for near term (2026 to 2050) and far term (2051 to 2080).

All the climate risks associated with the project have negligible to moderate risks under the future climate. To ensure ongoing resiliency for the project and reduce the climate impacts, ongoing monitoring will be implemented to monitor the performance of the infrastructure under the changing climate. Hence, based on the existing project design and the monitoring and surveillance plans, the project is resilient in the near term (2026 to 2050) and the far term (2051 to 2080) for a range of different climate variables.

9.14.3 Glaciation

Current understanding of the long-term effects of global warming indicates that the next ice age will not occur for 100,000 y as a result of anthropogenic climate change (Ganopolski *et al.*, 2016). The long-term assessment timeframe for this project is 10,000 years. Therefore, glaciation is not being considered in this study.

9.14.4 Forest fire

Given that the NPD is surrounded by nearby forests, the occurrence of a forest fire has the potential to affect the project. In the DecomSA TSD, it was determined that the annual probability of forest fire on the NPD property is 2.8×10^{-3}. Forest fires could be caused by natural (e.g., dry conditions and lightning) or anthropogenic sources. As such, forest fires are also considered in Section 9.12 above. A large forest fire could potentially engulf the entire above grade structure, causing damage and potentially releasing both radiological and chemical contamination.

The EcoRA TSD found that all contaminants (radiological and non-radiological) were below screening levels, and as such did not warrant further investigation. The DecomSA TSD found that all worker and public exposures were also below acceptable limits for both radiation and chemicals. The maximum calculated total dose received for workers and public was 1.48×10^{-5} mSv. Maximum SIs for asbestos and lead were 6.0×10^{-1} and 1.61×10^{-3} respectively. An SI value below one indicates that no effects are expected. Forest fires are unlikely to affect the project following the Decommissioning Execution phase when the facility is below grade.

9.14.5 Tornado

The distribution of tornadoes, particularly in Ontario, appears to be random and extremely localized. A tornado usually affects a limited area and only for a short period of time; however, serious property damage and injury, including fatalities, may occur along its path. The annual probabilities of the NPD site falling within the affected area of an EF-2 tornado has been calculated as 6.2×10^{-5} as shown in the DecomSA TSD. An EF-2 tornado is not anticipated to cause serious damage to the facility, but may cause damage to the ventilation system or release surface contamination.

As calculated in Section 9 of the DecomSA, the maximum predicted dose calculated for the tornado scenario is 1.81 x 10^{-6} mSv. The maximum SIs (environmental concentrations compared to relevant worker and public benchmarks) for asbestos and lead were 6.60 x 10^{-1} and 2.79 x 10^{-3} respectively. An SI value below one indicates that no effects are expected.

During the life of the ventilation stack, a tornado could potentially result in the collapse of the ventilation stack, which is discussed in Section 9.12.4.4 (For further information, please see the EcoRA and DecomSA TSDs).

9.14.6 Flood

A flood at the NPD site could occur due to high water in the Ottawa River, heavy precipitation and/or failure of the dams on the Ottawa River upstream of the site. A flood at the NPD site would have the potential to remove surface contamination from the above ground facility and carry it downstream.

The facility Safety Analysis Report (Athauda-Arachchige 2015) reports that flooding from high water levels in the Ottawa River is unlikely due to control of the water level by the Des Joachims Generating Station. Based on conservative estimates of annual flooding the probability that a given area falls within a localized flood affected area is 7.3x10^{-3}, as calculated in the DecomSA TSD. The facility Safety Analysis Report (Athauda-Arachchige 2015) notes this localized flooding from heavy precipitation is extremely unlikely due to the drainage provided by the site topography. The facility is also currently assessed for damage following any flooding event. Flooding also has the potential to occur as a result of dam failure. The facility Safety Analysis Report determined that the probability of dam failure is negligible (Athauda-Arachchige 2015) (For further information, please see the EcoRA/DecomSA TSDs).

Flooding was assessed as part of the surface erosion disruptive event scenario in the PostSA TSD. The highest resulting dose rate (0.004 mSv/y) to human receptors is elevated relative to the normal evolution scenario, however it is still well below the dose rate criterion for disruptive events (1 mSv/y). The peak lead concentrations in all media are below all applicable guidelines. As shown in the EcoRA TSD, all contaminant concentrations were below screening levels for non-human biota.

9.14.7 Earthquake

The NPD site lies within a zone categorized as a region with moderate seismic risk. As such, the likelihood of an earthquake of sufficient strength to damage the buildings is estimated to be less than 4x10^{-4}, as shown in the DecomSA TSD. This scenario is considered as a part of hazard identification in the DecomSA; however, it is bounded by other scenarios considered during the Decommissioning Execution phase (including forest fire, tornado, and conventional health and safety). In the Decommissioning Execution phase, an earthquake could result in the collapse of some structures, including the ventilation stack. The potential effects of the ventilation stack collapsing are discussed in Section 9.12.4.4.

The NPD Closure Project's Surveillance Plan (Taylor 2019) discusses the proposed surveillance activities and frequencies required on-site for the Institutional Controls phase. Damages that occur to the fence or ventilation stack will be assessed for their potential adverse impact on facility performance and repairs made as necessary. The ventilation stack would be retained as a valuable roosting site for chimney swifts

for an estimated duration of 50 years to support the expected recovery period for the species. As part of care and maintenance of the site during Institutional Control, the ventilation stack would undergo routine surveillance and repair until it is safely decommissioned. If stack failure were to occur during the Institutional Controls phase, the engineered cover/barrier would be repaired to ensure structural integrity. Despite the NPD Closure Project's plan to remove the stack during the Institutional Controls phase, the PostSA TSD assesses radiological and non-radiological consequences from cracks in the facility (via the seismic event scenario).

The engineered cover has been designed to resist an earthquake with a 2,500-year return period. If the slopes of the engineered cover become unstable during the design life of 100 years from a seismic or other event, maintenance activities during the period of institutional control will be able to restore the slope and thus function of the engineered cover. The slopes of the barrier are expected to remain stable for the duration of the design life, after which it will begin to degrade (AECOM 2023).

The design of the engineered cover included a review to assess the potential for liquefaction of the overburden. The results of this review indicated the overburden was not homogeneous in nature, and thus did not have a high potential for liquefaction. Additionally, the soil materials chosen for the engineered cover were selected in part for their resistance to liquefaction (AECOM 2023).

Liquefaction occurs when vibrations or water pressure within a mass of soil cause the soil particles to lose contact with one another. As a result, the soil behaves like a liquid, has an inability to support weight and can flow down even gentle slopes. This condition is usually temporary and is most often caused by an earthquake vibrating water-saturated fill or unconsolidated soil. Liquefaction is possible for cohesionless soils for M=4 to M=6 earthquakes, which can produce ground shaking levels up to VIII on the Modified Mercalli Intensity.

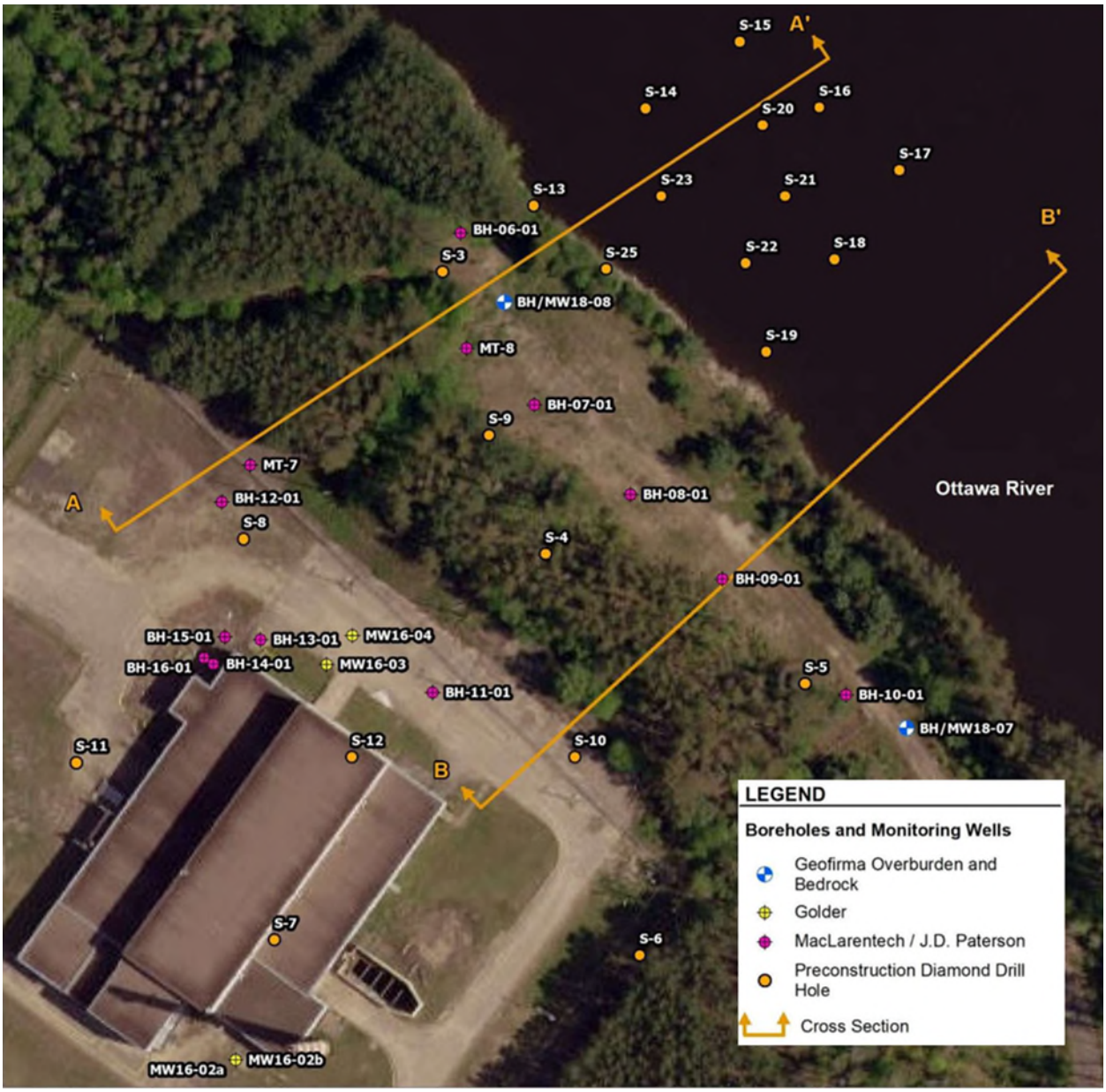
A preliminary slope stability assessment was performed for the NPD site that considers earthquake-induced soil liquefaction (Arcadis and Quintessa 2021), this assessment shows that the North Slope under current water level conditions is stable under static loading conditions and under loading conditions associated with a 1:2,250-year earthquake. Parts of the North Slope (cross section A-A') are stable, and parts of the North Slope (slightly steeper slope of cross section B-B'), are unstable under a 1:10,000-year earthquake. Both cross sections of the North Slope are likely to fail during a 1;50,000-year earthquake.

For cross section A-A', initial liquefaction failure of the silt to boulder till at the toe of the slope for the 1:50,000-year earthquake has the potential to destabilize the overall slope causing retrogressive failure of the back slope down to the bedrock surface and toward the NPDWF. Such retrogressive failure has potential to cause failure of the sloping engineered earth cover in the area northeast of the NPDWF building footprint.

For cross section B-B', the predicted slope failures for the 1:10,000-year and 1:50,000-year earthquakes both occur at the crest of the North Slope within the sand and gravel fill. For cross section B-B' migration of the crest failure toward the NPDWF is unlikely. The identified slope failures on cross sections A-A' and B-B' are unlikely to expose the grouted NPDWF.

It is unlikely that the predicted failures of the North Slope at cross section A-A' and B-B' will result in the direct exposure of groundwater to a new ground surface that would be established following earthquake induced slope failures. Slope failures at the North Slope are expected to result in accumulations of failed granular materials on the lower half of the North Slope because the angles of repose of the failed granular materials are much more than the slope angles of the bedrock surface. Given the permeable nature of all soils that comprise the North Slope, the expected redistribution of soils following slope failure is unlikely to change groundwater flows from the NPDWF to the Ottawa River.

Figure 9.14-1 Locations of Boreholes, Monitoring Wells and Stratigraphic Cross Sections at the NPD North Slope



The scenario of the failure of the north slope exposing some or all of the NPD structure is bounded by the Surface Erosion disruptive event scenario considered in the PostSA TSD. The Surface Erosion scenario examined the effects of a triple dam break, leading to flooding and scouring of the overburden, and bounds any other situation that could lead to scouring of the overburden. The peak dose from this scenario results from exposure and use of sediments contaminated with groundwater leaking from the NPD Disposal Facility, and was assessed at 0.004 mSv/y, well below the threshold dose for a Disruptive Event Scenario. The peak lead concentrations in all media are below all applicable guidelines.

During the Post-Institutional Controls phase, the facility will be filled with grout, and will be entirely below ground, therefore eliminating the risk of collapse. However, if an earthquake of sufficient strength was to occur, ground acceleration could result in degradation of the barrier properties of the grouted facility which would result in faster release of contamination in groundwater. This is assessed as part of the extreme degradation of engineered barriers disruptive event scenario in the PostSA TSD. The maximum resulting dose rate received by humans is 0.0003 mSv/y, and is well below the dose rate criterion for disruptive events (1 mSv/y). The peak lead concentrations in all media are below all applicable guidelines. As discussed in the EcoRA TSD, no effects were predicted for non-human biota.

Detailed quantitative assessments of seismic hazard near and at the NPDDF site are provided by McCrank (2016b) and AECOM (2018) for the CRL property and by Arjmand (2018) and Zhang (2021) as part of a cracking assessment of the underground NPDDF structures.

McCrank (2016b) summarizes the results of a probabilistic seismic hazard assessment (PSHA) completed in support of a geologic waste management facility at the CRL property. This work is translatable to the NPDDF site given the close proximity to CRL and similar nature of historical seismicity in regions surrounding the NPD and CRL sites. This work has been updated by AECOM (2018), who completed a PSHA in support of the NSDF at CRL.

The updated PSHA used the areal seismic source zones developed by the Geological Survey of Canada (GSC) that assume a uniform rate of earthquake occurrence within a spatial region. For each zone, the GSC model defines the area, seismogenic thickness, maximum earthquake magnitude and recurrence parameters. This GSC model was recently used to update the 2015 National Building Code of Canada seismic design data. AECOM (2018) evaluated earthquake-induced ground motions with return periods of 2,500, 10,000 and 100,000 years, which are equivalent to annual frequency of occurrence (AFE) of 4.0×10^{-4}, 1.0×10^{-4} and 1.0×10^{-5}, respectively. Table 9.14-7 summarizes the estimated seismic hazard at selected AFEs determined from the PSHA for the CRL property. Table 9.14-7 lists peak ground acceleration (PGA) in units of gravity (g = 9.81 m/s^2) as well as the approximate earthquake magnitude (M) for these AFEs.

Table 9.14-7 Summary of Seismic Hazards Estimated for CRL Property (from AECOM Canada Ltd., 2018)

AFE	Earthquake Probability (years)	Approximate M	PGA on Hard Rock (g)
4.0×10^{-4}*	1/2,500	6.3	0.25
1.0×10^{-4}	1/10,000	6.4	0.55
1.0×10^{-5}	1/100,000	6.6	1.48

Note:

*AFE for 2015 National Building Code of Canada

Arjmand (2018) and Zhang (2021) provide an assessment of the potential for cracking of the underground structural walls of the NPDDF due to ground shaking from earthquakes. The Arjmand (2018) assessment considered 1/2,250- and 1/10,000-year earthquakes. The Zhang (2021) assessment is a revision of the Arjmand (2018) assessment considering an additional 1/50,000-year event. The Arjmand and Zhang analyses are based on a Design Basis Earthquake (DBE) for the CRL property and extrapolated earthquakes developed for the NPD site based on the GSC seismic hazard model (NRCan, 2018). Further detail on the basis for these estimates can be found in Geofirma (2019). Table 9.14-8 summarizes the seismic hazards used in the Arjmand (2018) and Zhang (2021) assessments.

Table 9.14-8 Summary of Seismic Hazards Estimated for NPD Property (from Arjmand, 2018 and Zhang, 2021)

AFE	Earthquake Probability (years)	Approximate M	PGA on Hard Rock (g)
4.4×10^{-4}	1/2,250	6.0	0.24
1.0×10^{-4}	1/10,000 (1)	>6.5	0.623
2.0×10^{-5}	1/50,000 (2)	>>6.5	1.75

Notes:

1 Design Basis Event (DBE)
2 Beyond Design Basis Event (BDBE)

The analyses of Arjmand (2018) and Zhang (2021) considered dead load and seismic load as well as earth pressure and seismic earth pressure. A 3-D finite element model based on NPDDF building stick representation was used to assess the cracking potential of concrete walls. The cracking of underground walls of the NPDDF structure would likely occur due to both flexural and shear loading at elevations from near the top of bedrock to the ground surface for all seismic events. The seismically induced cracking would be due to a lack of shear capacity in the building structure above the bedrock surface. The studies did not indicate cracking of the NPDDF structure below the bedrock surface as the concrete backfill and bedrock provide sufficient bearing resistance to seismic forces.

9.14.8 Lightning Strike

A lightning strike hitting the facility is a realistic possibility. Lightning strikes generally happen during thunderstorms, which are more common during the warmer months of the year (May to September). The potential effect of a lightning strike would depend on what phase of the decommissioning process the strike occurred in. In the current SwS phase, and early in the Decommissioning Execution phase, a lightning strike that hits the facility could result in a fire or other damage. The potential effects of a forest fire, from any source, including lightning, are discussed in Section 9.14.4, and in the DecomSA and EcoRA TSDs. No potential effects from a lightning strike are expected after the Decommissioning Execution phase.

9.14.9 Ice Storm

Ice storms are caused when the atmosphere is layered - a layer of warm air above the denser cold air near surface. As precipitation falls in the warm layer, rain forms. The rain then falls into the shallow cold layer

and freezes. Ice storms can damage structures because of the weight of accumulated ice. Ice storms are known to occur in the region of NPD. On average, Ottawa and Montreal receive freezing precipitation 12 to 17 days a year. However, this type of precipitation generally lasts only a few hours. Though it did not occur at the NPD site, a severe ice storm occurred in Eastern Ontario and Quebec; over 90 millimetres of freezing drizzle fell during the 5-day storm. This magnitude has an annual probability of occurrence of about 1 in 100 (Ontario Hydro 1998). The potential effects of such an ice storm may include the buildup of ice on buildings, power lines and other structures. This could result in a loss of power, and potentially the loss of ventilation. It is not expected that an ice storm would result in any significant damage to structures. It is possible, in the future, that a severe ice storm could result in the collapse of the ventilation stack, if the concrete has degraded sufficiently to weaken the structural integrity. The potential effects of ventilation stack collapse are discussed above in Section 9.12.4.4.

9.14.10 Changes to the Ottawa River

The Ottawa River is a dominant surface water feature of the area. All surface drainage on the NPD site is to the Ottawa River. Changes to the flow, level or location of the Ottawa River could affect the releases from the project and the resultant effects to people and the environment. If the water level of the Ottawa River were to drop significantly, the groundwater could begin to discharge to the shoreline, as opposed to in the river. This would result in the contaminants from the facility being released onto the shore, and this has been assessed as a “What if” case in the PostSA TSD. This is expected to result in higher shoreline sediment concentrations in a small patch near the discharge site and a peak dose rate is unchanged from the normal evolution scenario. The peak lead concentrations in all media are below all applicable guidelines. As discussed in the EcoRA TSD, no effects were predicted for non-human biota. “What if” cases represent a deliberately extreme set of assumptions that can be used to understand the absolute limits of the safety performance. Due to the extreme conservatism, the effect results are not compared with any criteria, and these cases are not included in the identification and assessment of effects; however, the results are presented here to provide perspective.

The collapse of the ventilation stack, which is being retained to provide habitat for chimney swifts, could be caused by changes in the Ottawa River, and is considered in the DecomSA TSD. This scenario is considered in Section 9.12 Accidents and Malfunctions.

Flooding and surface erosion were assessed as a disruptive event scenario in the PostSA TSD. All dose rates received were estimated to be well below the relevant dose rate criterion. These results are summarized in Section 9.8.3 and in the PostSA TSD.

10 MITIGATION MEASURES

This section provides a summary of the mitigation measures identified in Section 9 to satisfy regulatory requirements outlined in the CNSC (2016a) EIS Guidelines. CNL, as project proponent, will be responsible for implementation of the proposed mitigation measures.

10.1 Regulatory Requirements

The CNSC Reg Doc 2.9.1 on *Environmental Principles, Assessments and Protection Measures* and Section 2 of *CEAA* define mitigation as "*…the elimination, reduction or control of the adverse environmental effects of the project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or other means" (CEAA,* 2012 and CNSC 2020a*).*

The EIS Guidelines (CNSC 2016a) state that:

> *Every EA conducted under the CEAA 2012 will consider measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project. Measures that are technically and economically feasible include application of best industry practices, pollution prevention principles such as best available technology and techniques economically achievable (BATEA), and radiation protection principles such as keeping radiation exposure and doses as low as reasonably achievable (ALARA).*
>
> *Each measure will be specific, achievable, measurable and verifiable, and described in a manner that avoids ambiguity in intent, interpretation and implementation. Mitigation measures may be considered for inclusion as conditions in the EA decision statement and/or in other compliance and enforcement mechanisms provided by other authorities' permitting or licensing processes.*
>
> *As a first step, the proponent is encouraged to use an approach based on the avoidance and reduction of the effect(s) at the source. Such an approach may include the modification of the design of the project or relocation of project components.*
>
> *The EIS will describe the standard mitigation practices, policies and commitments that constitute technically and economically feasible mitigation measures and that will be applied as part of standard practice regardless of location (including the measures directed at mitigating adverse socio-economic effects). The EIS will then describe the project's environmental protection plan and its environmental management system, through which the proponent will deliver this plan. The plan will provide an overall perspective on how potentially adverse effects would be minimized and managed over time. The EIS will further discuss the mechanisms the proponent would use to require its contractors and sub-contractors to comply with these commitments and policies and with auditing and enforcement programs.*
>
> *The EIS will then describe mitigation measures that are specific to each environmental effect identified. Measures will be written as specific commitments that clearly describe how the proponent intends to implement them and the environmental outcome the mitigation is designed to address.*

The EIS will describe mitigation measures in relation to species and/or critical habitat listed under the Species at Risk Act (SARA). These mitigation measures will be consistent with any SARA permit, applicable recovery strategy and/or action plan.

The EIS will specify the actions, works, minimal disturbance footprint techniques, best available technology, corrective measures or additions planned during the project's various phases to eliminate or reduce the significance of potential adverse effects. The impact statement will also present an assessment of the effectiveness of the proposed technically and economically feasible mitigation measures. The reason(s) for determining if the mitigation measure reduces the significance of a potential adverse effect will be made explicit. The proponent is also encouraged to identify mitigation measures for effects that are adverse although not significant.

The EIS will indicate what other technically and economically feasible mitigation measures were considered, and explain why they were rejected. Trade-offs between cost savings and effectiveness of the various forms of mitigation will be justified. The EIS will identify who is responsible for the implementation of these measures and the system of accountability.

For proposed mitigation measures for which there is little experience or that have questionable effectiveness, the potential environmental risks and effects – should those measures not be effective –will be clearly and concisely described. In addition, the EIS will identify the extent to which technological innovations will help mitigate environmental effects. Where possible, it will provide detailed information on the nature of these measures, their implementation and management and how these are integrated in the follow-up program.

The IAEA SSG-29 specific safety guide for Near Surface Disposal Facilities for Radioactive Waste contains best practice guidance, though it does not comprise regulatory requirements. It states, *"that potential adverse impacts can be mitigated to an acceptable degree, technical, economic, social and environmental factors being taken into account" (*IAEA 2014b*).* It is noted that as the NPDDF contains ILW, SSG-29 is not applicable to the NPD Closure Project; however, where relevant, guidance given in SSG-29 has been taken into account.

For SARs defined by the federal *Species at Risk Act* (*SARA* 2002), pursuant to subsection 79(1) of that Act, Responsible Authorities under the *Canadian Environmental Assessment Act* must notify the appropriate federal Minister if any listed wildlife species, its critical habitat or the residences of individuals of that species may be adversely affected by the project. Pursuant to subsection 79(2) of the *Species at Risk Act*, if the project is carried out, Responsible Authorities must also ensure that measures are taken to avoid or lessen those effects and to monitor them; these measures must be taken in a way that is consistent with any applicable recovery strategy and action plans (*SARA* 2002).

10.2 CNL Management Programs

The following presents an overview of CNL's existing programs related to environment, safety and security. CNL is responsible for and committed to providing for the health and safety of its employees and the public and the protection of the environment. Mitigation measures developed for the NPD Closure Project will be

developed in alignment with these programs. The relevant management programs include, but are not limited to:

Radiation Protection Program

CNL's Radiation Protection Program is designed and implemented so that CNL complies with, or exceeds, the level of radiation safety that is required by the relevant regulations pursuant to the NSCA and CNL's Health and Safety Policy.

The fundamental objectives of the CNL Radiation Protection Program are to:

- limit the doses to less than the regulatory limits;
- limit doses to employees and members of the public to levels as low as reasonably achievable, social and economic factors being taken into account (ALARA principle); and,
- prevent detrimental non-stochastic (deterministic) health effects caused in employees and members of the public by CNLs use of radiation.

These objectives are achieved through facility design, staff training, administrative exposure control procedures, contamination control requirements, and work planning and supervision. A combination of Action Levels and dose management tools are used to keep radiation doses to employees and the public below regulatory limits.

Environmental Protection Program

CNL's Environmental Protection Program provides compliance with applicable environmental regulatory requirements and requirements that CNL has adopted as a matter of policy. The program is registered under ISO 14001 and is designed to provide for the protection of the environment and the public in relation to CNL's activities. The Environmental Protection Program incorporates the following key elements of the ISO-14001 Environmental Management System (EMS) Standard:

Environmental Policy

- Commitment to pollution prevention.
- Setting environmental objectives and targets to support continual improvement of environmental performance.
- Complying with applicable laws, recognized standards and guidelines applicable to CNL activities.
- Reviewing the impacts of CNL facilities, projects, services and products on the environment.

Planning

- Identification and determination of significance of those environmental aspects associated with CNL's activities.
- Establishment of environmental objectives and targets.
- Development of appropriate plans and/or programs to achieve the objectives and targets.

Implementation and Operation

- Defining and documenting appropriate roles and responsibilities.
- Establishment and maintenance of operational controls over environmental aspects.

Checking and Corrective Action

- Monitoring to verify environmental performance and compliance.
- Maintaining non-conformance and corrective and preventative action procedures.

Management Review

- Periodic review by CNL's management to ensure the ongoing suitability, adequacy and effectiveness of the EMS.

Waste Management Program

CNL's Waste Management Program includes requirements and processes to ensure that CNL activities that involve planning for, handling, transporting, processing, storage and disposal of wastes are performed in a manner that complies with applicable regulatory and licence requirements and protects workers, the public and the environment.

The Waste Management Plan for the NPD Closure Project (Riopel 2020) includes identification of waste types that will be generated, a waste minimization plan, waste monitoring, analysis, and packaging requirements.

Occupational Health and Safety Program

CNL's Occupational Safety and Health Program is designed to provide for the protection of workers and public health and safety in relation to CNL activities. CNL and its contractors will meet all applicable health and safety legislative requirements. Canadian Nuclear Laboratories requires that contractors and their subcontractors maintain a level of safety equivalent to that of CNL employees while on-site.

All activities related to the NPD Closure Project will be assessed using CNL's Integrated Work Control (IWC) process, which is a structured approach to defining the work, identifying the hazards, controlling the hazards, performing the work and providing feedback (lessons learned). The overall approach is accountability for the work through a single job supervisor and a team approach to safe and efficient work.

Emergency Preparedness Program

CNL's Emergency Preparedness Program comprises planning and response elements to provide that processes are in place to control and mitigate the consequences of an emergency (whether related to a nuclear/radiological or conventional incident) both on- and off-site. In accordance with the Ontario Nuclear Emergency Plan, the program includes infrastructure, assigned response staff and other resources, and periodic exercises to test and demonstrate emergency preparedness. The Emergency Preparedness Program takes into consideration guidance provided in the CNSC's Nuclear Emergency Preparedness and Response document (CNSC 2016c).

Fire Protection Program

CNL is dedicated to the delivery of a compliant Fire Protection Program that will provide the highest level of fire and life safety to all CNL employees and facilities. The objectives of the Fire Protection Program include preventing fire losses, providing responsible fire protection management, demonstrating compliance to applicable fire protection codes and standards, and providing reliable facilities from a fire protection perspective.

The Fire Protection Program provides services including developing fire prevention processes and conducting fire safety inspections. Fire hazard analyses, code compliance reviews and fire protection screenings are also conducted as part of the program.

10.3 Scope

Mitigation is the elimination, reduction or control of the adverse environmental effects of the project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means. The proponent must describe general and specific measures intended to mitigate the potentially adverse environmental effects of the project. The proponent must indicate which measures respond directly to statutory or regulatory requirements.

The proposed mitigation measures for the project are summarized by project phase in Table 10.3-1. In the Post-Institutional Controls phase, no mitigation measures have been identified beyond in-design mitigation measures (such as the delay of contaminant transport through grouting). In-design mitigation measures are discussed in Section 3 of the PostSA TSD and Section 4.1 above. The mitigation measures below have been developed based on the current understanding of the project. As the project approaches detailed work planning, additional mitigation measures may be developed as required. Specific plans outlining environmental protection measures will be developed by contractors engaged to undertake the decommissioning activities, ensuring that CNL programs are adhered to and mitigation measures defined as part of this EIS are incorporated.

Information on methods, procedures and policies associated with the proposed mitigation measures are also discussed and/or referenced below. The mitigation measures are described in further detail within each environmental component in Section 9 of this EIS.

In the table below, the asterisk denotes mitigation measures to be undertaken when working at night, or during inclement weather, or if triggered by chimney swift monitoring activities (i.e., disturbance or roost abandonment is detected).

Table 10.3-1 Summary of Mitigation Measures

Environmental Component	Environmental Sub-Component	Proposed Mitigation Measures
Decommissioning Execution Phase		
Atmospheric Environment (Section 9.2.3.2; Table 9.2-4)	Air Quality	Regular maintenance of machinery to efficiently reduce emissions
		Haulage trucks covered to minimize dust emissions
		Minimization of dust generation through planning and site layout
		Water misting for dust suppression to reduce resuspension;
		Temporary local ventilation with HEPA filtration, as required;
		Cover storage piles when not in use, prior to workers leaving the site, and during heavy rainstorms
		Compaction of disturbed soil after completion of activities
		Minimization of drop heights for materials
		Barriers to prevent dispersion of materials
		Safe work practices for loading debris
		Avoidance of prolonged storage of debris
		Proper techniques for the use and handling of chemicals
		Roads and areas will be wetted/misted as needed in dry conditions to minimize dust generation
		Post speed limits on-site (see Terrestrial Environment) to minimize dust emissions
		Limit idling of vehicles and equipment on-site to minimize emissions (Lambert 2022)
		Dust suppression during demolition and material sizing activities
	Noise	Operation of grout batch mixing plant between 7 am and 7 pm only to be allowed outside this period in exceptional circumstances (e.g., to complete a critical grout fill step that cannot be interrupted to ensure the safety of the structure or integrity of the grout)
		Limit decommissioning activities to between 7 am and 7 pm as much as possible
		Sequencing work to minimize the simultaneous operation of noisy equipment
		Location of the grout batch mixing plant at least 1 km from nearby residences
		Direct piping of grout into facility, where reasonable
		Trucks operating at the site are well maintained with appropriate mufflers
		Placement of generator in enclosure to reduce noise (if required)
		Maintenance of noise levels in compliance with CNL's Occupational Safety and Health requirements
		Post speed limits on-site (as described in Terrestrial Environment)
		Maintenance of roads in good condition to prevent uneven roadway

Environmental Component	Environmental Sub-Component	Proposed Mitigation Measures
Surface Water Environment (Section 9.3.3.2; Table 9.3-5)	Site Drainage and Water Quality	Retention of existing vegetation (where feasible)
		Maintenance of low runoff velocities (control run-off)
		Impedance of rainwater inflow into facility with construction of grout and concrete monolith
		Restriction on heavy construction equipment to within approved work areas
		Diversion of runoff away from exposed areas and stockpiles, and strategic placement away from concentrated stormwater flows
		Revegetation of disturbed areas after construction (seasonal)
		Proper design, inspection and management of washout pits and material storage site(s)
		Use of paved (impermeable) areas for stockpile laydown to reduce infiltration and cover when not in use, prior to workers leaving the site, and during heavy rainstorms
		Dust suppression measures (as described in Atmospheric Environment)
		Road maintenance activities, as per guidelines (Hawkins 2024)
		Utilization of spill kits and secondary containment of storage tanks to contain releases from spillage or tank rupture (Hawkins 2024)
		Use of secondary containment for any hazardous liquids stored on-site.
		Reuse washout pit water for grout batch mixing plant (to the extent practicable); retention and emplacement of settled sediment in the facility
		Sediment and erosion controls consistent with Morin (2018)
		All liquids generated will be handled as non-routine discharges
Aquatic Environment (Section 9.4.3.2; Table 9.4-4)	All	No additional mitigation measures identified. The existing dry hydrant was installed with measures to minimize the impact to the aquatic environment in consultation with the DFO. Mitigation measures taken in other environmental compartments which serve as pathways will also reduce potential effects.
Geological and Hydrogeological Environment (Section 9.5.3.2; Table 9.5-4)	Soil Quality	Survey and remediation of localized areas of contamination on a regular basis throughout the project
		Dust suppression and sedimentation, runoff and erosion control (see Atmospheric and Surface Water Environment)
		Proper design, inspection and management of washout pits and material storage site(s)
		Spill prevention, management, practices and clean-up procedures (consistent with the Environmental Monitoring Program (Boileau 2018) and CNL's Management of Land and Habitat Procedure (Hawkins 2024) to minimize risk of accidental spills.
		Storage of only material expected to be clean in lay down areas
Terrestrial Environment	Vegetation communities and wildlife	Dust and noise suppression measures (see Atmospheric Environment)
		Delineation of work areas, limiting project activities to disturbed areas, including wildlife exclusion fencing (if required)

Environmental Component	Environmental Sub-Component	Proposed Mitigation Measures
(Section 9.6.3.2; Table 9.6-4)		Posted speed limits in the Site Study Area and access road
		Heavy equipment entering the site will be inspected to ensure they are free of dirt clogs coming from outside of the site, to prevent the spread of invasive species via seeds (Hawkins 2024).
		Site restoration: localized surface scarifying with a track machine to break up soil-compacted areas, top-dressed (as required), replanted with native vegetation or allowed to revegetate naturally, subsoil tilled and cultivated (as needed)
		Disposal of garbage on-site, particularly food waste, in proper containers to deter wildlife
		Removal of milkweed will occur only during a period of time when the host plant is not known to be occupied by any life stages of the species; removal will occur between October 01 and April 30;
		no removal of milkweed outside of the Site Study Area; and
		Vegetation removal by way of mowing or brushing of nectaring plants along the side of the roads and rights-of-way will be avoided during the period of time the monarch is present in the area (May 1 to September 30).
		During final site restoration, the 1.2-hectare area will be seeded with milkweed.
	SAR	SAR training for employees and contractors, and frequent visual inspections and site sweeps for wildlife and SARs (milksnakes, nests, bats, bat roosts, barn swallows, monarchs) prior to work and decommissioning.
		No tree clearing planned, but if it is necessary, will avoid during bird breeding season (if possible) and will follow CNL's Environmental Evaluation process.
		Limitation of decommissioning activities to between 7 am and 7 pm as much as possible (i.e., daylight hours, when chimney swifts are not roosting in ventilation stack) during chimney swift roosting season (i.e., May 1 to September 1)
		Noisy equipment and activities minimum 5m and directed away from ventilation stack (MNRF 2013), but should preferably be located as far as possible to suppress noise, during chimney swift roosting season (i.e., May 1 to September 1)
		Orientation of all external lighting fixtures so that top of the ventilation stack is not illuminated, during chimney swift roosting season (i.e., May 1 to September 1)*
		In order to minimize the impact to chimney swifts during grouting of the base of the stack and creating penetrations at base of stack for drainage and ventilation, this work will be performed when chimney swifts are not present in the stack.
Terrestrial Environment (Section 9.6.3.2; Table 9.6-4)	SAR	Keep demolition dust to a minimum, insofar as possible (see Atmospheric Environment dust mitigation measures)*
		Activities with substantial vibration and noise done between 7 am and 7 pm, during chimney swift roosting season (i.e., May 1 to September 1) will employ a 'soft-start' approach, wherever possible. Each time the activity

Environmental Component	Environmental Sub-Component	Proposed Mitigation Measures
		is initiated after a period of inactivity (>24 hours), the disturbance levels will be gradually increased over a 30-minute period to allow chimney swifts an opportunity to acclimate. Noise and vibration should be minimized without compromising demolition requirements (MNRF 2013).*
		Major demolition activities should follow a planned schedule, during chimney swift roosting season (i.e., May 1 to September 1) *
		Consideration of noise performance in selection of mechanical equipment and vehicles, during chimney swift roosting season (i.e., May 1 to September 1)*
		Dramatic and sudden disturbances only between 7 am and 7 pm if possible, during chimney swift roosting season (i.e., May 1 to September 1)*
		Noise level of audible warning devices should be kept to the CNL Occupational Safety and Health minimum*
		If significant vibration impacts cannot be avoided, consider relocation of sources away from ventilation stack (i.e., no direct line of sight), during chimney swift roosting season (i.e., May 1 to September 1) *
		Low speed limit on NPD property.
		Daily road mortality surveys conducted (only on days when activities occur), during the herpetofauna active season (April 15 to Sept 30th). If any individual mortality is detected, consider exclusionary fencing
		Brake-for-Snakes road signs installed.
Ambient Radioactivity (Table 9.7-4)	All	dust suppression measures as outlined for the atmospheric environment
		sediment and erosion controls as outlined for the surface water environment
		use of localized HEPA ventilation as necessary during grouting operations
Human Health (Section 9.8.3.2; Table 9.8-3)	All	Staff and contractor orientation to ensure awareness of decommissioning activities, hazards, and emergency procedures
		Signage to indicate where decommissioning work is taking place
		Development of work control documents to guide safe execution of the decommissioning activities
		Hazards will be identified through work control documents and eliminated or controlled using engineered controls, administrative controls, and PPE
		Regular updates to site personnel on changes in the proposed decommissioning work plans
		CNL health and safety programs in place to prevent and mitigate injury to personnel
		An NPD Emergency Procedure is in place, and is consistent with CNL's Emergency Preparedness Program. This procedure will be updated to include decommissioning activities.
		Emergency response is available through local municipal Fire Department
		Adherence to stop work procedures for power outages
		Overall site 'good housekeeping' will be upheld

Environmental Component	Environmental Sub-Component	Proposed Mitigation Measures
		CNL Contractor Health & Safety Management Program
		Periodic communication update to local residents on the project construction activities, including construction schedule, activities, dedicated contact person for inquiries and emergencies etc.
		Radiological work assessments will be performed as detailed work packages are developed. They will include specific measures to reduce collective worker dose to the extent possible.
	All	Monitoring and reporting all internal and external doses received by NPD workers
		Utilization of air monitors, dosimeters, and bioassay as required to detect the spread and uptake of contamination
		Signage to indicate asbestos laydown/interim-storage areas.
		Procedures for handling and storage of abated asbestos (bagged). (MOE 1994)
		Sources of asbestos, PCBs, lead and mercury will be confirmed through characterization and will be clearly identified prior to executing activities.
Traditional Land and Resource Use (Section 9.9.3.2; Table 9.9-4)	All	Dust suppression measures (as described in Atmospheric Environment)
		Should previously undocumented archaeological resources be discovered, CNL will suspend decommissioning activities immediately and will engage a licensed consultant to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*, and outlined in CNL's procedure Management of Cultural Resources (CNL 2022a). CNL remains open to engagement with Indigenous Nations, communities and organizations in the event of a discovery of an archaeological resource. If any human remains are identified during construction, CNL will immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Public and Business Service Delivery, and Indigenous Nations, communities and organizations
		Construction activities will generally occur between 7 am and 7 pm, with the overall objective of minimizing nuisance effects (i.e. Noise and traffic) on traditional resource users in the Local and Regional Study Areas. It is noted that special or emergency circumstances may require deviation from this restriction
		Periodic communication updates on project construction activities to Indigenous Nations, communities and organizations are required, including construction schedule, activities, dedicated contact person for inquiries and emergencies, etc.
Indigenous Socio-economic and Health (Section 9.10.1.3.2, Table 9.10-4,	Indigenous Socio-economic	Dust suppression measures (as described in Atmospheric Environment)
		Post speed limits on-site (as described in Terrestrial Environment)
		Should previously undocumented archaeological resources be discovered, CNL will suspend decommissioning activities immediately and will engage a licensed consultant to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act,* and outlined in CNL's

Environmental Component	Environmental Sub-Component	Proposed Mitigation Measures
Section 9.10.2.3.2, Table 9.10-11)		procedure Management of Cultural Resources (CNL 2022a). CNL remains open to engagement with Indigenous Nations, communities and organizations in the event of a discovery of an archaeological resource. If any human remains are identified during construction, CNL will immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Public and Business Service Delivery, and Indigenous Nations, communities and organizations
		The transportation/haul route is limited to Highway 17 and the NPD site access road from the highway
		Review of a company's safety records which includes any traffic accidents or driver's records, as per CNL's contracting and hiring practices
		Construction activities will generally occur between 7 am and 7 pm with the overall objective of minimizing nuisance effects (i.e. noise and traffic) on residents in the Local and Regional Study Areas. It is noted that special or emergency circumstances may require deviation from this restriction
		When a significant amount of off-site transportation is required (e.g., during raw material delivery), the timing of equipment and material shipping to the site should be staggered to minimize the contribution of the project to peak traffic volumes
		Restrict access to the licensed area via a fence with a locked gate to deter trespassing
		Periodic communication updates on project construction activities to local residents are recommended, including construction schedule, activities, dedicated contact person for inquiries and emergencies etc.
		CNL and the CNSC have provided funding for Indigenous participation in the NPD Closure Project, including funding for consultation and engagement sessions, participation in third-party reviews, and preparation of traditional knowledge and land use studies
	Indigenous Health	Staff and contractor orientation to ensure awareness of decommissioning activities, hazards, and emergency procedures
		Signage to indicate where decommissioning work is taking place
		Development of work control documents to guide safe execution of the decommissioning activities
		Hazards will be identified through work control documents and eliminated or controlled using engineered controls, administrative controls, and PPE
		Regular updates to site personnel on changes in the proposed decommissioning work plans
		CNL health and safety programs in place to prevent and mitigate injury to personnel
		An NPD Emergency Procedure is in place, and is consistent with CNL's Emergency Preparedness Program. This procedure will be updated to include decommissioning activities.
		Emergency response is available through local municipal Fire Department
		Adherence to stop work procedures for power outages

Environmental Component	Environmental Sub-Component	Proposed Mitigation Measures
		Overall site 'good housekeeping' will be upheld
		CNL Contractor Health & Safety Management Program
		Periodic communication update to local residents on the project construction activities, including construction schedule, activities, dedicated contact person for inquiries and emergencies etc.
		Radiological work assessments will be performed as detailed work packages are developed. They will include specific measures to reduce collective worker dose to the extent possible.
		Monitoring and reporting all internal and external doses received by NPD workers
		Utilization of air monitors, dosimeters, and bioassay as required to detect the spread and uptake of contamination
		Signage to indicate asbestos laydown/interim-storage areas.
		Procedures for handling and storage of abated asbestos (bagged). (MOE 1994)
		Sources of asbestos, PCBs, lead and mercury will be confirmed through characterization and will be clearly identified prior to executing activities.
Socio-economic Environment (Section 9.11.3.2; Table 9.11-3)	All	Dust suppression measures (as described in Atmospheric Environment)
		Post speed limits on-site (as described in Terrestrial Environment)
		Should previously undocumented archaeological resources be discovered, CNL will suspend decommissioning activities immediately and will engage a licensed consultant to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act,* and outlined in CNL's procedure Management of Cultural Resources (CNL 2022a). CNL remains open to engagement with Indigenous Nations, communities and organizations in the event of a discovery of an archaeological resource. If any human remains are identified during construction, CNL will immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Public and Business Service Delivery, and Indigenous Nations, communities and organizations
		The transportation/haul route is limited to Highway 17 and the NPD site access road from the highway
		Review of a company's safety records which includes any traffic accidents or driver's records, as per CNL's contracting and hiring practices
		Construction activities will generally occur between 7 am and 7 pm with the overall objective of minimizing nuisance effects (i.e. noise and traffic) on residents in the Local and Regional Study Areas. It is noted that special or emergency circumstances may require deviation from this restriction
		When a significant amount of off-site transportation is required (e.g., during raw material delivery), the timing of equipment and material shipping to the site should be staggered to minimize the contribution of the project to peak traffic volumes
		Restrict access to the licensed area via a fence with a locked gate to deter trespassing

Environmental Component	Environmental Sub-Component	Proposed Mitigation Measures
		Periodic communication updates on project construction activities to local residents are recommended, including construction schedule, activities, dedicated contact person for inquiries and emergencies etc.
Institutional Controls Phase		
Surface Water Environment (Section 9.3.3.2; Table 9.3-5)	Site Drainage and Water Quality	Retention of existing vegetation (where feasible)
		In-design mitigation to maintain low runoff velocities (control run-off)
		In-design mitigation to impeded of rainwater inflow into facility with grout and concrete monolith
Geological and Hydrogeological Environment (Section 9.5.3.2; Table 9.5-4)	Soil and Groundwater Quality	In-design mitigation to isolate and contain the inventory in order to reduce the potential of groundwater contamination
Post-Institutional Controls Phase		
Surface Water Environment (Section 9.3.3.2; Table 9.3-5)	All	In-design mitigation to isolate and contain the inventory in order to reduce the potential of groundwater contamination
Aquatic Environment (Section 9.4.3.2; Table 9.4-4)	All	In-design mitigation to isolate and contain the inventory in order to reduce the potential of groundwater contamination
Geological and Hydrogeological Environment (Section 9.5.3.2; Table 9.5-4)	All	In-design mitigation to isolate and contain the inventory in order to reduce the potential of groundwater contamination
Terrestrial Environment (Section 9.6.3.2; Table 9.6-4)	All	In-design mitigation to isolate and contain the inventory in order to reduce the potential of groundwater contamination

Note:
* Denotes mitigation measures to be undertaken when working at night, or during inclement weather, or if triggered by chimney swift monitoring activities (i.e., disturbance or roost abandonment is detected).

10.4 Relation to EA Follow-up Program

The purpose of an EA Follow-up Program (see Section 12 of this EIS), in part, is to verify whether the required mitigation measures identified in the EIS were implemented effectively. This compliance monitoring on its own does not satisfy the requirements for a follow-up program, but serves to track conditions or issues during the project lifespan or at certain times (CNSC 2016b).

The NPD Closure Project has developed a proposed follow-up monitoring program to support the EA Follow-up Program, in accordance with relevant CSA N288 standards for effluent, environmental and groundwater monitoring. The proposed follow-up monitoring program was submitted to the CNSC in 2018 October (64-CNNO-18-0026-E and 64-CNNO-18-0027-E). These documents are available upon request.

The proposed follow-up monitoring program was developed for the Decommissioning Execution and Institutional Controls phases of the project. It will address the monitoring of radioactive and non-radioactive contaminants present in the environment and in effluent, as well as physical stressors and VCs, helping to verify the environmental effect predictions made by the EIS and its TSDs. The monitoring program was developed following a systematic informed planning process based on CSA guidance. The proposed follow-up monitoring program address the monitoring of radioactive and non-radioactive contaminants present in the environment and in effluent, as well as physical stressors and VCs, helping to verify the environmental effect predictions made by the EIS and its TSDs. It was developed following a systematic informed planning process based on CSA guidance.

10.5 Consideration of Alternate Mitigation Measures

This section includes mitigation measures that were considered by CNL during project planning, but ultimately discounted.

Alternate Chimney Swift Habitat

CNL has considered several alternate mitigation measures related to the chimney swifts, including building a replacement habitat that would mimic the current conditions and physical characteristics of the ventilation stack. There is uncertainty related to the success of the new alternative habitat due to an incomplete understanding what makes a roosting structure attractive to chimney swifts. In Canada's cold climate, artificial nesting chimneys have not been successful in attracting breeding chimney swifts or roosting groups. A panel of experts from academia, government agencies and NGOs was assembled by the project to discuss the challenges associated with alternative habitat available to chimney swifts in Canada. It was decided that the current preferred alternate is to retain the existing ventilation stack, ensuring minimal disruption to the thousands of chimney swifts that migrate to the NPD stack each year.

Disassembly

CNL considered disassembly to reduce noise effects. However, CNL instead chose controlled mechanical demolition due to its advantages such as lower economic cost and less dose and conventional risk to workers. Considering these benefits, along with noise mitigation measures (e.g., restricting controlled demolition activities to between 7am and 7pm where possible), controlled mechanical demolition is the preferred option.

Alternate Strategies

Alternate strategies (e.g., the use of bentonite as fill, the use of a groundwater diversion system) were assessed in an early iteration of the PostSA to optimize the design of the current preferred strategy.

Other Alternatives

CNL considered the use of an off-site batch mixing plant for grout and concrete, however it was decided that the grout batch mixing plant would be located at the NPD site, resulting in reduced traffic and related effects. Concrete may be trucked in from off-site.

11 CONCLUSION ON SIGNIFICANCE

11.1 Assessment Findings

This EIS discusses project-environment interactions, proposed mitigation measures, potential adverse residual effects after mitigation, determination of significance of adverse residual effects, and recommended monitoring and follow-up activities.

The NPD Closure Project will not result in any adverse residual environmental effects, including effects from accidents and malfunctions, cumulative effects, and effects of the environment on the project. The absence of adverse residual effects during the Institutional Controls and Post-Institutional Controls phases demonstrates the effectiveness of in-design mitigation measures and viability of the project. During any phase of the project, including the years following closure, doses to members of the public are lower than the regulatory limit. The assessment shows that doses are lower than regulatory limits by a factor of at least 1,000.

Indigenous and public and stakeholder engagement identified interest in a number of topics, including water quality in the Ottawa River, chimney swift, moose, gathering activities (e.g., berries), and land use and planning. No residual effects were identified for these.

11.1.1 AOPFN Perspective on Assessment Findings

This subsection (11.1.1) was prepared by AOPFN and presents their findings of potential effects. AOPFN's assessment considered additional impact pathways that were not used in CNL's assessment which followed the requirements of *CEAA,* 2012.

The AOPFN has found there is high potential for additional adverse effects from the proposed NPD decommissioning via in-situ disposal, over and above those identified by CNL, and that there is uncertainty about other potential impact pathways that merit further attention in this EA. In particular, the temporal extension of the time period where already existing cumulative effects from development of a nuclear reactor at the site, including through fencing off the area and by the introduction of radioactive materials at the reactor site, is an impact unto itself. An impact assessment of a decommissioning project, a project that by definition is meant to improve conditions at an already industrialized site, needs to focus not only on changes from current conditions, but changes required to get the site back to a natural, desired condition. By extending the amount of time that portions of the site will be inaccessible into the long distant future, and by cementing in place in the ground near the Kichi-Sìbì, the radioactive materials that cause fear, stigma, alienation and concerns about the quality of country foods and medicines, and whether they are harvestable, in-situ disposal has the potential to adversely impact on AOPFN traditional land and resource use and cultural practices. AOPFN's three studies on Algonquin Knowledge and Land Use, Diet and Harvest, and Culture and Rights, all support these as valid impact pathways, but these impact pathways have not been recognized in CNL's draft EIS. Section 9.9.6 of the draft EIS and the three AOPFN studies provide evidence regarding these valid impact pathways and identifies gaps in the approach used by CNL that allowed for these valid impact pathways to remain unidentified by CNL. In addition, there are legitimate

remaining questions about whether these impact pathways will have spin-off effects on Indigenous health and well-being, including mental health, and their magnitude. Those questions have not been adequately considered in the draft EIS.

AOPFN has requested that CNL integrate these valid impact pathways into its EIS. CNL has not altered its effects assessment and instead has provided room in the EIS for AOPFN to share its initial concerns and initial impact pathway identification. Further work is necessary to conduct a full and proper effects characterization and significance estimation on these valid impact pathways. AOPFN continues to request that CNL work with AOPFN to recognize these valid impact pathways and to integrate them into its effects characterization and significance estimation in the final EIS.

Because CNL has not included these legitimate impact pathways, CNL has also not adequately identified mitigation that will avoid, reduce or otherwise accommodate for these impacts. CNL has identified some existing mitigations that are in place such as its environmental protection mitigations and the Public Information Program. AOPFN notes that the current environmental protection mitigations have been developed without the benefit of either a Traditional Knowledge baseline or inclusion of Indigenous peoples in the development of the environmental monitoring and management measures for the site. AOPFN also notes that there is no evidence that the existing Public Information Program has been or will be effective in reducing fear, stigma, alienation, and risk perception of Indigenous peoples about the NPD site. AOPFN has recommended CNL adopt multiple additional commitments to improve on these and other elements of the site monitoring and management systems. To date, and as reported in Table C-4 and Section 6.2.4.3 of this draft EIS, only some of those recommendations have been adopted. AOPFN remains willing to work with CNL to find the most appropriate and protective mitigation and monitoring measures necessary to protect AOPFN rights, interests and the resources they rely upon, regardless of what decommissioning strategy is eventually adopted for the NPD site.

AOPFN and CNL plan to continue working together to find common understandings of valid impact pathways and their significance, and to find appropriate and collaborative ways to monitor and manage the NPD site and will update the CNSC on these efforts in the final EIS.

11.2 Confidence in Assessment Findings

The facility has been in storage with surveillance for over 30 years with the same inventory that is proposed to be retained in the grouted facility, with no undue impact on the environment.

All proposed Decommissioning Execution activities will be carried out in accordance with CNL policies and procedures, provincial and federal regulations, and measures designed to mitigate effects on human health and the environment. The proposed technologies are known and proven. In-situ disposal has been in use for at least 50 years.

In the long-term, following the defence-in-depth principle, the PostSA has demonstrated that the failure of any of the physical engineered barriers will not compromise the performance of the system. For the purposes of this EIS, the defence-in-depth principle is defined as the use of multiple barriers to prevent the escalation of anticipated operational occurrences and to maintain the effectiveness of physical barriers in

place between a radiation source or radioactive material and workers, members of the public and the environment, under normal evolution and disruptive events. It should be noted that while time is elapsing and eventually leading to the degradation of the engineered barriers (which is taken into account in the assessment), the radioactivity is progressively decaying. The assessment has shown that the effectiveness of the engineered barriers over time and as they progressively degrade is adequate to protect the ever-decreasing radiological hazard at any given point in time.

The EIS highlights areas of uncertainty (e.g., contaminant concentrations, contaminant transport characteristics, land use near NPD, etc.) that could affect the EIS findings. Therefore, consistent with regulatory and international best practices, these uncertainties are addressed as follows:

- Process: a systematic, transparent and auditable process for developing and analysing safety in all phases of the project is used;
- Comparison with regulatory safety criteria: the safety assessment results are orders of magnitude below these criteria; and
- Range of performance indicators: a wide range of indicators (e.g., releases, environmental concentrations, doses, etc.) has been used.

In addition, a range of scenarios has been assessed, to encompass possible conditions during all project phases. The range of results for the various scenarios is a valuable confidence-building measure, as it demonstrates that even under a range of different assumptions and conditions, the safety criteria are met illustrating the intrinsic robustness of the system. This is further supported by observations of the engineered barriers' durability under natural conditions.

It is CNL's conclusion that with the identified mitigation measures, the NPD Closure Project is not likely to result in any significant adverse residual effects. Follow-up and monitoring activities (summarized in Section 12 below) will verify EA predictions and determine the effectiveness of mitigation measures.

12 FOLLOW-UP PROGRAM

This section provides a preliminary plan for an EA Follow-up Program to satisfy regulatory requirements outlined in the EIS Guidelines (CNSC 2016a). As the proponent of the project, CNL will be responsible for implementing and managing the proposed EA Follow-up Program. The responsible owner of the site, AECL (Government of Canada), will be responsible for the provision of funds to maintain the EA Follow-up Program.

CNL currently conducts environmental performance monitoring activities at the NPD site, including compliance, effluent and groundwater monitoring programs as well as inspections and surveillance activities. The following are aspects of the current environmental performance monitoring that are currently reported on an annual basis:

- effluent monitoring program consisting of NPRI monitoring, airborne release monitoring through tritium and gross beta/gamma analysis of the ventilation stack and tritium and gross beta/gamma monitoring of groundwater diversion systems;
- groundwater monitoring program consisting of routine sampling and analysis of groundwater from a series of wells. Analysis includes radiological (e.g., tritium, gross beta, gross alpha), and non-radiological (e.g., major cations, anions, metals, alkalinity, PCBs, and various petroleum hydrocarbons); and
- environmental monitoring consisting of tritium and Cs-137 analysis of the Ottawa River, as well as tritium analysis of water from surface soil and vegetation.

CEAA (2012) requires that the EIS include a framework or preliminary program upon which EA follow-up actions will be managed throughout the life of the project (which in this case, applies until the end of the Institutional Controls phase, which is a minimum of 100 years).

The NPD Closure Project has developed a proposed follow-up monitoring program in accordance with relevant CSA N288 standards for effluent, environmental and groundwater monitoring. The draft program was submitted to the CNSC in October 2018 (64-CNNO-18-0026-E and 64-CNNO-18-0027-E) and is part of the EIS Supplementary Documentation TSD (as discussed in Section 8.1).

Although the monitoring program has identified different objectives from CSA and CNL company-wide objectives, at a minimum the program will follow the objectives specified in REGDOC-2.9.1 (CNSC 2020a) and *CEAA* (2012):

- verify the accuracy of EA predictions;
- determine the effectiveness of any measures implemented to mitigate potential adverse environmental effects.

12.1 Scope

The EA Follow-up Program will provide data to support future stages of the project, i.e., the initiation of the Post-Institutional Controls Phase. The program includes regular reporting, review, and audits. It will be adjusted on regular basis in order to account for evolving site conditions, outcomes of stakeholder and Indigenous engagement, and any feedback from the monitoring program. Regulatory license conditions may also stipulate additional monitoring not related to the EA Follow-up Program, but if this occurs, data will be shared to meet the collective requirements.

The CNSC, as the regulatory authority for the project, will coordinate the review of the EA Follow-up Program with Environment Canada and other interested Federal and Provincial agencies. Input from the public and Indigenous peoples will also be considered.

The current proposed follow-up monitoring program will continue to be improved and refined throughout the NPD Closure Project EA process. In accordance with Section 12 of the Generic Guidelines for Preparation of an EIS, the NPD Closure Project is seeking to incorporate feedback from Indigenous Nations, communities and organizations, and the public and stakeholders.

The proposed program was developed for the Decommissioning Execution and Institutional Controls phases of the project. It will address the monitoring of radioactive and non-radioactive contaminants present in the environment and in effluent, as well as physical stressors and VCs, helping to verify the environmental effect predictions made by the EIS and its TSDs. The proposed program was developed following a systematic informed planning process based on CSA guidance.

12.2 Relationship of EA Follow-up Program to Other Programs

CNL's Environmental Protection Program (CNL 2022a) is designed to ensure protection of the environment and the public from CNL's activities. Adherence to this program ensures that potential environmental adverse effects resulting from CNL activities are prevented or mitigated.

CNL is committed to achieving continual improvement in environmental performance through its management systems. CNL manages environmental related matters through an existing Environmental Management System (EMS). The EMS is registered within the requirements of the International Organization for Standardization 14001:2015 standard (ISO 2015). It includes compliance and improvement systems to evaluate areas for improvement or trending. It will continue to be implemented for the NPD Closure Project and will be updated, as needed, as part of an annual management review process. As site conditions and monitoring dictate, or as new technology emerges, CNL will adaptively manage site practices and the monitoring program to meet the defined objectives. This may include regular evaluation of predictive models; which will be defined in the detailed EA Follow-up Program.

If the EA Follow-up Program identifies that adverse environmental effects are greater than predicted, then CNL will evaluate whether they result in changes to the conclusions in this EIS. If changes are confirmed, then CNL will evaluate the need for revised mitigation actions and management practices to manage effects.

In general, the monitoring plans follow CNL's Management Control Procedure - Improvement Action (IMPACT) Corrective Action Program when dealing with exceedances of performance criteria. Specific mitigation measures would depend on the nature of the exceedance and would be defined after the exceedance is characterized. For example, contingency plans to address exceedances in groundwater include a pump-and-treat system or permeable reactive barrier to mitigate contaminated groundwater.

12.3 EA Follow-up Program Details

The proposed monitoring and follow-up activities may be modified, and activities may be added pending the actions needed to satisfy regulatory and/or stakeholder concerns identified during engagement activities prior to finalizing the EA Follow-Up Program.

12.3.1 Effluent Monitoring

Following the identified objectives, systematic informed planning process, and consideration of each effluent stream in the NPD Closure Project, the detailed design of effluent monitoring was developed.

The effluent stream sampling locations are outlined below in Table 12.3-1 and Figure 12.3-1. Table 12.3-2 and Table 12.3-3 summarize the effluent monitoring that will be implemented during the Decommissioning Execution phase and Institutional Controls phase, respectively. These summary tables show the process by which effluent streams and parameters are screened in or out, as well as the monitoring frequencies for each stream or type of parameter. The locations at which effluent streams are sampled are appropriate to the monitoring objectives of the plan and characteristics of each effluent stream, and are also consistent with existing locations monitored in the NPD Effluent Monitoring Plan (CNL 2022b).

The elements of this proposed follow-up effluent monitoring will be subject to annual monitoring program reviews and will incorporate considerations from public and Indigenous stakeholder feedback as well as regulatory requirements, in addition to the outcomes of internal technical reviews by CNL subject matter experts.

Table 12.3-1 Effluent Stream Sampling Locations

Effluent Stream	Sampling Location
Decommissioning Execution Phase	
Ventilation exhaust	Monitored in the Static State Control Area (SSCA) within the Main Building where the monitoring equipment is located. Although the location is post-fan and in proximity of potential flow disturbances (bends in the ductwork), it is nevertheless considered well-mixed and representative of the effluent stream given the high flow and is ideally located for ease and safety of sample collection and station maintenance and personnel. Following the decommissioning of the ventilation system, portable ventilation will be used, and the sampling will be conducted on this portable ventilation. The location of sampling and discharge will vary based on the task requiring ventilation. Once finalized, the FUMP will reflect the most up-to-date details for this task.
Release of surface contamination during demolition	Air monitoring location should be where the greatest concentrations were reported in the DecomSA near the demolition site. Once finalized, the FUMP will reflect the most up-to-date details for this task.
Displacement of contaminated air during grouting of below grade structures	Air monitoring location should be where the greatest concentrations were reported in the DecomSA near the demolition site. Once finalized, the FUMP will reflect the most up-to-date details for this task.
Halocarbon release	Estimation of total released mass of halocarbons.
Solvent use	Estimation of solvent use.
Dust emissions	Air monitoring location should be where the greatest concentrations were reported in the DecomSA near the demolition site.
Diesel emissions	N/A - Diesel emissions will be calculated based on the amount of fuel used
Water collection points throughout the facility	Locations will be determined by observation or planned at the time of grouting. They cannot be predicted at this time. Following final grouting there will no longer be a need for water collection and the effluent stream will cease.
Washout pit	Manual liquid grab sample taken directly from the washout pit.
Institutional Controls Phase	
Dust emissions	Estimation (verification of hours worked).
Diesel emissions	Estimation (verification of hours worked).

Figure 12.3-1 NPDWF Effluent Release Locations and Monitoring Locations During the Decommissioning Execution Phase

Notes:
Locations are approximate, subject to change
** Ventilation releases will be made from the vent stack until the ventilation system is decommissioned. Following this, ventilation will be provided by portable ventilation and releases will be from the area being worked on
† Monitored at source prior to release

12.3.1.1 Decommissioning Execution

Table 12.3-2 Summary of the Proposed Effluent Monitoring during the Decommissioning Execution Phase

	Effluent Stream	Monitoring Required (Y/N)	Parameters to be Monitored	Monitoring Frequency[1]
Airborne Emissions	Ventilation exhaust, including portable ventilation.	Y	Radionuclides	Continuous while exhaust fan running (ventilation will remain in place until grouting is completed).
			Flow	Monthly
			Fan Run Time	Monthly
	Fugitive releases from the main building non-nuclear area	N (minimal or no source of airborne radioactivity)		
	Fugitive releases from the external areas or structures	N (minimal or no source of airborne radioactivity)		
	Release of surface contamination during demolition	Y	Radionuclides	Continuous during demolition
			Metals	Continuous during demolition
			Flow	Monthly
			Fan Run Time	Monthly
	Displacement of air during grouting of below grade structures	Y	Radionuclides	Continuous during grouting
			Metals	Continuous during grouting
			Asbestos	Continuous during grouting
			Flow	Monthly
			Fan Run Time	Monthly
	Halocarbon release (in support of annual estimation of GHG emissions, not related to project impacts)	Y	Halocarbons	Per release
	Solvent use	Y	Solvent Use	Annually
	Dust emissions (also in support of NPRI reporting requirements)	Y	Suspended particulate matter	Continuous
	Noise Emissions	Y	Monitored as part of the follow-up environmental monitoring (Section 12.3.2)	
	Diesel Emissions (also in support of NPRI reporting requirements)	Y	Air pollution gases	N/A

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12 Follow-Up Program

	Effluent Stream	Monitoring Required (Y/N)	Parameters to be Monitored	Monitoring Frequency[1]
	Former Landfill 1 (in support of annual estimation of GHG emissions, not related to project impacts)	Y	Greenhouse Gas	Annually
Waterborne Emissions	Water collection points throughout the facility	Y	Radionuclides	Prior to every batch shipment to CRL
			Metals	Prior to every batch shipment to CRL
			Toxic chemicals	Prior to every batch shipment to CRL
			Volume	Per batch
	Subsurface drainage	Y	Monitored as part of the follow-up environmental (Section 12.3.2) and groundwater (Section 12.3.3) monitoring	
	Surface water drainage	Y	Monitored as part of the follow-up environmental (Section 12.3.2) monitoring	
	Washout pit	Y	Radionuclides	Prior to every batch shipment to CRL
			Water Clarity	Prior to every batch shipment to CRL
			pH	Prior to every batch shipment to CRL
			Volume	Per batch

Notes:

GHG – Greenhouse Gas; N/A – Not Applicable
1 - Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each effluent stream are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

12.3.1.2 Institutional Controls

Table 12.3-3 Summary of the Proposed Follow-up Effluent Monitoring during the Institutional Controls Phase

	Effluent Stream	Monitoring Required (Y/N)	Parameters to be Monitored	Monitoring Frequency
Airborne Emissions	Fugitive releases through the cap and barrier	Y	Monitoring is considered as part of the follow-up environmental (Section 12.3.2) monitoring	
	Dust emissions	N	Suspended Particulate Matter	
		Y	Hours worked	Annual
			Vehicle kilometers travelled	Annual
	Diesel emissions	N	Suspended Particulate Matter	
		Y	Hours worked/ fuel used	Annual

Notes:

N/A – Not Applicable
1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each effluent stream are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

12.3.2 Environmental Monitoring

This section provides a concise summary of the proposed follow-up environmental monitoring. The tables included in this section outline the design of those environmental components designated as requiring empirical monitoring. Justification is provided for both the monitoring (or not) of various parameters, and for the required monitoring frequency.

The elements of this proposed follow-up environmental monitoring will be subject to annual monitoring program reviews and will incorporate considerations from public and Indigenous stakeholder feedback as well as regulatory requirements, in addition to the outcomes of internal technical reviews by CNL subject matter experts.

12.3.2.1 Decommissioning Execution

Table 12.3-4 summarizes the proposed follow-up environmental monitoring that will be implemented during the Decommissioning Execution Phase.

Table 12.3-4 Summary of Proposed Follow-up Environmental Monitoring During the Decommissioning Execution Phase

Environmental Component	Subcomponent	Sampling Locations	Parameters to be Monitored	Monitoring Frequency[1]
Atmospheric Environment	Air Quality	*(if triggered by tier 2 exceedances in atmospheric effluent monitoring)* • Site boundary • Sensitive receptors within the Regional Study Area	• Radionuclides	Continuous for one week during new activities or modifications to existing activities (while activities are occurring)
			• Air pollution gases	Continuous for one week during new activities or modifications to existing activities (while activities are occurring)
			• Suspended particulate matter	Continuous during decommissioning activities (while activities are occurring)
			• Metals • Asbestos	Continuous for one week during new activities or modifications to existing activities (while activities are occurring)
	Noise	• Site boundary *(if triggered)* • Sensitive receptors within the Regional Study Area.	• Noise	Continuous during periods of high activity (while activities are occurring)
Surface Water Environment	Erosion	Visual inspection of site drainage and erosion will be undertaken as part of CNL's Routine Inspections Procedure (CNL 2018a)		
	On-site Surface Water Quality	• Ottawa River shoreline, downgradient of effluent points	• Radionuclides	Monthly
	Ottawa River Water Quality	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	• Radionuclides • pH • Water Clarity • Metals	Quarterly
	Sediment Quality (*if triggered by tier 2 surface water or groundwater exceedances*)	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	Parameters dependent upon exceedances in other environmental media.	Annually
Aquatic Environment	Fish (*if triggered by tier 1 surface water exceedances)*	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	Parameters dependent upon exceedances in other environmental media.	Annually
	Benthic Macroinvertebrate community (*if triggered by sediment exceedances)*	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	Benthic macroinvertebrate community metrics	Semi-annually
Geological Environment	Wet and Dry Deposition *(if triggered by tier 2 atmospheric exceedances)*	• Site boundary • Sensitive receptors within the Regional Study Area.	(*if triggered)* parameters dependent upon exceedances in other environmental media.	Continuous
	Soil quality *(if triggered by tier 2 groundwater exceedances)*	• Established monitoring points within the Site Study Area	• Radionuclides (*if triggered)* Parameters dependent upon exceedances in other environmental media.	Annually

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12 Follow-Up Program

Environmental Component	Subcomponent	Sampling Locations	Parameters to be Monitored	Monitoring Frequency[1]
Terrestrial Environment	Chimney Swift	• NPD Site	Chimney swift roost disturbance	• During the non-breeding season (May 1-June 21 and July 31-September 1): 1-hour observation during inclement weather • During breeding season (June 22 to July 30): daily roost counts
	Species at Risk	Along the main road, other transportation routes, and areas of where new activities are taking place on site.	Roadkill mortality	Daily during eastern milksnake active season (April 15 to September 30), only when decommissioning activities are occurring
			SAR disturbance	Prior to commencement of new or modified activities
		• NPDWF structure (crawlspace, voids outside of facility), as well as areas of bat emergence	Bat presence	Preceding the initiation of decommissioning activities: Visual inspections to be conducted in both summer (during high activity) and winter (during hibernation).
	Wildlife	Along the main road, other transportation routes, and areas of where new activities are taking place on site.	Disturbance of locally rare species, migratory birds' nests, etc.	Prior to new activities or modifications to existing activities
	Vegetation *(if triggered by tier 2 groundwater exceedances)*	• Established monitoring points within the Site Study Area	• Radionuclides *(if triggered)* Parameters dependent upon exceedances in other environmental media.	Quarterly
Ambient Radioactivity	Ambient Radioactivity	• Within the NPD site, at previously established monitoring areas • Downwind at currently monitored locations	• Gamma dose rate	Continuous
Human Health	Worker Health	Worker dose is assessed as part of CNL's *Dosimetry Program*		

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.

Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

12.3.2.2 Institutional Controls

Many of the locations selected for monitoring during the Institutional Controls phase are the same as those selected for the Decommissioning Execution phase. Some of the specific points within the Site Study Area will no longer be available during the Institutional Controls phase.

Atmospheric monitoring locations associated with predictions in the Decommissioning Execution phase are no longer relevant, and monitoring may occur (if triggered) at locations associated with potential groundwater exceedances.

Table 12.3-5 summarizes the proposed follow-up environmental monitoring that will be implemented during the Institutional Controls Phase.

Table 12.3-5 Summary of the Proposed Follow-up Environmental Monitoring During the Institutional Controls Phase

Environmental Component	Subcomponent	Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
Atmospheric Environment	Air quality *(if triggered by tier 2 groundwater exceedances)*	• Atmospheric monitoring will be co-located with groundwater exceedances.	• Parameters dependent upon exceedances in other environmental media.	Continuous
Surface Water Environment	On-site surface water quality	• Ottawa River shoreline, downgradient of effluent points	• Radionuclides	Monthly
	Site drainage	Visual inspection of site drainage and erosion will be undertaken as part of CNL's *Surveillance Plan* (Taylor 2019)		
	Ottawa River Water Quality	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	• Radionuclides (alpha and beta emitters) • pH • Metals *If triggered* • Radionuclides (gamma emitters)	Quarterly
	Sediment Quality *(if triggered by tier 2 surface water or groundwater exceedances, or a potential seismic event scenario)*	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	(*if triggered)* Parameters dependent upon exceedances in other environmental media.	Annual, if triggered
Aquatic Environment	Fish *(if triggered by tier 2 surface water exceedances)*	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	(*if triggered)* Parameters dependent upon exceedances in other environmental media.	Annual, if triggered
	Benthic Macroinvertebrate community (*if triggered by sediment exceedances*)	• Ottawa River at the NPD Site • Ottawa River downstream of the NPD Site • Ottawa River upstream of the NPD Site	Benthic macroinvertebrate community metrics	Semi-annually
Geological Environment	Soil quality *(if triggered by tier 2 groundwater exceedances)*	• Soil monitoring will be co-located with groundwater exceedances. • Established monitoring points within the Site Study Area.	• Radionuclides (*if triggered)* Parameters dependent upon exceedances in other environmental media.	Annually
	Soil vapour quality *(if triggered by tier 2 groundwater exceedances)*	• Soil vapour monitoring will be co-located with groundwater exceedances. • Established monitoring points within the Site Study Area.	(*if triggered)* Parameters dependent upon exceedances in other environmental media.	Annually
	Topography	Inspection of slope stability and changes in topography in the disposal facility footprint will be undertaken as part of CNL's *Surveillance Plan* (Taylor 2019)		
Terrestrial Environment	Chimney Swift	• NPD site	Chimney swift roost disturbance	Weekly for the first three years of institutional control
		Inspection of ventilation stack integrity will be undertaken as part of CNL's *Surveillance Plan* (Taylor 2019)		
	Vegetation quality *(if triggered by tier 2 groundwater exceedances)*	• Vegetation monitoring will be co-located with groundwater exceedances. • Established monitoring points within the Site Study Area.	• Radionuclides (*if triggered)* Parameters dependent upon exceedances in other environmental media.	Annually
Ambient Radioactivity	Ambient Radioactivity	• Within the NPD site, at previously established monitoring areas. • Downwind at currently monitored locations	Gamma dose rate	Continuous
Human Health	Worker Health	Worker dose is assessed as part of CNL's *Dosimetry Program.*		

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

12.3.3 Groundwater Monitoring

This section provides a concise summary of the proposed follow-up groundwater monitoring. Table 12.3-6 and Table 12.3-7 summarize the follow-up groundwater monitoring that will be implemented during the Decommissioning Execution Phase and Institutional Controls Phase, respectively.

The elements of this proposed follow-up groundwater monitoring will be subject to annual monitoring program reviews and will incorporate considerations from public and Indigenous stakeholder feedback as well as regulatory requirements, in addition to the outcomes of internal technical reviews by CNL subject matter experts.

12.3.3.1 Decommissioning Execution Phase

Table 12.3-6 Summary of Proposed Follow-up Groundwater Monitoring during the Decommissioning Execution Phase

Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
Reference Wells (upgradient of the facility); Existing Wells and/or Proposed New Wells (downgradient of the facility)	Groundwater Level	*Groundwater Levels (Obj. #1):* 4 campaigns (1 per quarter), over 1 year, at the completion of DE
	Wellhead Parameters	*Groundwater Quality (Obj. #2):* 2 campaigns over 1 year (i.e. semi-annually) and, 1 one-time campaign at the completion of DE
	Radionuclides	
	Anions	
	Alkalinity	
	Major Cations	
	Metals	
	Petroleum Components (F1 - F4)	

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

12.3.3.2 Institutional Controls Phase

Table 12.3-7 Summary of Proposed Follow-up Groundwater Monitoring during the Institutional Controls Phase

Sampling Location	Parameters to be Monitored	Monitoring Frequency[1]
Reference Wells (upgradient of the facility); Existing Wells and/or Proposed New Wells (downgradient of the facility)	Groundwater Level	*Groundwater Levels (Obj. #3):* During resaturation: semi-annually After resaturation: to be determined in future using the periodic review process.
	Wellhead Parameters Radionuclides Anions Alkalinity Major Cations Metals Petroleum Components (F1 - F4)	*Groundwater Quality (Obj. #4):* 1st year: Quarterly 2nd year to completion of resaturation: Semi-annual After resaturation: 1 one-time campaign at the completion of resaturation *Performance Monitoring (Obj. #5):* *(Tritium, Gross Beta/Gamma, pH, and Alkalinity)* 1st year: Quarterly 2nd year to completion of resaturation: Semi-annual After Resaturation: 1st year: Periodic (Quarterly) for 1 year After resaturation: 2nd year and beyond: Periodic (semi-annually).

Notes:

1 – Based on observations and monitoring data collected, the frequency of monitoring is subject to change.
Monitoring program objectives for each environmental component are to verify EA predictions and/or determine effectiveness of mitigation measures unless otherwise stated.

Parameter monitoring frequencies during the IC Phase at monitoring wells downgradient of the building should be increased to quarterly if a change in the chemistry of the groundwater has been detected, which may indicate that resaturation has occurred.

After resaturation has occurred, the number of sampling locations may be reduced based on the professional judgement of CNL's Environmental Protection Program, provided that the parameters applied in the monitoring are not key performance indicating parameters, if in the previous 10 sampling events or 5 years of monitoring:

- detections (or anomalous concentrations) have not occurred; or
- no temporal trend has been detected; or
- temporal trend has been detected, indicating improving groundwater quality.

12.4 Records and Data Management

The development and implementation of mitigation identified for the NPD Closure Project and housed in the proposed follow-up program are tracked in relevant management plans, where data management, including collection, storage, standards, and responsible roles, are defined. Data collection will meet the required guidelines for collection and quality assurance and control. CNL will store information generated from the environmental results from the monitoring and follow-up monitoring in a robust database for future analysis and reporting. Analysis of results from the EA Follow-up Program will be reported and submitted to the relevant regulatory agencies as required.

12.5 Quality Assurance and Quality Control

The NPD site operates under CNL's Cleanup Program (Morrison 2023, 2022). In order to verify the validity of analytical results for the EA Follow-up Program, the laboratories that will perform sample and data analysis have rigid Quality Assurance / Quality Control (QA/QC) programs as required by CNL's Environmental Protection Program.

12.6 Data Interpretation

The general requirements on the handling of uncertainty, significant figures, and dose assessment are outlined in CNL's internal Environmental Monitoring Program (Boileau 2018).

12.6.1 Data Evaluation

Evaluation criteria are developed for each environmental media, location and parameter identified in each monitoring plan. These criteria are used as a framework for evaluating the monitoring data and determining the appropriate response, and are comprised of the following:

- Site-specific baseline data (collection of any additional baseline data required will be initiated before commencement of the project);
- Environmental concentrations predicted as part of the EIS and TSDs; and,
- Relevant guidelines (e.g., CCME Water Quality Guidelines, Health Canada Guidelines for Drinking Water Quality).

Proposed evaluation criteria are outlined in the proposed follow-up monitoring program.

The data evaluation criteria allow for interpretation of monitoring data and provides a tiered system to increase or decrease monitoring based on the results. The responses to these exceedances are commensurate with the level of risk associated with that respective tier. In general, exceedances are to be addressed by at least one of the suggested methods as follows:

- Tier 1 exceedances:
    - Data review (e.g., trend evaluation, secondary sampling to confirm exceedance);

  - Investigate source of exceedance;
  - Consider increased monitoring frequency.

- Tier 2 exceedances:
  - Data review (e.g., trend evaluation, secondary sampling to confirm exceedance);
  - Investigate source of exceedance;
  - Apply additional mitigation measures, consider remediation (if applicable);
  - Consider stop work;
  - Increase monitoring (e.g., increased frequency, additional parameters, additional locations).

It is noted that the CNSC verifies and monitors all EA follow-up activities through the CNSC licensing and compliance process.

12.7 Information Management and Reporting

During the operation of the EA Follow-Up Program there are several forms of reporting that are generated, including the annual report, annual and periodic reviews, and audits. Annual reporting may be a requirement under the terms and conditions of the SARA permit relating to chimney swift monitoring. Reporting, review and audit requirements are set out in N288.4 (CSA 2019). Reporting requirements will also be dictated by *REGDOC-3.1.2* (CNSC 2018), the CNSC decision relating to the NPD Closure Project EA.

12.7.1 Annual Report

The annual monitoring report for the NPD Closure Project EA Follow-up Program may include:

a) The results, including:
   i. completeness of monitoring activities (identify if all planned activities were accomplished);
   ii. measurements of the monitored hazardous and/or nuclear substances, physical stressors, and physical and biological parameters, including their statistical analyses (i.e., assessments of changes through time and space);
   iii. an assessment of the monitoring results compared with the performance indicator targets;
   iv. documentation and justification of any deviations from field sampling, and analytical and data management procedures;
   v. the amount or concentration of radioactive nuclear substances and hazardous substances released, as required to demonstrate compliance with regulatory limits and performance with respect to any other release target (e.g., action levels);
   vi. a discussion of the past monitoring results, and any notable differences from current monitoring results;
b) relevant groundwater and hydrogeological characteristics;
c) a summary of the audit and review results and subsequent corrective actions; and
d) a summary of any proposed modifications to the monitoring plans.

12.7.2 Annual Review

A review of the EA Follow-up Program is to be completed annually to evaluate the adequacy of the various elements of the program and to institute changes as needed to improve or optimize the administration and design of the program in meeting the environmental monitoring objectives. Optimization can include adding or removing monitoring activities, including terminating routine monitoring where justified.

The annual review is to be conducted in the form of a meeting, using a methodology based on the CNL Quality Assurance Procedure for *"Quality Assurance Program Reviews and Special Investigations"* (Marshall 2001).

A range of actions of general and specific nature, should then be identified from the review. The results of the review are documented in detailed meeting minutes, which form a formalized record of changes made to the program and the rationale for the changes.

Environmental performance functions such as the operational feedback review process and the non-conformance management process may also result in process improvement. Further detail on these processes can be found in each monitoring plan. During the course of evaluating the performance of the facilities and sites undergoing environmental monitoring, changes to the program scope can be triggered in order to improve the methods of environmental monitoring, e.g., additional monitoring locations and/or additional parameters. Changes can also be triggered from investigating or evaluating non-conformances to the environmental performance criteria. In this case, the changes can include adjustments to the environmental performance criteria in order to correct false (nuisance) performance indicators.

12.7.3 Periodic Review

A periodic review of the EA Follow-up Program involves re-examining the need for and the adequacy of the EA Follow-up Program components through:

a) a review of the criteria for determining the need to establish the monitoring plans; and

b) a review of the adequacy of the program with respect to the identified environmental risks on the site which were identified through the ERA, or other studies of similar type.

Documentation of the review in the form of a formal report or memo is prepared.

The timing of this routine review is dependent on the timing of the following site activities but in general occurs at least once per five years:

(a) following an update or revision of the risk assessment performed within the NPD Closure Project EIS (every five years);
(b) prior to applying for the site license renewal (license valid until December 31, 2034); or
(c) Following any change with the potential to substantially alter the predictions of the EIS and technical support documents or the implementation of the EA Follow-Up Program, which can include a change in:
    (i) the design or operation of the facility;

(ii) the population or land use in the surrounding community;
(iii) the scientific understanding of the interactions of the facility with the environment;
(iv) the nature of the surrounding environment;
(v) the statutes, regulations, licenses, or permits that govern the operation of the facility;
(vi) any reassessment of the environmental risks and the hazardous substances of concern; or
(vii) the commitments made by the licensee to any regulatory agency, stakeholder, or Indigenous Nation, community or organization.

12.7.4 Audit

To confirm that the EA Follow-Up Program is carried out in compliance with its procedures and elements, an audit of the core elements of the EA Follow-Up Program will be completed at least once every five years, or more frequently if operational conditions change and require such an audit. This audit will address the core elements of the EA Follow-Up Program, including:

- sampling design;
- sampling and analytical procedures;
- data analysis;
- interpretation;
- QA; and
- reporting, review, and audit.

This audit will be conducted by an individual who is not responsible for the EA Follow-Up Program in any way to ensure an unbiased review. The process and findings of this audit will be documented and recorded in an audit report, identifying the procedures, results, disposition of corrective actions, and verification of effectiveness of corrective actions.

12.8 Program Responsibilities, Qualifications, and Training Requirements

CNL will implement the EA Follow-up Program during the decommissioning and institutional control phases of the NPD Closure Project. Follow-up, surveillance, and monitoring activities proposed in support of the NPD Closure Project will be set to meet the objectives of monitoring the prediction in the environmental assessment for the project.

As the proponent of the project, CNL will be responsible for implementing and managing the EA Follow-Up Program. AECL, the owner of the site, is responsible for providing funding to CNL for the management and operation of its sites as per contractual arrangement, including funding for the EA Follow-Up Program.

If the EA Follow-up Program for the project identifies that adverse environmental effects are greater than predicted or results for any monitored contaminants of potential concern are above the established limits,

then CNL will investigate the results, which may include additional sampling and analysis to help determine/confirm the source and extent of the contamination. CNL would also evaluate whether they result in changes to the conclusions in the EIS. If changes are confirmed, then CNL will evaluate the need for revised mitigation actions and management practices to manage effects, with engagement with Indigenous Nations, communities and organizations for openness and transparency. Any proposals on modifications to the monitoring program will be communicated to the CNSC.

CNL is committed to reviewing and adapting the proposed follow-up monitoring program for the NPD site to incorporate Traditional Knowledge that has been collected through the EA for the NPD Closure Project, as well as through ongoing engagement and relationship building, in order to provide each Nation with the information that is relevant and important to them. CNL will continue to work with Indigenous Nations, communities, and organizations as the proposed EA Follow-Up Program for the NPD Closure Project evolves, to address concerns and incorporate them into the program as appropriate.

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APPENDIX A: SUMMARY OF SUPPORTING DOCUMENTS

Appendix A: Summary of Supporting Documents

Name of Reference Document	Ref	Portion of information or data applying to NPD Closure Project	How information/data is applied; outline of assumptions, limitations or differences	Distinguish factual evidence from inference	Limitations on inferences or conclusions that can be made
Ecological Land Classification (ELC) Report	(1)	Entire document is applicable to the NPD Closure Project	Description of the vegetation communities at NPD site. Judgement was used to identify representative areas of the site. Information from this study was added to the EIS Description of the Existing Environment.	Factual evidence based on a field surveys completed at the site	None
Stakeholder Engagement	(2)	Entire document is applicable to the NPD Closure Project	To inform stakeholders and enable public to provide feedback. Information from this study was added to the EIS Section on Public and Stakeholder Engagement.	Factual evidence based on interactions with stakeholders and public	Commensurate with the extent and detail of the inputs received and the data available and considered adequate to support assessment.
Indigenous Engagement Report	(3)	Entire document is applicable to the NPD Closure Project	To solicit input from potentially affected Indigenous Nations, communities and organizations; to document traditional land uses. Information from this study was added to the Indigenous Engagement and Traditional Land and Resource Use (Baseline and Effects) sections of the EIS.	Factual based on interactions with Indigenous Nations, communities and organizations	Commensurate with the extent and detail of the inputs received and the data available and considered adequate to support assessment.
Alternative Means Assessment	(4)	Entire document is applicable to the NPD Closure Project	A comparison of the relative risk to VCs (grouped together by environmental component) from each alternative to the baseline (continued storage with surveillance). The assessment also considers absolute risk. Information from this study was added to the EIS Section on Alternative Means of Carrying out the project.	The assessment of relative risk is qualitative and is based on the consideration of the differences between the alternatives.	The limitation is the semi-qualitative nature of the assessment. The level of the assessment is commensurate with the level of understanding of the alternative means and is sufficient to rank the alternative means.

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Name of Reference Document	Ref	Portion of information or data applying to NPD Closure Project	How information/data is applied; outline of assumptions, limitations or differences	Distinguish factual evidence from inference	Limitations on inferences or conclusions that can be made
Decommissioning Safety Assessment (DecomSA)	(5)	Entire document is applicable to the NPD Closure Project	Air dispersion of contaminants was modelled using available up-to-date information on a number of factors, including quantities of hazardous substances, distribution of inventory, time required to complete demolition, meteorological data etc. Information from this study informs the Ecological Risk Assessment (EcoRA) as well as the EIS Assessment and Mitigation of Environmental Effects, including Accidents and Malfunctions and Effects of the Environment on the project.	Models are based on available factual information and conservative assumptions of unknown parameters where necessary.	Limitations due to predictive modelling are minimized by: - Using an iterative, systematic, transparent and auditable process - Applying regulatory safety criteria and constraints derived from them that are been set so as to prevent an unacceptable level of harm or risk to people or the environment. - Considering a range of performance measures (dose, total amount of contaminants and their location, environmental concentrations)
Postclosure Safety Assessment (PostSA)	(6)	Entire document is applicable to the NPD Closure Project	Human health results and environmental concentrations of contaminants resulting from a number of scenarios during the postclosure period. There is uncertainty with respect to future conditions, geosphere and biosphere, data/parameters etc. Information from this study informs the Ecological Risk Assessment (EcoRA) as well as the EIS Assessment and Mitigation of Environmental Effects, including the Effects of the	Environmental concentrations and screening indices are predictions modelled based on available information on current and future conditions.	Limitations due to predictive modelling are minimized by: - Using an iterative, systematic, transparent and auditable process - Applying regulatory safety criteria and constraints derived from them that are been set so as to prevent an unacceptable level of harm or risk to people or the environment. - Considering a range of

Name of Reference Document	Ref	Portion of information or data applying to NPD Closure Project	How information/data is applied; outline of assumptions, limitations or differences	Distinguish factual evidence from inference	Limitations on inferences or conclusions that can be made
			Environment on the project.		performance measures (dose, total amount of contaminants and their location, environmental concentrations). Conducting a range of calculations exploring uncertainties, including "Defence-in-Depth" cases.
Groundwater Modelling	(7)	Entire document is applicable to the NPD Closure Project	Modelling the existing groundwater conditions at NPD site based on available information and conservative assumptions on hydraulic conductivity, recharge, head, etc. Information from this study informs the PostSA and was also used in the EIS Characterization of Baseline.	Groundwater flow is calculated based on fact-based evidence and assumptions based on site knowledge.	Limitations due to modelling are manage using calibration.
Ecological Risk Assessment (EcoRA)	(8)	Entire document is applicable to the NPD Closure Project	Screening indices are used to determine the potential for undue effects on non-human biota. The screening indices rely on a number of parameters. Some uncertainties exist with respect to these parameters, such as receptor occupancy on the site, diet, transfer factors. Where possible, these uncertainties are addressed through the use of conservative estimates (e.g., 100% occupancy on the site). Information from this study informs the EIS Assessment and Mitigation of Environmental Effects.	Screening indices are values calculated based on fact-based evidence, up-to-date available parameters (e.g., transfer factors), and conservative assumptions of unknown parameters.	Limitations due to predictive modelling are minimized by: - Using an iterative, systematic, transparent and auditable process. - Applying regulatory safety criteria and constraints derived from them that are been set so as to prevent an unacceptable level of risk to the environment. - Considering a range of performance measures (dose, total amount of contaminants and

Name of Reference Document	Ref	Portion of information or data applying to NPD Closure Project	How information/data is applied; outline of assumptions, limitations or differences	Distinguish factual evidence from inference	Limitations on inferences or conclusions that can be made
					their location, environmental concentrations). Conducting a range of calculations exploring uncertainties, including "Defence-in-Depth" cases.
Socio-economic Assessment	(9)	Entire document is applicable to the NPD Closure Project	To describe the existing and predicted future socio-economic conditions (e.g., land use, tourism, forestry, etc.) and the effects of the project on these conditions. The assessment of effects is qualitative. Information from this report is used in the EIS sections on Existing Socio-economic Environment and Assessment of Effects on Socio-economic Environment.	Factual evidence is used to describe existing conditions. The potential effects are assessed qualitatively based on the current understanding of the project.	None
Chimney Swift Studies	(10)	Entire document is applicable to the NPD Closure Project	This TSD outlines an approach for determining whether the project is resulting in residual effects to chimney swifts and applying the appropriate mitigation measures. Used to identify potential interactions, mitigation measures and monitoring activities when chimney swifts are present in the NPD ventilation stack. Information from these studies is used in the EIS sections on Existing Environment, Assessment of Effects and Follow-up Monitoring.	The approach in the TSD is dependent on observations, i.e., based on factual information.	Uncertainties are acknowledged and addressed using variable response thresholds in the monitoring plan.

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Name of Reference Document	Ref	Portion of information or data applying to NPD Closure Project	How information/data is applied; outline of assumptions, limitations or differences	Distinguish factual evidence from inference	Limitations on inferences or conclusions that can be made
Archaeological Assessment	(11)	Entire document is applicable to the NPD Closure Project	Information, particularly relic shorelines and historical roadways, is used to evaluate the archaeological potential for the NPD property outside of the project footprint. Information from this study is used in the EIS sections on Existing Environment and Assessment of Effects.	Archaeological potential is a prediction of the likelihood of the presence of archaeological material/artefacts in a given area.	None
Greenhouse Gas Emissions	(12)	Entire document is applicable to the NPD Closure Project	Emissions are calculated based on information on project activities and material quantities. Assumptions were made with respect to length of activities, equipment used, material quantities, as well as default assumptions relating to grout and concrete production and transport. Information from this TSD is used in the EIS section on Assessment of Effects.	Emissions are estimated based on the available information about the project and were estimated based on U.S. EPA AP-42 (19) emission factors, conservative time frames, and default values for cement and grout production and transport.	Since the Greenhouse Gas Emissions Technical Supporting Document was prepared in 2016, the NPD Closure Project has refined the technical approach and engineering design for the project. The main project changes are: 1) using blast furnace slag in the grout mix instead of fly ash; 2) reducing the volume of clay used in the cover system; and 3) delivering grout to the facility through a pipeline or a Reimer truck (instead of four trucks per hour travelling from the grout batch mixing plant to the nuclear area). The conclusion of the original Greenhouse Gas Emissions Technical Supporting Document was that the project's GHG emissions (direct and life-cycle combined)

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					are negligible in comparison to Ontario's total GHG emissions (i.e., less than 0.005%) and are approximately 0.3% of the Ontario total for cement production. The changes in engineering design described above would result in further reductions in greenhouse gas emissions. Therefore, CNL has determined that the original Greenhouse Gas Emissions Technical Supporting Document bounds the changes in engineering design. The Introduction of the Greenhouse Gas Emissions Technical Supporting Document includes this discussion, with additional quantitative rationale.
Geosynthesis Report	(13)	Entire document is applicable to the NPD Closure Project	Includes a review of available geoscientific (geological, hydrogeological, and geomechanical) data, including regional geological setting, and overburden and bedrock geological mapping for the NPD site, supplemented by key summary geoscientific data from the Chalk River (CRL) site to develop a regional understanding of geological history and evolution for the area.	Factual evidence is used to describe existing conditions	None

Name of Reference Document	Ref	Portion of information or data applying to NPD Closure Project	How information/data is applied; outline of assumptions, limitations or differences	Distinguish factual evidence from inference	Limitations on inferences or conclusions that can be made
			Information from this report has been added to the Description of the Baseline Environment		
Cementitious Materials Synthesis Report	(14)	Entire document is applicable to the NPD Closure Project	Material specifications for cement grout and data on structural concrete at NPD have been collated and a description of materials properties developed. A review of international peer-reviewed literature and documentation produced by radioactive waste management organizations has been undertaken and implications for NPD summarized. The implications for cement evolution on contaminant behavior and metal corrosion, and their consideration in the safety analysis of the facility is outlined. Some results are not site-specific; they are based on literature from similar situations. Information from this study affects the conditions used in the PostSA, the results of which inform the EIS Assessment of Effects.	Factual report	Some results are not site-specific; they are based on literature from similar situations. The level of assessment in the cementitious materials synthesis report is commensurate with the level of understanding of the available information and is sufficient to inform the PostSA.
Description of Baseline for Decommissioning	(15)	Entire document is applicable to the NPD Closure Project	Baseline information collected in support of the NPD Closure Project. Information from this report has been added to the EIS Description of the Existing Environment (Atmospheric, Surface Water, Aquatic, Geological and Terrestrial Environments, Ambient Radioactivity).	Content is factual; it is based on environmental monitoring data	None

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Name of Reference Document	Ref	Portion of information or data applying to NPD Closure Project	How information/data is applied; outline of assumptions, limitations or differences	Distinguish factual evidence from inference	Limitations on inferences or conclusions that can be made
NPD Biodiversity Report	(16)	Entire document is applicable to the NPD Closure Project	Information from this report was used to inform the VC selection process and was added to the EIS Description of the Existing Environment (e.g., aquatic biota, terrestrial vegetation and wildlife species) as well as in the Assessment of Effects (e.g., mitigation measures).	Content is factual	Biodiversity is ever-changing and the report documents survey results at the time the study was undertaken.
Groundwater Quality Report	(17)	Entire document is applicable to the NPD Closure Project	Information from this report was added to the EIS Description of the Existing Environment (primarily groundwater quality data).	Content is factual; it is based on environmental monitoring data	None
Effluent Streams Sampling Results	(18)	Presents results of effluent sampling and analysis campaigns at several sites, including NPD. NPD results are applicable to the NPD Closure Project	Information on surface water releases and measurement data from this report was added to the EIS Description of the Existing Environment.	Content is factual; it is based on environmental monitoring data	None
Phase II ESA	(19)	Entire document is applicable to the NPD Closure Project	Information from this report was added to the EIS Description of the Existing Environment (primarily sediment, soil and groundwater quality data).	Content is factual; it is based on environmental monitoring data	None
Balance of Site Characterization	(20)	Entire document is applicable to the NPD Closure Project	Information from this report was added to the EIS Description of the Existing Environment (primarily sediment, soil and groundwater quality data)	Content is factual; it is based on environmental monitoring data	None

Name of Reference Document	Ref	Portion of information or data applying to NPD Closure Project	How information/data is applied; outline of assumptions, limitations or differences	Distinguish factual evidence from inference	Limitations on inferences or conclusions that can be made
Draft Follow-up Monitoring Plans	(21)	Entire document is applicable to the NPD Closure Project	Information from this report was used in the EIS sections related to Follow-up Monitoring. The reports are Draft because CNL is seeking input on the plans from Indigenous Nations, communities and organizations, the public and stakeholders. The final EA Follow-up Program will be required to meet any objectives and activities prescribed in the EA Report (to be prepared by the CNSC). The reports identify information gaps in baseline data.	The document is procedural, designed to follow regulatory guidance and be consistent with CNL documents and CSA standards.	Uncertainties are acknowledged and can be addressed by additional baseline monitoring Also; the content of the follow-up monitoring plans are evolving based on public and Indigenous input
Safety Analysis Report	(22)	Entire document is applicable to the NPD Closure Project	Information from this report was used in the EIS Description of Existing Environment and Assessment of Effects, including Accidents & Malfunctions.	Content is factual	None
Interim End State Report	(23)	Entire document is applicable to the NPD Closure Project	Used in the description of site and vicinity, including some figures	Content is factual	None
ECCC Climate Normals	(24)	Data from selected climate monitoring stations were applied to the NPD Closure Project	Wind, precipitation and temperature data were used to summarize the existing climate environment. Limitation is the location: Chalk River (CRL) Site.	Content is factual; it is based on environmental monitoring data	There is uncertainty associated with using data from a location 25 km away; however, this uncertainty is deemed to be very minor. Overall the CRL climate data are considered to be an adequate representation of the climate in the Site, Local and Regional Study Areas for the following reasons: both sites are rural, close to

Name of Reference Document	Ref	Portion of information or data applying to NPD Closure Project	How information/data is applied; outline of assumptions, limitations or differences	Distinguish factual evidence from inference	Limitations on inferences or conclusions that can be made
					the Ottawa River, share a similar topography and are at a similar latitude
CNSC IEMP Data	(25)	Data from selected locations in this program were applied to the NPD Closure Project, to characterize the Regional Study Area	Radiological data from off-site locations were used in the EIS section on Existing Environment. Limitation is the location: offsite locations only.	Content is factual; it is based on environmental monitoring data	None. Data are applied to the Regional Study Area
Historical Site Assessment Report for NPD	(26)	Entire document is applicable to the NPD Closure Project	Site characterization data and figures from this report were used in the EIS section on Existing Environment.	Content is factual; it is based on environmental monitoring data	None.
Grout Flushing Models Report	(27)	Entire document is applicable to the NPD Closure Project	The objective of the work described herein is to produce “flushing” models of LSM grout evolution that show how pH may change over time as a function of number of pore flushes. These data can then be used to inform further development of safety assessment models and calculations	The report contains modelled information (not empirical), however the model is based on the specific grout formulation for the NPD Closure Project	None
Waste Inventory Report	(28)	Entire document is applicable to the NPD Closure Project	Results of characterization in the facility is used to augment the radioactive and non-radioactive inventory information	Content is factual; it is based on characterization and analysis of samples within the NPD facility	None
Baseline Conditions for Ottawa River Sediment, Benthic Invertebrates and Fish Habitat Features	(29)	Presents results of baseline monitoring of sediment, benthic macroinvertebrate community and fish habitat in the Ottawa River near the NPD site	Information from this report was added to the EIS Description of the Existing Environment (primarily Sections 8.3 and 8.4).	Content is factual; it is based on environmental monitoring data	None

Name of Reference Document	Ref	Portion of information or data applying to NPD Closure Project	How information/data is applied; outline of assumptions, limitations or differences	Distinguish factual evidence from inference	Limitations on inferences or conclusions that can be made
Resaturation Modelling	(30)	Entire document is applicable to the NPD Closure Project	Modelling the resaturation of the facility in order to provide information on the infiltration rate of water through the engineered cover (including the concrete cap) and providing an estimate of the time of resaturation. Input is required from the Groundwater Modelling Report (7). Information from this study informs the Near Field Groundwater Model whose results are used in the PostSA.	Model parameters are based on Groundwater Modelling Report and information regarding the engineered cover and concrete cap.	Limitations are due to uncertainties in results of the Groundwater Modelling and the selected parameters for the engineered cover, concrete cap and hydraulic conductivities of the facility structure. Uncertainties are managed through use of sensitivity analyses and analyses of various scenarios.
Alkaline Plume Modelling	(31)	Entire document is applicable to the NPD Closure Project	Geochemical modelling to understand potential development of an alkaline plume in groundwater. Conservative assumption that solids in soil and fill are chemically inert. Model assumed that the entire volume of the facility comprises 90% Blast Furnace Slag / 10% Ordinary Portland Cement. Information from this study informs the PostSA and was also used in the EIS Assessment of Environmental Effects.	Models are based on available factual information and conservative assumptions of unknown parameters where necessary.	The limitation is that the model is conservative, and that more work would need to be completed in order to make the model more realistic.
Slope Stability Assessment	(32)	Entire document is applicable to the NPD Closure Project	Assessment of the stability of the slope located to the north of the NPDWF, grain size analyses, and liquefaction assessment. The assessment is based on current groundwater table assuming that the tile drain system continues to function. Material properties for the north slope were conservatively selected based on extrapolations from areas southwest of the NPDWF.	Assessments are based on professional judgement, available factual information and conservative assumptions of unknown parameters where necessary.	The assessment provides a preliminary screening-level evaluations.

Name of Reference Document	Ref	Portion of information or data applying to NPD Closure Project	How information/data is applied; outline of assumptions, limitations or differences	Distinguish factual evidence from inference	Limitations on inferences or conclusions that can be made
Near Field Groundwater Model	(33)	Entire document is applicable to the NPD Closure Project	Modelling to quantify the groundwater flow through the facility structure. Input is required from the Groundwater Modelling Report (7) and the Resaturation Modelling report. Uncertainties in hydraulic conductivities of geological media and facility structure are investigated using sensitivity and scenario analyses. Information from this study informs the PostSA model.	Model parameters are based on the findings of the Groundwater Modelling (7), the Resaturation Modelling (30) and the literature for the facility structure.	Limitations are due uncertainties in the results of the Groundwater and Resaturation Modelling and the selected parameter values for the facility structures. Uncertainties are managed through use of sensitivity analyses and analyses of various scenarios.
Lead Assessment	(34)	Entire document is applicable to the NPD Closure Project – Postclosure Phase.	Reviews and summarizes work undertaken on lead behaviour, in particular lead solubility and sorption as a function of pH. The pH of the system and its evolution is determined by the grout/groundwater interaction. Information from this study informs the PostSA.	Data are based on extensively peer-reviewed scientific literature	The assessment addresses uncertainties in the effect of groundwater on the solubility and mobility of lead.
Waste Form Synthesis	(35)	The report is applicable to the NPD Closure Project – Postclosure Phase	Reviews the expected corrosion behaviour of various metallic waste forms. Information is taken from a number of sources, including: general scientific literature, specific studies from international nuclear waste programs, and the study of anthropogenic analogues. Identified conservatism includes the assumption of room-temperature conditions for the sub-surface facility. Information from this study informs the PostSA.	The breadth of the information reviewed, and the conservative assumptions used support the corrosion rates used in the PostSA.	Uncertainties in the selected corrosion rates are addressed using a sensitivity analysis.

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APPENDIX B: MASTER LIST OF CANDIDATE VALUED COMPONENTS (VCs) for NPD

Appendix B – Master List of Candidate VCs for NPD (SAR Status Queries conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
FEDERAL LEGAL REQUIREMENTS			
Species at Risk Act, Schedule 1			
American ginseng			• END • Has not been observed on the site (no known patch north of Pembroke).
Bank swallow		x	• THR • Found in site study area (WSP 2023). • Represented by chimney swift (diet).
Barn swallow			• THR (SC – COSEWIC) • No sightings in the site or local study area.
Blanding's turtle	x	x	• CRL VC • END • To be assessed for exposure-related effects. • Sighting near the Local Study Area by Highway 17.
Bobolink			• THR (SC – COSEWIC) • No habitat in local study area.
Butternut tree			• CRL VC • END • Butternut tree presence at NPD is linked to an old homestead. The NPD site is outside of the normal range for the species.
Canada warbler		x	• CRL VC • THR (SC – COSEWIC) • Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Cerulean warbler			• END • There is no breeding evidence in regional study area (BSC *et al.*, 2006).
Chimney swift	x	x	• CRL VC • THR • To be assessed for exposure- and habitat-related effects. • Large roost in the NPD ventilation stack in the site study area.

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Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
Common nighthawk		x	• CRL VC • THR • Common nighthawks are territorial and would respond to calls played at NPD, if present. Therefore, despite a sighting at NPD, it is unlikely that common nighthawks are nesting there. • Represented by bald eagle (exposure) and chimney swift (habitat).
Eastern hog-nosed snake			• THR • No sightings in the regional study area (ON 2016).
Eastern meadowlark			• THR • No habitat in local study area.
Eastern milksnake	x	x	• CRL VC • SC • To be assessed for exposure- and habitat-related effects. • A milksnake was found within the facility in 2015 (Morin 2016).
Eastern musk turtle (Stinkpot)			• CRL VC • SC • Has not been observed in the regional study area (ON 2016).
Eastern ribbonsnake (Great Lakes St. Lawrence populations)			• SC • Has not been observed in the regional study area (ON 2016).
Eastern spiny softshell turtle			• END • Outside of typical range. No known sighting in regional study area.
Eastern whip-poor-will			• CRL VC • THR (SC) • Regional presence • Represented by ruffed grouse (similar diet).
Eastern wolf	x		• CRL VC • THR • Regional presence • No known sighting in the site study area.
Eastern wood-pewee		x	• CRL VC • SC • Confirmed sighting at NPD. • Represented by ruffed grouse (similar diet).

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Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
Evening grosbeak			• SC • Represented by ruffed grouse (similar diet).
Golden-winged warbler			• CRL VC • THR • Excluded as 300 minutes of audio files were analysed and species was not detected.
Grasshopper sparrow			• SC • No habitat in local study area.
Hickorynut			• END • Represented by benthic invertebrates.
Kirtland's warbler			• END • No sightings in regional study area (BSC *et al.*, 2006).
Least bittern			• THR • No sightings in regional study area (BSC *et al.*, 2006).
Little brown myotis	x	x	• END • To be assessed for exposure- and habitat-related effects. • Determined to be present within the site study area during a bat survey in 2015 (Murrant 2016).
Loggerhead shrike eastern subspecies			• END • No sightings in regional study area (BSC *et al*., 2006).
Midland painted turtle		x	• SC • Represented by Blanding's turtle.
Monarch butterfly	x	x	• CRL VC • END • Found in the site study area. • Monarchs are migrants and are sensitive to habitat fragmentation and disturbance.
Northern barrens tiger beetle			• END • The closest reported population is at Île aux Allumettes QC (COSEWIC 2009). The Canadian Wildlife Service conducted a survey in 2016 and no individuals were found.

Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
Northern brook lamprey (Great Lakes – Upper St. Lawrence populations)			• SC • The northern brook lamprey is a sediment-dwelling filter feeder, and is represented by benthic invertebrates and lake sturgeon.
Northern map turtle			• CRL VC • SC • Confirmed sighting in regional study area, however no sightings have been made in the site or local study areas (ON 2016).
Northern myotis	x	x	• END • To be assessed for exposure- and habitat-related effects. • Determined to be present within the site study area during a bat survey in 2015 (Murrant 2016).
Olive-sided flycatcher		x	• CRL VC • SC • Found in site study area (WSP 2023). • Represented by chimney swift (diet).
Red-headed woodpecker			• CRL VC • END • Represented by ruffed grouse (similar diet).
River redhorse			• SC • Represented by the white sucker.
Rusty blackbird			• SC • Regional breeding evidence (BSC *et al.*, 2006). • No habitat in site study area.
Rusty-patched bumble bee			• END • The only sightings of this bee in Canada since 2002 were at the Pinery Provincial Park near Lake Huron.
Short-eared owl			• SC (THR) • No breeding evidence in the regional study area (BSC *et al.*, 2006).
Snapping turtle			• CRL VC • SC • No sightings in the site or local study area.

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
Tri-colored bat	x	x	• END • To be assessed for exposure- and habitat-related effects. • Species known to be present at NPD.
Western chorus frog			• THR • Outside of typical range (ON 2016), unlikely to be found in the Ottawa River.
Wood thrush		x	• CRL VC • THR • Found in site study area (WSP 2023). • Represented by ruffed grouse and Chimney Swift (diet).
Wood turtle			• THR • No habitat in the site study area.
Migratory Birds Convention Act, 1994 and Regulations			
Great blue heron colony			• CRL VC • No known colony on site. • Represented by great blue heron.
Migratory birds		x	• CRL VC • Represented by specific species *e.g.,* bald eagle, chimney swift, great blue heron, and mallard.
Migratory bird eggs and nests		x	• CRL VC • Represented by individual species *e.g.,* bald eagle, chimney swift, great blue heron, and mallard.
Fisheries Act			
Fish		x	• CRL VC • Represented by individual species *e.g.,* white sucker, lake sturgeon, walleye, etc.
Fish habitat		x	• CRL VC • Pathway to biota *e.g.,* white sucker, lake sturgeon, walleye, etc.
Lakes, ponds and streams		x	• CRL VC • Pathway to biota *e.g.,* white sucker, lake sturgeon, walleye, etc.
Ottawa river water quality		x	• CRL VC • Pathway to VCs in other environmental components.

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Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
PROPOSED FEDERAL LEGAL REQUIREMENTS AND POLICY			
Species at Risk Act, Schedule 2 and 3			
Red-shouldered hawk			• CRL VC • SC (Schedule 3 – i.e., no legal requirement for protection or management) • Represented by bald eagle (similar diet and habitat).
The Federal Policy on Wetland Conservation			
Wetlands		x	• CRL VC • Pathway to VCs in other environmental components.
COSEWIC Assessment			
American eel			• THR (proposed) • The range of the eel has been reduced due to barriers in the Ottawa River (e.g. dams). Eels are uncommon upstream of the Cheneaux generating station (>100 km downstream) (Haxton and Chubbuck 2002).
Lake sturgeon (Great Lakes – Upper St. Lawrence populations)	x	x	• CRL VC • THR (proposed) • Regional presence • Large, long-lived benthivorous fish. • No habitat impact is expected. • The lake sturgeon is included for consideration of exposure-related effects.
Silver-haired bat		x	• END (proposed) • Observed at the NPD site in 2019. • Represented by little brown myotis.
Canadian Heritage Rivers System			
Ottawa River		x	• CRL VC • Pathway to VCs in other environmental components.
PROVINCIAL REQUIREMENTS			
Endangered Species Act and associated Regulations			
Eastern cougar			• END • Represented by the eastern wolf.
Eastern small-footed myotis	x	x	• END • To be assessed for exposure- and habitat-related effects. • Species determined to be present within the site study area during a bat survey in 2015 (Murrant 2016).

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
Peregrine falcon			• SC • No breeding evidence in the site and local study area (BSC *et al.*, 2006). • No suitable habitat for breeding (cliff).
MNRF Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales			
Bat hibernacula			• Represented by specific bat species.
Occupied cavity tree		x	• CRL VC • Represented by specific tree species.
Occupied dens (all species)		x	• CRL VC • Represented by specific species.
Old-growth forest			• Not in site study area.
Provincially significant wetlands			• CRL VC • Not in local study area.
Stick nests (all species)		x	• CRL VC • Represented by specific species.
Waterfowl staging area			• CRL VC • Represented by mallard.
White-tailed deer wintering		x	• Represented by white-tailed deer.
REGIONALLY SIGNIFICANT FEATURES			
Ontario Landbird Conservation Plan			
Bald eagle	x	x	• CRL VC • Cultural and ecological significance. • There was a bald eagle nest on the site until the tree fell down in 2021.
Bay-breasted warbler		x	• Found in site study area (WSP 2023). • Represented by chimney swift (diet).
Belted kingfisher		x	• Found in site study area (WSP 2023). • Represented by bald eagle and great blue heron (similar diets).
Black-billed cuckoo			• Excluded as 300 minutes of audio files were analysed and species was not detected.
Blackburnian warbler		x	• Found in site study area (WSP 2023). • Represented by chimney swift (diet).
Black-throated blue warbler		x	• CRL VC • Represented by ruffed grouse (similar diet).
Black-throated green warbler		x	• Represented by the ruffed grouse.
Broad-winged hawk		x	• CRL VC • Found in site study area (WSP 2023). • Represented by bald eagle and great blue heron (similar diet and habitat).

Environmental Impact Statement - NPD Closure Project

Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
Brown thrasher		x	• CRL VC • Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Chestnut-sided warbler		x	• CRL VC Represented by ruffed grouse (similar diet).
Common yellowthroat		x	• Represented by the ruffed grouse.
Field sparrow			• Excluded as 300 minutes of audio files were analysed and species was not detected.
Great gray owl			• Represented by bald eagle (diet).
Least flycatcher		x	• Found in site study area (WSP 2023). • Represented by chimney swift (diet).
Mourning warbler			• CRL VC Excluded as 300 minutes of audio files were analysed and species was not detected.
Nashville warbler		x	• Represented by ruffed grouse.
Northern flicker		x	• CRL VC • Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Northern goshawk			• Represented by bald eagle.
Northern rough-winged swallow			• No breeding evidence in regional study area (BSC *et al*., 2006).
Purple finch		x	• Found in site study area (WSP 2023). • Represented by ruffed grouse (diet).
Red crossbill		x	• Found in site study area (WSP 2023). • Represented by ruffed grouse (diet).
Rose-breasted grosbeak		x	• CRL VC • Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Ruffed grouse	x	x	• CRL VC • Representative of ground birds. No habitat impact is expected. The ruffed grouse is included for consideration of exposure-related effects.
Sedge wren			• No recent breeding evidence in regional study area (BSC *et al*., 2006).
Swamp sparrow			• CRL VC • Excluded as 300 minutes of audio files were analysed and species was not detected.
Veery		x	• Represented by ruffed grouse (similar diet and habitat).
White-throated sparrow		x	• CRL VC • Represented by ruffed grouse (similar diet).

Environmental Impact Statement - NPD Closure Project

Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
Willow flycatcher			• No sightings in local study area.
Yellow-bellied sapsucker		x	• CRL VC • Regional presence (BSC *et al*., 2006). • Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Conservation Priorities for the Birds of Southern Ontario			
American bittern			• CRL VC • No sightings in the local study area.
Black tern			• No breeding evidence in regional study area (BSC *et al*., 2006).
Clay-colored sparrow		x	• Found in site study area (WSP 2023). • Represented by ruffed grouse (diet).
Common loon		x	• CRL VC • Represented by walleye (diet) and mallard (habitat).
Eastern bluebird		x	• CRL VC • Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Magnolia warbler		x	• Found in site study area (WSP 2023). • Represented by chimney swift (diet).
Northern mockingbird			• Excluded as 300 minutes of audio files were analysed and species was not detected.
Pied-billed grebe			• No habitat in site study area.
Savannah sparrow			• No sightings in local study area.
Sora			• No habitat in site study area.
Virginia rail			• No habitat in site study area.

Environmental Impact Statement - NPD Closure Project

Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
NatureServe			
Crested arrowhead			• CRL VC • Not detected in local study area.
Halberd-leaved tear-thumb			• CRL VC • Not detected in local study area.
Houghton's flatsedge			• CRL VC • Not detected in local study area.
Prickly hornwort			• CRL VC • Not detected in local study area.
Schweinitz's flatsedge			• CRL VC • Not detected in local study area.
Red spruce			• CRL VC • Not detected in local study area.
Woolly beach-heath			• CRL VC • Not detected in local study area.
North American Waterfowl Management Plan 2004			
American black duck			• CRL VC • Represented by mallard.
Blue-winged teal			• Represented by mallard.
Common goldeneye			• Represented by mallard.
Lesser scaup			• Represented by mallard.
Mallard	x		• CRL VC • The Ottawa river is an important stopover for waterfowl in the Atlantic flyway. • No habitat impact is expected. Mallard is included for consideration of exposure-related effects.
Northern pintail			• Represented by mallard.
Atlas of the Breeding Birds of Ontario 2005			
Alder flycatcher		x	• Found in site study area (WSP 2023). • Represented by chimney swift (diet).
American crow		x	• Represented by ruffed grouse (similar diet).
American goldfinch		x	• Found in site study area (WSP 2023). • Represented by ruffed grouse (diet).
American redstart		x	• Found in site study area (WSP 2023). • Represented by chimney swift (diet).
American robin		x	• Represented by ruffed grouse (similar diet).
American woodcock			• Represented by ruffed grouse (similar diet).

Environmental Impact Statement - NPD Closure Project

Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
Baltimore oriole			• Represented by ruffed grouse (similar diet).
Black-and-white warbler		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Black-backed woodpecker			• Represented by ruffed grouse (similar diet).
Black-capped chickadee		x	• Represented by ruffed grouse (similar diet).
Blue-headed vireo		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Blue jay		x	• Represented by ruffed grouse (similar diet).
Brown creeper		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Canada goose		x	• Represented by mallard.
Cape May warbler			• Represented by ruffed grouse (similar diet).
Cedar waxwing		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Chipping sparrow		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Common grackle		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Common merganser		x	• Found in site study area (WSP 2023). • Represented by bald eagle and great blue heron (similar diet).
Common raven		x	• Represented by common loon.
Dark-eyed junco			• Represented by ruffed grouse (similar diet).

Environmental Impact Statement - NPD Closure Project

Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
Downy woodpecker		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Eastern kingbird			• Represented by ruffed grouse (similar diet).
Eastern phoebe		x	• Found in site study area (WSP 2023). • Represented by chimney swift (diet).
Eastern towhee			• Represented by ruffed grouse (similar diet).
European starling			• Represented by ruffed grouse (similar diet).
Golden-crowned kinglet		x	• Found in site study area (WSP 2023). • Represented by chimney swift (diet).
Gray catbird		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Great blue heron	x		• Large wading piscivorous bird. • Sensitive to human disturbance. • Regional presence.
Great crested flycatcher		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Green-winged teal			• Represented by mallard.
Hairy woodpecker		x	• Represented by ruffed grouse (similar diet).
Hermit thrush		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Herring gull		x	• Found in site study area (WSP 2023). • Represented by bald eagle and great blue heron (similar diets).
House wren		x	• Found in site study area (WSP 2023). • Represented by chimney swift (diet).

Environmental Impact Statement - NPD Closure Project

Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
Indigo bunting		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Killdeer			• Represented by ruffed grouse (similar diet).
Lincoln's sparrow			• Represented by ruffed grouse (similar diet).
Mourning dove		x	• Found in site study area (WSP 2023). • Represented by ruffed grouse (similar diet).
Northern parula		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Northern saw-whet owl			• THR • No sightings in local study area.
Northern waterthrush		x	• Found in site study area (WSP 2023). • Represented by chimney swift and mallard (similar diets).
Ovenbird		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Pileated woodpecker		x	• Represented by ruffed grouse (similar diet).
Pine grosbeak			• Represented by ruffed grouse (similar diet).
Pine siskin		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Pine warbler		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Red-breasted nuthatch		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).

Environmental Impact Statement - NPD Closure Project

Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
Red-eyed vireo		x	• Found in site study area (WSP 2023). • Represented by ruffed grouse and chimney swift (similar diets).
Red-tailed hawk			• Represented by bald eagle.
Red-winged blackbird			• Represented by ruffed grouse (diet).
Rock pigeon			• Represented by ruffed grouse (diet).
Ruby-crowned kinglet			• Represented by ruffed grouse (diet).
Ruby-throated hummingbird		x	• Added to the Master list of candidate VCs after the selection of VCs had taken place; was not identified as part of engagement.
Scarlet tanager		x	• Found in site study area (WSP 2023). • Represented by ruffed grouse and chimney swift (similar diets).
Song sparrow		x	• Found in site study area (WSP 2023). • Represented by ruffed grouse and chimney swift (similar diets).
Spotted sandpiper		x	• Found in site study area (WSP 2023). • Represented by mallard, ruffed grouse and chimney swift (diet).
Swainson's thrush		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (diet).
Tennessee warbler			• Represented by ruffed grouse (similar diet).
Tree swallow			• Represented by ruffed grouse (diet).
Turkey vulture		x	• Represented by bald eagle.
Vesper sparrow		x	• Found in site study area (WSP 2023). • Represented by ruffed grouse (similar diet).
Warbling vireo			• Represented by ruffed grouse (similar diet).

Environmental Impact Statement - NPD Closure Project

Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
White-breasted nuthatch		x	• Found in site study area (WSP 2023). • Represented by ruffed grouse and chimney swift (diet).
Wilson's warbler			• Represented by ruffed grouse (similar diet).
Winter wren		x	• Found in site study area (WSP 2023). • Represented by ruffed grouse and chimney swift (similar diets).
Yellow warbler		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Yellow-rumped warbler		x	• Found in site study area (WSP 2023). • Represented by chimney swift and ruffed grouse (similar diets).
Ontario Reptile and Amphibian Atlas			
American bullfrog		x	• Represented by green frog.
American toad			• Represented by green frog.
Eastern garter snake		x	• Represented by eastern milksnake.
Eastern red-backed salamander			• Represented by green frog.
Gray treefrog			• Represented by green frog.
Green frog	x	x	• Present in the local study area (e.g. wetlands). • No habitat impact is expected. Green frog is included for consideration of exposure-related effects.
Mink frog			• Represented by green frog.
Northern leopard frog			• Represented by green frog.
Spotted salamander		x	• Represented by green frog.
Spring peeper			• Represented by green frog.
Wood frog			• Represented by green frog.
OTHER CANDIDATE VCs			
Fish			
Black crappie			• Represented by walleye.
Brown bullhead			• Represented by lake sturgeon.
Burbot			• Represented by white sucker.

Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
Channel catfish			• Represented by lake sturgeon.
Emerald shiner	x		• Numerically important pelagic forage species. • No habitat impact is expected. The emerald shiner is included for consideration of exposure-related effects.
Fallfish			• Represented by white sucker.
Lake herring			• Represented by emerald shiner.
Lake trout			• Represented by walleye.
Lake whitefish			• Represented by walleye.
Largemouth bass			• Represented by walleye.
Longnose gar			• Represented by walleye.
Mooneye			• Represented by walleye.
Muskellunge			• Represented by walleye.
Northern pike			• Represented by walleye.
Pumpkinseed			• Represented by emerald shiner.
Rock bass			• Represented by walleye.
Sauger			• Represented by walleye.
Shorthead redhorse			• Represented by white sucker.
Smallmouth bass			• Represented by walleye.
Walleye	x		• Socio-economic importance as a sportfish.
White sucker	x		• Benthivorous fish. • Sufficient data availability. • No habitat impact is expected. The white sucker is included for consideration of exposure-related effects.
Yellow perch			• Represented by walleye.
Reptiles			
Northern redbelly snake			• Represented by eastern milksnake.
Northern ringneck snake			• Represented by eastern milksnake.
Northern water snake			• Represented by eastern milksnake, and great blue heron (similar diet).
Birds			
American kestrel			• Represented by bald eagle.
Cliff swallow			• Represented by chimney swift (similar diet).
Common tern			• Represented by bald eagle.
Cooper's hawk			• Represented by bald eagle.
Green heron			• Represented by great blue heron.
Hooded merganser			• Represented by mallard.

Environmental Impact Statement - NPD Closure Project

Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
Marsh wren			• Represented by ruffed grouse.
Merlin		x	• Represented by bald eagle.
Northern harrier			• Represented by bald eagle.
Osprey			• Represented by bald eagle (similar diet and habitat)
Purple martin			• Represented by chimney swift (diet).
Ring-billed gull		x	• Represented by bald eagle.
Ring-necked duck			• Represented by mallard.
Upland sandpiper			• Represented by mallard.
Wilson's Snipe			• Represented by mallard.
Wood duck			• Represented by mallard.
Mammals			
Beaver		x	• Represented by muskrat.
Big brown bat			• Represented by little brown myotis.
Black Bear	x	x	• Large terrestrial omnivore. • Cultural significance and public interest.
Coyote		x	• Represented by eastern wolf.
Deer mouse			• Represented by meadow vole.
Eastern chipmunk		x	• Represented by meadow vole.
Eastern cottontail			• Represented by meadow vole.
Eastern gray squirrel			• Represented by meadow vole.
Ermine			• Represented by short-tailed shrew and muskrat.
Hoary bat			• Represented by little brown myotis.
Lynx			• Represented by eastern wolf.
Marten			• Represented by muskrat.
Meadow vole	x		• Soil-dwelling (burrowing) small herbivore. • To be assessed for habitat- and exposure-related effects.
Mink	x		• Small carnivorous mammal with both terrestrial and aquatic prey • To be assessed for exposure-related effects.
Moose	x	x	• Identified through Indigenous Engagement.

Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
Muskrat	x		• Aquatic piscivore/herbivore. • Regional presence. • No habitat impact is expected. The muskrat is included for consideration of exposure-related effects.
Northern flying squirrel			• Represented by meadow vole.
Northern water shrew			• Represented by short-tailed shrew.
Raccoon		x	• Represented by muskrat.
Porcupine			• Represented by meadow vole.
Red squirrel			• Represented by meadow vole.
Red fox	x		• Sufficient data availability. • Omnivorous, medium-sized mammal. • No habitat impact is expected. The red fox is included for consideration of exposure-related effects.
Short-tailed shrew	x		• Sufficient data availability. • Carnivorous small, burrowing mammal. • No habitat impact is expected. The short-tailed shrew is included for consideration of exposure-related effects.
Short-tailed weasel	x		• Sufficient data availability. • Carnivorous small mammal • No habitat impact is expected.
Snowshoe hare			• Represented by meadow vole.
Southern flying squirrel			• Represented by meadow vole.
Striped skunk			• Represented by short-tailed shrew.
White-footed mouse			• Represented by meadow vole.
White-tailed deer	x	x	• Socio-economic importance as a game species.
Woodchuck			• Represented by muskrat.
Vegetation			
Poplar		x	• Represented by red maple.
White water lily		x	• Represented by aquatic vegetation.
Red maple	x	x	• Upland/wetland deciduous tree common at NPD. • No physical impacts expected. The red maple is included for consideration of exposure-related effects.

Environmental Impact Statement - NPD Closure Project

Appendix B: Master List of Candidate VCs for NPD (SAR Status Queries Conducted in August 2023)

Proposed Valued Components	Selected as NPD Closure Project VC	Likely Present at NPD Site	Rationale for Inclusion/ Exclusion as VC
White pine		x	• Represented by red maple.
Mixed upland conifers – clear cut		x	• Represented by red maple.
Red pine		x	• Represented by red maple.
Mixed woods – clear cut		x	• Represented by red maple.
Tolerant hardwoods		x	• Represented by red maple.
Berries	x		• Identified during Indigenous engagement
Aquatic Vegetation (see ELC TSD)	x	x	• A fundamental element of ecosystem health and function.
Terrestrial vegetation (see ELC TSD)		x	• Represented by red maple.
Other			
Cultural and heritage sites			• No cultural or heritage sites likely within the Site Study Area (the project footprint).
Benthic Invertebrates	x	x	• Exposed to sediment. • Used to evaluate overall ecosystem health.
Soil invertebrates		x	• Soil-dwelling invertebrates (e.g. earthworm). • Exposure from soil.
Fungi	x		• Identified during Indigenous engagement
Fishing		x	• Represented as walleye, a common sportfish in the region.
Resident use and enjoyment of property	x		• Potential project-related nuisance effects (e.g. traffic, noise, dust).
Hunting/trapping			• Represented as white-tailed deer, a common game species in the region.
Land use planning	x	x	• Land use may change during the project.
Landscape and visual setting	x	x	• Potential impact on the quality of views from the Ottawa River
Highway 17	x	x	• Primary transportation route in the area.

Notes:

THR – Threatened, SC – Special Concern, END – Endangered.

APPENDIX C: RECORD OF ENGAGEMENT AND TABLES OF INTERESTS AND CONCERNS

Appendix C.1 – Record of Engagement and Tables of Interests and Concerns for the Algonquins of Ontario (AOO)

This appendix provides a complete record of all engagement between CNL and the AOO from June 2016 to March 2024 (Table C-1). Table C-1 includes the date and method of the communication/engagement, the topics discussed and the role or title of participants. The table also highlights engagements where key EA topics were discussed using a grid with checks. The key EA topics align with "Generic Guidelines for Preparation of an Environmental Impact Statement Pursuant to the *Canadian Environmental Assessment Act*, 2012" as well as the requirements of REGDOC 3.2.2 "Indigenous Engagement" and guidance specific to NPD provided by the CNSC in January 2021 (e-doc # 6467843).

Following the record of engagement is a mapping of how the summary of interests and concerns were compiled (Table C-2), as well as a summary of interests and concerns raised by AOO (Table C-3).

Section 6.2.4.2.1. of the EIS summarizes the engagement activities that have taken place to date between CNL and the AOO.

Table C-1 Record of Engagement with Algonquins of Ontario (AOO)

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communication
June 24, 2016 Incoming letter	This letter was addressed to the CNSC's Director, Environmental Assessment Division, from the Algonquins of Ontario (AOO)'s Executive Director, copying the General Manager of the NPD Closure Project. The letter enclosed the AOO's comments on the Project Description, which outlined the AOO's preliminary interests in the following: • Acknowledgement that the NPD site is in the Algonquin Settlement Area; • Protection of the Ottawa River; • Protection of Flora and Fauna; • Archaeology; • Engagement and Communications; • Technical; • Monitoring.					√				√	√
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to AOO's Executive Director introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5(1)(c) the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* • *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	√
August 10, 2016 Meeting	This meeting included CNL representatives (CNL's Director of Corporate Communications, Communications Officers and the General Manager of the NPD Closure Project and other key project staff) and AOO representatives (Executive Director and Consultation Office and Technical Staff) for discussions on the NPD Closure Project (and the NSDF Project) at the CRL and NPD sites. This visit included a Chimney Swift viewing at the NPD ventilation stack, as well a discussion of particular topics of interest, including: alternative means, future use of land, monitoring and VCs.	√	√	√	√					√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communication
November 07, 2016 Outgoing email	This email to the AOO's Executive Director from CNL's Director of Corporate Communications was in follow-up to the phone call of November 03, 2016 and involved a discussion on archaeological work and the possibility of AOO employment as archaeological liaisons.									√	
December 05, 2016 Outgoing letter	This letter to the AOO's Executive Director from CNL's Director of Corporate Communications was confirming misunderstanding on archaeological work, offering future opportunities to be involved and proposing moving forward with a work plan. Specific interests discussed included studies to obtain Algonquin traditional knowledge, archaeology and employment.	√			√		√			√	
February 15, 2017 Outgoing letter	This letter from CNL's Director of Corporate Communications to the AOO's Executive Director enclosed six requested documents, including compliance and monitoring reports, archaeological information and information on the existing environment at the NPD site.	√								√	
April 12, 2017 Meeting	This meeting between CNL representatives (including the Director of Corporate Communications and communications officers and project staff) and Algonquins of Ontario (including the Executive Director, Algonquin Negotiation Representatives and Consultation and Technical staff) was held in Pembroke to discuss engagements on the NPD Closure Project and particular interests of the AOO, including: protection of the Ottawa River, capacity, development of a work plan, future land use and EA methodology.			√	√					√	√
June 09, 2017 Meeting	This meeting between CNL representatives (including the Director of Corporate Communications, Environmental Protection and project staff) and representatives of the AOO (including four Algonquin Negotiation Representatives) The AOO representatives attended the NPD site to learn more about the project and existing environment. Information shared relating to AOO interests included: protection of the Ottawa River, protection of flora and fauna, alternative means, future use of lands, technical information, VC information, monitoring details and EA methodology.	√	√	√	√				√	√	
June 19, 2017 AOO Community Information Session	This information session for AOO citizens was held in Pembroke. CNL representatives (including the General Manager of the NPD Closure Project and key technical staff, and the Director of Corporate Communications and other communications staff) were on hand to discuss the project, better understand community perspectives and share information. The information session was hosted and advertised by the AOO with approximately 15 AOO members in attendance. Focus topics included specific areas of interest to the AOO, such as: monitoring (current and proposed follow-up), future land use, protection of the Ottawa River, and EA methodology.	√	√	√	√		√		√	√	
November 15, 2017 Outgoing email	This email from CNL's Corporate Communications Director to the AOO's Executive Director enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and environmental assessment, as well as detailed information on the timing of the environmental assessment process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communication
November 17, 2017 Outgoing email	This email CNL's Corporate Communications Director to the AOO's Executive Director enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and asked for community input, per CEAA, 2012 requirements: "CNL would be pleased to update information in this current draft with input from your community."	√	√	√	√	√	√	√	√	√	√
January 30, 2018 Outgoing email	This email from a communications officer with CNL to the AOO's technical consultant (Shared Value Solutions) was to share the complete set of technical support documents to support the AOO's review of the draft EIS.	√	√	√	√		√	√	√	√	
February 22, 2018 Incoming email	This email from the AOO's Communications and Policy Strategist to CNL's Director of Corporate Communications was in follow-up to the conversation of February 7, 2018 and discussed formalizing the engagement relationship between CNL and the AOO. This email explicitly indicated the AOO's interest in a formal agreement between CNL and the AOO.									√	
February 28, 2018 Letter	This email (letter) was addressed to an Environmental Assessment Officer with the CNSC from the AOO's Executive Director, copying CNL's Director of Corporate Communications. The letter enclosed the AOO's comments on the Project Description, which outlined the AOO's interests in the following: • Potential effects on traditional land use and Indigenous rights (commercial harvesting); • Potential effects on health; • Potential socio-economic effects; • Potential effects on cultural heritage and archaeological resources; • Protection of the Ottawa River; • Protection of flora and fauna (environment beyond water); • Environmental monitoring; • Future land use.	√	√		√	√	√	√	√	√	
May 14, 2018 Meeting	This meeting between CNL's Corporate Communications staff (including the Director of Corporate Communications) and AOO staff (including the Executive Director of the AOO) involved a discussion on developing an MOU between CNL and the AOO.									√	
June 8, 2018 Meeting	This meeting between CNL's Corporate Communications staff (including the Director of Corporate Communications) and AOO staff (including the Executive Director of the AOO) involved a discussion on developing an MOU between CNL and the AOO.									√	
July 24, 2018	The MOU between the AOO, AECL and CNL related to the NPD Closure Project and NSDF Project was signed.									√	√
October 4, 2018 Meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) was with respect to developing a long-term relationship agreement (LTRA) between the three parties.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communication
October 10, 2018 Outgoing email	This email from a CNL communications officer to the Executive Director of the AOO was an invitation to an online webinar discussion on October 17, 2018. The webinar consisted of a short presentation on the NPD Closure Project's scheduling and EIS feedback themes. A Q&A session followed.										√
November 27, 2018 Virtual meeting	This teleconference between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) was with regards to the development of an LTRA.									√	
January 18, 2019 Outgoing email	This email from CNL's Corporate Communications Director to the AOO's Policy and Strategic Initiatives Advisor enclosing a partial set of responses to the AOO comments on the 2017 draft EIS. These included a focus on alternative means, future land use (site restoration), mitigation and monitoring, traditional land use, VCs and socio-economic interests.	√	√		√	√	√	√	√	√	
April 11, 2019	The AOO and CNL signed a contribution agreement to provide funds for engagement and participation in the EA process for the NPD Closure Project and the NSDF Project.									√	
May 7, 2019 Incoming letter	This letter from the AOO's Executive Director to CNL's Corporate Communications Director enclosed a review of CNL's responses (sent on January 18, 2019) to the AOO comments on the draft EIS (provided on February 28, 2018) done by the AOO consultant on behalf of the AOO, as well as information on the LTRA. In this letter the AOO confirmed that what CNL had proposed for responses to comments regarding the following areas of interest was acceptable: • Alternative Means; • Future Land Use; • Follow-up Monitoring; • AKLUS; • Socio-economic information; • Engagement and communications; • Archaeology; • Monitoring. The AOO provided specific discussion on why or why not each comment had been addressed to the AOO's satisfaction. This letter also mapped out the path forward to resolving the AOO's remaining issues through the LTRA and Technical Working Group.	√	√		√	√	√	√	√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communication
June 12, 2019 Meeting	This meeting between Algonquin Negotiation Representatives with the AOO and CNL representatives (including the General Manager of Reactor Decommissioning) was in Deep River and was information session on the AKLUS. The General Manager of Reactor Decommissioning shared a presentation on the project, incorporation of information into the EIS and the current status of the Environmental Assessment. Specific topics covered included: project interactions with the environment (effects), VCs and the AKLUS.	√		√	√		√		√	√	
August 09, 2019 Outgoing email	This email from CNL's Director of Corporate Communications to the AOO's Policy and Strategic Initiatives Analyst and an AOO consultant enclosed nine documents requested by the AOO, including: • Alternative Means Assessment; • Indigenous Socio-Economic Section of the draft EIS; • Draft Effluent Monitoring Plan for the NPD site; • Draft Groundwater Monitoring Plan for the NPD site; • Draft Environmental Monitoring Plan for the NPD site; • DRLs for the NPD site; • Phase 1 and Phase 2 Environmental Site Assessments for the NPD site. This closed off further recommendations from the AOO letter of May 7, 2019.	√	√		√		√	√	√	√	
September 9, 2019 Meeting	CNL representatives (including the General Manager of Reactor Decommissioning, the Director of Corporate Communications, the Manager of Stakeholder Relations and an Environmental Specialist with the NPD Closure Project) and AOO representatives (including the AOO's Policy and Strategic Operations Advocate and the AOO consultant staff) belonging to the Planning and Environmental Working Group met in Pembroke to share updates on the project and engagement, as well as clarify remaining steps. In particular, this meeting addressed the specific areas of follow-up the AOO had identified to CNL in the letter of May 7, 2019. These were: • Alternative means; • Future land use (site restoration); • Follow-up monitoring program; • VC; • Archaeological assessment; • Post-closure safety assessment; • Site characterization.		√		√		√	√	√	√	
January 15, 2020 Meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

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In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
March 27, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
April 02, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
May 05, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
May 06, 2020 Outgoing letter	This letter from CNL's Manager, Stakeholder Relations to the AOO's Executive Director enclosed a preliminary version of the 2020 EIS and an updated IER and indicated an interest in meeting with the AOO. This letter included a list of topics of interest the AOO had brought forward and the status of each. These included: • Technical issues; • Traditional knowledge; • Future land use (site restoration); • Socio-economic interests; • Monitoring; • Alternative means; • Indigenous health. • Archaeology. The letter also asked for feedback on the following seven questions: • *Do the AOO have additional information that they would like to provide in the context of traditional territory near the NPD site?* • *Do the AOO have any members who currently live close or in reasonable proximity to the NPD site?* • *Do the AOO have historical and/or current traditional practices near the NPD site, specifically we are interested in AOO members' traditional uses such as trapping (traditional or commercial), hunting, fishing (traditional or commercial), gathering and practicing cultural ceremonies?* • *Do the AOO have sites of ceremonial significance in close proximity or more generally any cultural activities near the NPD site?*	√	√		√	√	√	√	√	√	√

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	• *Tell us about any important resources, uses, activities, values and interests to the AOO near the NPD site.* • *If there is use in close proximity to the NPD site, is current AOO community use different than historic use and can a description of those difference be provided?* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights.*										
June 02, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
June 23, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
July 07, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
July 20, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
July 31, 2020 Incoming letter	This letter from the AOO's Policy and Strategic Operations Advocate to CNL's Manager of Stakeholder Relations was in response to CNL's 2020 May 06 letter which included an update on the AKLUS, a preliminary review of VCs outlined in the draft EIS and to identify the need for capacity to complete a technical review of the draft EIS.				√					√	
August 03, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
August 24, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
September 11, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the AOO's Policy and Strategic Operations Advocate was in response to the AOO's correspondence of July 31, 2020 and indicated that CNL would be sending a full set of responses to the AOO's comments on the draft EIS soon.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
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September 21, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
September 25, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the AOO's Executive Director enclosed a full set of CNL's responses to the AOO comments on the 2017 draft EIS and indicating interest in meeting with the AOO.	√	√		√	√	√	√	√	√	
September 29, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
October 1, 2020 Outgoing email	This email from CNL's Communications Officer to the AOO's Policy and Strategic Initiatives Advisor in follow up to the letter of September 25, 2020 indicating interest in meeting with the AOO.									√	
October 6, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
October 7, 2020 Incoming email	This email from the AOO's Policy and Strategic Operations Advocate to CNL's Communications Officer was in response to the earlier correspondence and indicated that the AOO would be reviewing CNL's letter and comments in November 2020.										√
October 30, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
November 06, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
November 26, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

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		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communication
November 27, 2020 Virtual meeting	This meeting between representatives of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) focused on the development of an LTRA.									√	
December 01, 2020 Virtual meeting	This was a meeting of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) to discuss the issues in the LTRA.									√	
December 02, 2020 Outgoing email	This email from a CNL Communications Officer to the AOO's Policy and Strategic Operations Advocate followed up on the earlier correspondence from the AOO on October 7, 2020 regarding CNL's responses to the AOO comments on the draft EIS.									√	
December 09, 2020 Virtual meeting	This was a meeting of the AOO (including the Executive Director), CNL (including the Director of Corporate Communications) and AECL (including the Director of Communications and Government Reporting) to discuss the issues in the LTRA.									√	
December 16, 2020 Incoming letter	This letter from the AOO's Executive Director to the Director of Corporate Communications for CNL included the final results of the AKLUS. Also included were general and site-specific recommendations for ways in which CNL can avoid, mitigate, or compensate for the potential impacts of the proposed NSDF Project on Algonquin rights and interests. The AOO indicated that there is an expectation that CNL will provide written responses to each of the enclosed comments and recommendations. CNL acknowledged receipt of the AKLUS.	√	√	√	√		√	√	√	√	
December 21, 2020 Outgoing email	This email from CNL's Communications Officer to the AOO's Policy and Strategic Operations Advocate offered additional capacity to support the AOO's continued involvement in the environmental assessment for the NPD Closure Project.									√	√
May 11, 2021 Outgoing email	This email from CNL's Communications Officer to the AOO's designated point of contact (AOO consultant) enclosed draft sections of the NPD Closure Project's latest revision of draft EIS (8.9 and 9.9) for verification of CNL's incorporation of the AOO's AKLUS as well as a preliminary list of commitments and indicated interest in meeting to discuss.									√	√
June 9, 2021 Incoming email	This email from the AOO's designated point of contact (AOO consultant) to a CNL Communications Officer was to indicate the AOO were developing a work plan for participation in remaining aspects of the environmental assessment for the NPD Closure Project, in follow-up to the earlier correspondence.									√	√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

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June 21, 2021 Outgoing email	This letter from CNL's Manager of Stakeholder Relations to the AOO's Executive Director enclosed a draft summary of the AOO's interests and concerns for the NPD Closure Project for the AOO's review and verification.									√	√
July 13, 2021 Outgoing email	This email from a CNL Communications Officer to the AOO's designated point of contact (AOO consultant) was to follow-up on the email of June 9, 2021 to inquire about the development of the work plan and a response to the June 21, 2021 letter on the summary of interests and concerns.										√
July 21, 2021 Outgoing email	This email from a CNL Communications Officer to the AOO's designated point of contact (AOO consultant) was to follow-up on the email of June 9, 2021 to inquire about the development of the work plan.										√
July 29, 2021 Incoming email	This email from the AOO's designated point of contact (AOO consultant) to a CNL Communications Officer was to confirm that the proposed budget was under review and that the AOO was managing a high number of consultation and engagement requests.										√
July 30, 2021 Outgoing email	This email from a CNL Communications Officer to the AOO's designated point of contact (AOO consultant) confirmed receipt of the previous email, thanking for the update.										√
August 9, 2021 Incoming letter	This letter from the AOO's Executive Director to the Manager of ERM Stakeholder Relations enclosed the AOO's workplan and budget, requesting support for meaningful participation the NPD Closure Project's environmental assessment.									√	√
August 19, 2021 Outgoing letter	This letter from the Manager of ERM Stakeholder Relations to the AOO's Executive Director confirmed support for the AOO's meaningful participation in the environmental assessment and accepted the proposed workplan and budget.									√	√
August 24, 2021 Incoming email	This email from the AOO's designated point of contact (AOO consultant) to a CNL Communications Officer indicated a need for a one window and coordinated approach for AOO-CNL engagement on the NSDF and NPD Closure Project.									√	√
August 24, 2021 Outgoing email	This email from a CNL Communications Officer to the AOO's designated point of contact (AOO consultant) indicated an interest to discuss next steps for the NSDF and NPD Closure Project.										√
August 24, 2021 Incoming email	This email from the AOO's designated point of contact (AOO consultant) to a CNL Communications Officer indicated a need for a meeting agenda.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

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		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communication
August 30, 2021 Outgoing email	This email from a CNL Communications Officer to the AOO's designated point of contact (AOO consultant) was a follow-up requesting a meeting with AOO to discuss and prioritize a schedule of engagement on the NSDF and NPD Closure Project.										√
September 3, 2021 Incoming email	This email from the AOO's designated point of contact (AOO consultant) to the CNL Communications Officer confirmed that AOO was working to find a time to discuss and prioritize a schedule of engagement on the NSDF and NPD Closure Project.										√
September 8, 2021 Outgoing letter	This email from a CNL Communications Officer to the AOO's designated point of contact (AOO consultant) enclosed CNL's responses to the AOO's recommendations from the Final Algonquin Knowledge and Land Use Study (AKLUS) for the NPD Closure Project.	√		√	√				√	√	√
September 28, 2021 Outgoing email	This email from a CNL Communications Officer to the AOO's designated point of contact (AOO consultant) followed up on setting a meeting time to prioritize a schedule of engagement on the NSDF and NPD Closure Project.										√
September 29, 2021 Outgoing email	This email from a CNL Communications Officer to the AOO's back up designated point of contact followed up on setting a meeting time to prioritize a schedule of engagement on the NSDF and NPD Closure Project.										√
October 4, 2021 Incoming email	This email from the AOO's designated point of contact (consultant) to the CNL Communications Officer indicated availability by the AOO to meet during the second week of October to discuss and prioritize a schedule of engagement on the NSDF and NPD Closure Project.										√
October 14, 2021 Virtual meeting	This meeting between the AOO (including the Policy and Strategic Operations Advocate and AOO consultants and AOO staff) and CNL (including the Manager of ERM Stakeholder Relations, Senior Communications Officers and the Manager of Regulatory Approvals for the NPD Closure Project) was to discuss how to prioritize the work plan for the NPD Closure Project and the NSDF Project. A path forward to verify the AOO's interests and concerns for the NPD Closure Project was also discussed and the AOO agreed to review the interests and concerns by the end of November.									√	√
October 21, 2021 Outgoing Email	This email from CNL Senior Communications Officer to AOO's Policy and Strategic Operations Advocate was to inform AOO of the decision to postpone the submission of the revised draft EIS in order to enable AOO's Planning and Environment Working Group and Algonquin and Negotiation Representative (ANR) meeting in November to review and approve the content that CNL is proposing to include in the EIS. This email requested verification in writing that AOO's concerns and interests regarding the proposed NPD Closure Project had been accurately summarized.									√	√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

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October 25, 2021 Incoming Email	This email from AOO's Policy and Strategic Operations Advocate to ERM Communications staff requested more time to review the issues and concerns summary table before meeting in person and confirmed that the AOO would provide comments for November 26, 2021. The AOO attached a copy of their work-back schedule for the Planning and Environment Working Group (PEWG) for 2022.			√						√	√
October 25, 2021 Outgoing Email	This email from CNL Senior Communications Officer to AOO's Policy and Strategic Operations Advocate was to inform AOO of CNL's commitment to share the draft NSDF/NPD prioritized schedule which will help to align the NSDF/NPD prioritized schedule with the PEWG work-back schedule. CNL also acknowledged AOO's need to have more advance notice of discussion topics moving forward and asked AOO if November 30th was appropriate for the next monthly meeting.									√	
October 27, 2021 Incoming Email	This email from AOO's Policy and Strategic Operations Advocate to a CNL Senior Communications Officer was to inform CNL of their ongoing review of the issues and concerns table, specifically the version of the table that CNL sent AOO in June of 2021, and informed CNL of their intention to continue to review this specific table. A previous email from the CNL ERM Stakeholder Relations team included a less-detailed version of the table. This email was to provide some clarification.										√
October 27, 2021 Outgoing Email	This email from a Senior Communications Officer to AOO's Policy and Strategic Operations Advocate was to follow up on the previous email to say that CNL welcomes AOO's review of the full summary and concerns table but acknowledges that there will be more work to do after submission of the draft. The email stated that CNL hopes to come to a mutual agreement on the first two columns of the table in the next month.										√
November 1, 2021 Outgoing Email	This email from a Senior Communications Officer to AOO's Policy and Strategic Operations Advocate included an attachment of the draft prioritization schedule for review which included some comments from CNL for AOO to review and confirm. This email was to confirm the purpose of the meeting scheduled for November 30, 2021, which is to discuss the summary and concerns table in detail. Finally, this email was to confirm with AOO that CNL accurately understood the review process for the AOO with ANR and PEWG.										√
November 9, 2021 Outgoing Email	This email from a Senior Communications Officer at CNL to AOO's Policy and Strategic Operations Advocate was to provide consolidated the NSDF and NPD Closure Project priorities for the AOO to confirm receiving. CNL noted that they were seeking the AOO's feedback on the NSDF and NPD Closure project prioritization schedule and next steps. CNL also noted some other items that they required feedback on and confirmation for regarding the two individual projects.									√	√
November 9, 2021 Incoming Email	This email from AOO's Policy and Strategic Operations Advocate to a Senior Communications Officer at CNL was to confirm receipt of the previous email and to agree to the items for review noted within. AOO confirmed that they would be reviewing internally and noted that they would respond as soon as possible.										√

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		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communication
November 26, 2021 Incoming Email	This email from the AOO's Policy and Strategic Operations Advocate to a Senior Communications Officer at CNL enclosed the AOO's review and comments on the Table of Interests and Concerns.	√	√							√	√
November 12, 2021 Incoming Email	This email from AOO's Policy and Strategic Operations Advocate to a Senior Communications Officer at CNL was to follow up on the items outlined in the previous email. AOO noted that they agree to use the November 30 meeting to discuss AOO's comments on the Summary of Interest Table for the NPD Closure Project, clarified the AOO review process in relation to the PEWG, and informed CNL that internal review of the revised work-plan and budget was underway.			√							√
November 30, 2021 Virtual Meeting	This meeting between CNL representatives (including the Manger of ERM Stakeholder Relations, the Manager of Regulatory Approvals for the NPD Closure Project, Communications Officers, a Stakeholder Relations Student, the Director of Indigenous Relations and the Director of the NPD Closure Project) and AOO representatives (including the Policy and Strategic Operations Advocate, the Cultural Heritage Advisor and technical consultants) was to a Monthly Meeting to discuss the NSDF and NPD Closure Projects. It involved discussion on AOO's comments on the interests and concerns table for NPD, and worked on progressing a six month prioritized schedule for a coordinated, one window approach to engagement between the AOO and CNL on the NPD Closure Project and the NSDF Project. CNL shared that it would be resubmitting the revised draft EIS for the NPD Closure Project with the AOO's comments on the interests and concerns table incorporated. The AOO and CNL also confirmed what the next steps were to work through together with respect to AOO participation in the environmental assessment for NPD and how these would be described in the EIS.										√
November 26, 2021 Incoming Email	This email from the AOO's Policy and Strategic Operations Advocate to a Senior Communications Officer at CNL enclosed the AOO's review and comments on the *Table of Interests and Concerns*.	√	√							√	√
November 30, 2021 Virtual Meeting	This meeting between CNL representatives (including the Manger of ERM Stakeholder Relations, the Manager of Regulatory Approvals for the NPD Closure Project, Communications Officers, a Stakeholder Relations Student, the Director of Indigenous Relations and the Director of the NPD Closure Project) and AOO representatives (including the Policy and Strategic Operations Advocate, the Cultural Heritage Advisor and technical consultants) was to a Monthly Meeting to discuss the NSDF and NPD Closure Projects. It involved discussion on AOO's comments on the interests and concerns table for NPD, and worked on progressing a six month prioritized schedule for a coordinated, one window approach to engagement between the AOO and CNL on the NPD Closure Project and the NSDF Project. CNL shared that it would be resubmitting the revised draft EIS for the NPD Closure Project with the AOO's comments on the interests and concerns table incorporated. The AOO and CNL also confirmed what the next steps were to work through together with respect to AOO participation in the environmental assessment for NPD and how these would be described in the EIS.									√	√

Date/Method	Details	Key EA Topics									
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December 6, 2021 Outgoing Email	This email from a Senior Communications Officer at CNL to AOO's Policy and Strategic Operations Advocate enclosed the Minutes of Meeting from the November 30, 2021 meeting for the AOO's review.										√
December 7, 2021 Outgoing Email	This email from a Senior Communications Officer at CNL to AOO's Policy and Strategic Operations Advocate enclosed the revised Table of Interests and Concerns incorporating the AOO's feedback from November 26, 2021, which was discussed at the meeting on November 30, 2021.										√
December 8, 2021 Incoming Emails	These were two emails from the AOO's Policy and Strategic Operations Advocate to a Senior Communications Officer at CNL: one of which confirmed receipt of the *Table of Interests and Concerns* and the other shared revisions on the Minutes of Meeting.										√
December 9, 2021 Outgoing Phone Calls	These were two phone calls from a Senior Communications Officer at CNL to AOO's Policy and Strategic Operations Advocate leaving voicemail to follow-up on the minutes of meeting, the *Table of Interests and Concerns and* the prioritized schedule development.										√
December 10, 2021 Incoming email	This email from the AOO's Policy and Strategic Operations Advocate to a Senior Communications Officer at CNL was to coordinate a time to talk.										√
December 13, 2021 Outgoing Phone Call	This phone call from the AOO's Policy and Strategic Operations Advocate to a Senior Communications Officer was a follow-up on a previous phone call. Minutes of meeting, the *Table of Interests and Concerns* and the prioritized schedule development were discussed. The AOO confirmed they had received the December 7 revised version of the *Table of Interests and Concerns* and acknowledged that CNL would include this table in the December 2021 EIS submission. The AOO also confirmed that the AOO and CNL had agreed on next steps to finalize the *Table of Interests and Concerns* before CNL's final EIS submission.										√
December 14, 2021 Outgoing email	This email from a Senior Communication's Officer to AOO's Policy and Strategic Operations Advocate sent a copy of the final Minutes of Meeting from the November 30, 2021 meeting.									√	
December 23, 2021 Outgoing Letter	This letter to the AOO's Executive Director from CNL's Director of Corporate Communications was requesting confirmation if AOO would like to participate in the Diet and Harvest Study by March 15, 2022.										√
January 24, 2022 Meeting Invitation	This meeting invitation, with an amended agenda, was sent by a Senior Communications Advisor to AOO's Policy and Strategic Operations Advocate and Policy and Strategic Initiatives Advisor for January 25, 2022.										√

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January 25, 2022 Meeting Invitation	This meeting invitation was amended by a CNL Senior Communications Officer and sent to AOO due to an NSDF Commission Hearing conflict.										√
February 09, 2022 Outgoing email	This email from a Senior Communications Officer to AOO's Policy & Strategic Operations Advocate was to bring up the prioritization schedule and confirm if there is a specific topic that the AOO would like to discuss at the next monthly meeting.										√
February 15, 2022 Outgoing email	This email from AOO's Policy & Strategic Operations Advocate to CNL was to cancel the meeting the week after due to a conflict.										√
March 08, 2022 Outgoing email	This email from a Senior Communication's Officer at CNL to AOO's Policy & Strategic Operations Advocate was to inform AOO of the revised table of interest and concerns and to request that they review the table within the next 2 weeks.										√
March 17, 2022 Outgoing email	This email from a Senior Communications Officer at CNL to AOO's Policy & Strategic Operations Advocate was to inform AOO of a working group meeting scheduled for March 29th from 10:00 a.m. until noon. CNL requested to use that time to hold a workshop on the draft environmental assessment follow-up monitoring program (EAFMP) for the NSDF project.								√		
March 24, 2022 Outgoing email	This email from a Senior Communications Officer at CNL to AOO's Policy & Strategic Operations Advocate was to inform AOO that the NPD Closure Project was working on completing all outstanding comments and that CNL's responses to the AOO comments on the Issues Table (enclosed in the 2020 July 31 letter) are now complete. CNL attached both the original letter from the AOO, dated July 31, 2020, enclosing the AOO's comments on CNL's Issue Table, as well as a separate word document with CNL's responses to the AOO comments.									√	
March 25, 2022 Incoming email	This email from AOO's Policy & Strategic Operations Advocate to CNL was to inform CNL that the proposal was to stand down the next meeting on March 29, 2022 and use the time to internally review the NPD Closure Project Issues Table provided by CNL yesterday.										√
March 25, 2022 Outgoing email	This email from a Senior Communications Officer at CNL to AOO's Policy & Strategic Operations Advocate was to inform AOO that CNL will be sharing the new Summary Tables of Interests and Concerns, which were adjusted per guidance from the Canadian Nuclear Safety Commission (CNSC), with the AOO next week. CNL offered capacity if AOO was interested in reviewing.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communication
April 01, 2022 Incoming email	This email from AOO's Policy & Strategic Operations Advocate to a Senior Communications Officer at CNL was to state the preference to review the updated NPD Issues and Concern table in advance of it being resubmitted to the CNSC in the revised EIS, to verify that it reflects the AOO interests and concerns. AOO asked to clarify the difference in the updated NPD Summary Table of Issues and Concerns to be resubmitted with the EIS that you'll be sending us, and the "NPD Closure Project CNL responses to the AOO comments on the Issues Table", as provided on March 24, 2022 (attached in the email).									√	
April 01, 2022 Outgoing email	This email from a Senior Communication's Officer at CNL to AOO's Policy & Strategic Operations Advocate was to clarify that contents of the previous email for AOO to review. CNL attached a few draft process diagrams around what CNL is focused on right now with respect to the environmental assessment (EA) for the NPD Closure Project.										√
April 19, 2022 Outgoing email	This email from a Senior Communication's Officer at CNL to AOO's Policy & Strategic Operations Advocate was to confirm the April meeting date and to confirm the agenda for the meeting.										√
April 25, 2022 Incoming email	This email from AOO's Policy & Strategic Operations Advocate to a Senior Communication's Officer at CNL was to inform CNL of AOO's need to stand down the April meeting as AOO was still conducting an internal review of the NPD documents shared in early April. AOO noted that they would provide an update to CNL on the path forward as soon as our internal review is complete.									√	√
May 06, 2022 Incoming email	This email from AOO to a Senior Communications Officer at CNL was to confirm receipt of the repackaged NPD EIS summary table of interests and concerns and to confirm that it is consistent with the previous AOO review, the AOO do not request any further amendments to the new Table-C-2.										√
May 06, 2022 Outgoing email	This email from a Senior Communications Officer at CNL to AOO consultation was to thank AOO for the confirmed receipt of the concerns table.									√	√
August 12, 2022 Meeting	This meeting between CNL representatives (including CNL's Director of Indigenous Relations) and Algonquins of Ontario (including AOO's Executive Director and Cultural Coordinator). CNL confirmed that the AOO is still interested in in the NSDF and NPD files and that CNL can provide capacity for the AOO. The AOO stated that the ANR working group will be reviewing the NPD Interest and Concerns table to validate responses internally.									√	√
August 12, 2022 Outgoing Email	This email from the Director of Indigenous Relations at CNL to the AOO Executive Director followed up on the August 12 meeting. CNL requested information on the status of the NPD Issues table (shared in July 2022 and commented back and forth on). CNL offered to coordinate a meeting.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
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August 12, 2022 Incoming Email	This email from the AOO Executive Director to the Director of Indigenous Relations shared an email from May 6, 2022 stating that the AOO has no further comments on the *NPD EIS Issues and Concerns Table C2 from CNL* document and requested that CNL shared the revised EIS when available and at that time the AOO will consider reviewing it and providing further comments if any.									√	
September 15, 2022 Incoming Email	This email from the Cultural Heritage Advisor at AOO to a Senior Communications Officer at CNL provided the contact for the A Senior Policy Strategist at AOO as the new contact. CNL confirmed receipt.										√
September 15, 2022 Incoming Email	This email from the A Senior Policy Strategist at AOO to a Senior Communications Officer at CNL requested an introductory meeting to introduce CNL's projects, including the NPD Project.										√
September 19, 2022 Outgoing Email	This email from a Senior Communications Officer at CNL to the A Senior Policy Strategist at AOO confirmed the requested meeting and asked if the Senior Policy Strategist was also the contact for the NPD project. A Senior Policy Strategist at AOO confirmed leading on all nuclear files and request a virtual meeting.										√
September 21, 2022 Outgoing Email	This email invitation from a Senior Communications Officer at CNL to a Senior Policy Strategist at AOO for an introduction meeting.										√
September 29, 2022 Outgoing Email	This email from a Senior Communications Officer at CNL to a Senior Policy Strategist at AOO shared a presentation in advance of the September 29, 2022 meeting.										√
September 29, 2022 Meeting	This meeting between CNL representatives (including project staff and communications) and Algonquins of Ontario (including senior Policy Strategist) for staff introductions and introductions to the NPD and NSDF projects.										√
October 03, 2022 Outgoing Letter	This letter addressed to the AOOs Executive Director from CNL's Director of Indigenous Relations provided a project update and the engagement status with the AOO, CNL noted that the next step to address comments for the AOO to review the final EIS. CNL asked to further discuss CNL's responses to the AOO's March 2022 comments. CNL provided a status of the AOO AKLUS and the summary tables of interests and concerns for the EIS.									√	√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
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	CNL believes that the AKLUS recommendations and the issues lists are already incorporated and consolidated within the summary table of interests and concerns. Therefore, CNL proposes using the September 2022 Commitments table (attached to the letter) going forward. CNL stated that they would offer capacity support for the AOO's review of the Alternative Means Assessment through the existing MOU. CNL asked that the AOO submit a formal budget request. CNL requested that the AOO respond confirming their agreement to proceed with the engagement activities listed in the letter, or modified engagement activities.										
October 26, 2022 Outgoing Email	This email from a Senior Communications Officer at CNL to the AOO's Executive Director followed-up on the October 3 letter.									√	√
November 01, 2022 Outgoing Email	Email invitation sent to the AOO to attend the public open houses in the surrounding area of Chalk River Laboratories (CRL). The open house topics included CNL's Cleanup Function, the Near Surface Disposal Facility Project, the Nuclear Power Demonstration Project and CNL's Waste Strategy.										√
November 03, 2022 Incoming Email	This email from a Senior Policy Strategist at AOO Senior Communications Officer at CNL requesting a phone call related to the Alternative Means Assessment for the NPD Project.		√								
November 04, 2022 Meeting	This meeting between CNL representatives (including a Senior Communications Officer) and Algonquins of Ontario (including Senior Policy Strategist) discussed the status of the Alternative Means Assessment for the NPD Project.		√								
November 04, 2022 Outgoing Email	This email invitation from a Senior Communications Officer at CNL to a Senior Policy Strategist at AOO was for the November 8, 2022 meeting. The agenda item was to reassess the work plan and budget for the NPD project.										√
November 04, 2022 Outgoing Email	This email invitation from a Senior Communications Officer at CNL to a Senior Policy Strategist at AOO was for a tour of the NPD reactor and shoreline on December 16, 2022.										√
November 08, 2022 Meeting	This meeting between CNL representatives (including project staff and communications) and Algonquins of Ontario (including Senior Policy Strategist) for discussions on the NPD Closure Project. This meeting was to reassess the work plan and budget for the NPD Closure Project.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
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November 08, 2022 Outgoing Email	This email from a Senior Communications Officer at CNL to the AOO (Senior Policy Strategist and Cultural Heritage Advisor) provide follow up from the November 8, 2022 meeting. CNL shared information on Alternative means, Agreements between the AOO and CNL, correspondence related to budget and the actions recorded at the meeting.		√								√
November 08, 2022 Incoming Email	This email from a Senior Policy Strategist at AOO Senior Communications Officer at CNL confirmed receipt of information shared November 8, 2022. AOO requested that the NPD tour be moved to December 13, 2022. CNL confirmed the new date would work and send a calendar invitation.										√
November 11, 2022 Outgoing Email	This email from a Senior Communications Officer at CNL to a Cultural Heritage Advisor at AOO resent the May 6, 2022 correspondence related to the repackaged Interest and Concerns table.									√	
November 15, 2022 Outgoing Email	This email from a Senior Communications Officer at CNL to a Cultural Heritage Advisor at AOO asking the AOO to confirm what table of Interest and Concerns in advance of the next meeting.									√	
November 15, 2022 Open House	Members of the AOO attended the CNL open house in Renfrew. The open house included the NPD project. Staff were present to answer any questions.										√
November 15, 2022 Incoming Email	This email from a Cultural Heritage Advisor at AOO to a Senior Communications Officer at CNL to provide the most up-to-date table of Interest and Concerns. The AOO stated that the table is the larger table, working document between the AOO and CNL and is not constrained by the timeline of the EIS. This is the table the AOO has stated CNL proceed with. The AOO have already stated that we will not re-review the other table. CNL acknowledged.									√	
November 21, 2022 Outgoing Email	This email from a Senior Communications Officer at CNL to the AOO (Senior Policy Strategist and Cultural Heritage Advisor) proposing an agenda for the November 22, 2022 meeting. Proposed agenda: 1. Review issues table; 2. Discussion of proposed commitments / next steps; 3. Review of skeleton work plan and funding; 4. Other items.		√	√						√	

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Appendix C: Record of Engagement and Tables of Interests and Concerns

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	a. CNL is looking to confirm that all AOO communities are interested in engaging through the AOO and not directly with CNL ANR meeting on December 8, should CNL plan to attend for presentation on alternative means.										
November 22, 2022 Outgoing Email	This email from a Senior Communications Officer at CNL to the AOO (Senior Policy Strategist and Cultural Heritage Advisor) send the draft work plan to discuss at the November 22, 2022 meeting.										√
November 22, 2022 Meeting	This meeting between CNL representatives (including project staff and communications) and Algonquins of Ontario (including Senior Policy Strategist) for discussions on the NPD Closure Project. The project staff and AOO reviewed the Issues and Concerns table, proposed commitments and next steps and reviewed the draft work.									√	
November 22, 2022 Outgoing Email	This email from the Manager of Regulatory Approvals for the NPD project at CNL to the Senior Policy Strategist at AOO provided follow-up from the November 22, 2022 meeting. CNL sent the revised work plan with proposed topics of discussion for our upcoming working group meetings (to end of April 2023). CNL asked AOO to provide feedback on meeting topic suggestions and asked for suggestions for the timing of reoccurring meetings.			√							√
November 28, 2022 Outgoing Email	This email from a Senior Communications Officer at CNL to the AOO's Executive Director advising of the upcoming CNL supply chain event in Pembroke, Ontario. Canadian Nuclear Laboratories in partnership with the AOPFN, County of Renfrew, and Pontiac Regional County Municipality (MRC), will be hosting the "Meet and Greet: CNL Major/Strategic Supply Chain Partners.										√
November 28, 2022 Incoming Email	This email from a Senior Policy Strategist at AOO to a Senior Communications Officer at CNL advised CNL that the AOO's in-person staff meetings in December have been postponed until January and requested that the December 13th, 2022 tour of NPD be postponed. AOO noted they were still available to meeting virtual that day on the AMA. CNL acknowledged the request and sent a meeting invitation for December 13th, 2022.		√								√
December 13, 2022 Virtual Meeting	This meeting between CNL representatives (including Communications Officers and the NPD Manager of Regulatory Approvals) and Algonquins of Ontario (including AOO's Senior Policy Strategist). CNL and AOO discussed the Alternative Means Assessment, the I&C table and the work plan was edited in the meeting.		√		√				√		√
December 13, 2022 This email from CNL to AOO	Email invitation for a meeting on 08 February 2023 for the AOO Working Group Meeting: CF 48-2 NPD Closure Project.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

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December 19, 2022 This email from CNL to AOO	This email from a CNL Senior Communications Officer to the Senior Policy Strategist at AOO including attachments of Valued Components (VCs) Environmental Impact Statement (EIS) sections and references in preparation for the January 2023 discussion on VCs.				√						
December 20, 2022 Virtual Meeting	This meeting between CNL representatives (including Communications Officers and the NPD Manager of Regulatory Approvals) and Algonquins of Ontario (including AOO's Senior Policy Strategist) to discuss NPD Alternative Means Assessment, Importance of water, and additional details on the socio-economic study.		√		√				√	√	
January 10, 2023 Outgoing Email	This email from a CNL Senior Communications Officer to the Senior Policy Strategist at AOO containing Valued Components material for the meeting on 11 January 2023.				√						√
January 11, 2023 Virtual Meeting	This meeting between CNL representatives (including Communications Officers and the NPD Manager of Regulatory Approvals), Algonquins of Ontario (including AOO's Senior Policy Strategist) and AECL to discuss AOO Valued Components (VCs), and how VCs are represented in the NPD Environmental Impact Statement and AOO Question and Answer period on NPD. CNL agreed to create a VC summary table to better explain how AOO identified VCs are included, assessed, protected and that protection verified through CNL's proposed project.				√		√		√	√	
January 13, 2023 Outgoing Email	This email from a CNL Communications Officer to the Senior Policy Strategist at AOO containing technical responses CNL has sent the AOO. This includes the draft EIS comments and July 2020 technical response to assist AOO in the review of the NPD draft Environmental Impact Statement (EIS).										√
January 13, 2023 Incoming email	This email from a CNL Communications Officer to the Senior Policy Strategist at AOO confirming receipt of attachments to assist AOO in the review of the NPD draft Environmental Impact Statement (EIS).										√
January 20, 2023 Outgoing Email	This email from a CNL Communications Officer to the Senior Policy Strategist at AOO providing the next steps for the new submission date of the NPD Environmental Impact Statement (EIS). CNL proposed the next steps would be to continue working together to ensure the AOO's interests and concerns are reflected in the EIS by CNL ensuring the incorporation of the AOO identified Valued Components (VCs) in the EIS; this includes a summary table which will be consistent with the information provided from the AKLUS. CNL will also present on the Alternative Means Assessment and provide a project update to the ANRs. CNL will also discuss the AKLUS implications at the February working group meeting. And CNL and AOO will continue to work together to ensure that AOO concerns related to the protection of water are alleviated and to ensure that socio-economic values are considered.				√						√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

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January 24, 2023 Outgoing Email	This email from a CNL Communications Officer to the Senior Policy Strategist at AOO following up on an action item from the 2023 January 11 Working Group meeting to set up a meeting to discuss the Algonquin Knowledge Land Use Study (AKLUS).										√
January 27, 2023 Telephone call	A phone call from AOO's Senior Policy Strategist to a CNL Communications Officer discussing the presentation for the 2023 February 09 ARN meeting.		√								
January 27, 2023 Outgoing Email	This email from a CNL Communications Officer to the Senior Policy Strategist at AOO providing the updated version of the presentation for the ANR meeting on the Alternative Means Assessment.		√								
January 31, 2023 Email correspondence (4 emails)	Emails between CNL and AOO confirming logistics of the CF-48-2 NPD Closure Project-AMA Deck for Review presentation.		√								
February 06, 2023 Email correspondence	Emails between a CNL Communication Officer and the Senior Policy Strategist at AOO with final confirmation of the 2023 February 08 meeting.										√
February 08, 2023 Virtual Meeting	This meeting was between CNL representatives (including Communications Officers and the NPD Manager of Regulatory Approvals) and Algonquins of Ontario (including AOO's Senior Policy Strategist, Consultation Coordinator and Cultural Heritage Researcher and Coordinator). CNL and the AOO discussed the AKLUS Recommendation and Responses, during the discussion the AOO shared some of the context for the AKLUS recommendations and concerns. CNL invited the AOO for a tour of the site and discussed CNL's participation in the upcoming Algonquin Negotiation Representative (ANR) meeting.		√		√	√	√		√		√
February 09, 2023 Virtual Meeting	CNL was invited to present at the Algonquin Negotiation Representative (ANR) Infrastructure Working Group meeting. CNL gave a presentation on the Alternative Means Assessment and answered questions from the ANRs.		√								√
February 09, 2023 Outgoing Email	This email from AOO to CNL with thanks for attending the 2023 February 08 meeting, and an invitation to the 2023 March 09, AOO Infrastructure Working Group meeting.										√

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February 14, 2023 Outgoing Email	This email from a CNL Communication Officer and the Senior Policy Strategist at AOO with a summary of the Algonquin Knowledge Land Use Study (AKLUS) results and CNL's updated responses to the AKLUS recommendations and the draft commitment list that was shared in 2022 October. AOO Confirmed receipt.					√					√
February 21, 2023 Outgoing Email	This email from the NPD Manage of Regulatory Approval to the Senior Policy Strategist at AOO shared the summary table of how each of the AOO's VCs is included, assessed, protected and that protection verified through CNL's proposed project. CNL requested feedback on the sample row provided before completing the table.				√		√				
February 23, 2023 Outgoing Email	This email from a CNL Communication Officer and the Senior Policy Strategist at AOO concerning follow-up action from the 2023 February 11 NPD meeting with a summary table of how each of the VCs is included, assessed, and protected and that protection verified through CNL's proposed project.				√						
February 23, 2023 Incoming Telephone Call	Telephone call from AOO's Senior Policy Strategist to a CNL Communications Officer to discuss the March working group agenda and attendance.										√
February 27, 2023 Outgoing Telephone Call	Telephone call from a CNL Communications Officer to AOO's Senior Policy Strategist to confirm that CNL had proposed topics for the March meeting. The AOO confirmed that they would review the proposed agenda by CNL and would comment on any changes required.										√
March 02, 2023 Incoming Telephone Call	Call from AOO's Senior Policy Strategist to a CNL Communications Officer to cancel the ARN presentation on 2023 March 9, and confirm topics for the 2023 March, 8 working group meeting. The AOO also tentatively invited CNL to the AOO ANR meeting on 2023 April 18 (in person).										√
March 08, 2023 Virtual Meeting	This meeting was between CNL representatives (including a CNL Communications Officer, the NPD Manager of Regulatory Approvals and staff) and Algonquins of Ontario (including AOO's Senior Policy Strategist, Consultation Coordinator and Cultural Heritage Researcher, Coordinator and Financial Manager). CNL and AOO discussed providing comments on the AKLUS (and reviewed by items would be addressed by the LTRA), reviewed the VC summary chart, planned for the May meeting to be on commitments.				√	√			√	√	√
March 08, 2023 Outgoing Email	This email from CNL Communications officer to AOO's Senior Policy Strategist to confirm that CNL accurately captured action items from the 2023 March 08 meeting.										√

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March 09, 2023 Emails	Emails between the AOO's Senior Policy Strategist and CNL Communications officer to confirm Algonquin Knowledge Land Use Study (AKLUS) documentation for AOO distribution to the Working Group.										√
March 10, 2023 Outgoing Email	This email from CNL Communications Officer to the AOO's Senior Policy Strategist with a follow-up to the 2023 March 08 meeting; CNL provided the AOO with related emails to the AOO funding request and CNL's responses to AOO questions in the meeting.										√
March 14, 2023 Outgoing Email	This email from CNL Senior Communications Officer to the AOO's Senior Policy Strategist with CNL's Indigenous Relations Procurement Strategy.										√
March 27, 2023 Outgoing Email	This email from CNL Communications Officer to the AOO's Senior Policy Strategist touching base on outstanding questions regarding the VCs Summary table, Fiscal Year invoices and review of the AKLUS. CNL also wanted to confirm the topics for discussion for the upcoming 2023 April 12 meeting and the work plan.				√	√					√
April 03, 2023 Outgoing Email	This email from a CNL Communications Officer to the AOO's Senior Policy Strategist to follow up with an email previously send on 2023 March 27 where no response was received from the AOO.										√
April 03, 2023 Outgoing Email	This email from CNL Communications Officer to the AOO's Senior Policy Strategist AOO to follow up again with an email previously send on 2023 March 27, where no response was received from the AOO. The AOO Project consultation advisor confirmed the meeting date of 2023 April 12.										√
April 11, 2023 Telephone Call	Telephone call between a CNL Communications Officer and the AOO's Senior Policy Strategist to re-schedule the 2023 April 12 working group meeting and the estimated timeline for the Algonquin Knowledge Land Use Study (AKLUS) and the AOO review of VCs chart would likely be submitted by the end of 2023 April.										√
April 11, 2023 Outgoing Email	This email from CNL Communications Officer and AOO's Senior Policy Strategist to confirm the re-schedule of the 2023 April 12 Working Group meeting at the AOO's request, and to find a date that works with the AOO to reschedule. AOO responded with 4 possible dates.										√
April 19, 2023 Virtual Meeting	This meeting was between CNL representatives (including a CNL Communications Officer, the NPD Manager of Regulatory Approvals and AECL) and Algonquins of Ontario (including AOO's Senior Policy Strategist, Consultation Coordinator and Cultural Heritage Researcher Coordinator). AOO provided an update on conducting a Socio-Economic Study. CNL provided the AOO a presentation on Indigenous Health and addressed concerns raised.									√	

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May 03, 2023 Outgoing emails	This email between AOO Senior Policy Strategist and CNL Communications officer is to confirm the meeting agenda for the 2023 May 10 AOO- CNL Working Group Meeting to discuss CF 48-2 NPD Closure Project. AOO confirmed the topic for the meeting are commitments and the socio-economic study and that Shared Valued Solutions (SVS) will also be attending the meeting. AOO also added their appreciation for CNLs hard work on the AOO commitments chart.										√
May 04, 2023 Telephone Call from CNL to AOO	Telephone call between AOO Senior Policy Strategist and CNL Communications officer to discuss upcoming 2023 May meeting. AOO informed CNL that they have hired a new senior manager, and they will be ready to discuss the AKLUS and that SVS will be coming to the first portion of the 2023 May working group meeting and that the AOO will also be ready to talk about the VC chart at the 2023 May meeting.	√		√		√					√
May 04, 2023 Incoming email	Email from the AOO Senior Policy Strategist to a CNL Communications Officer sharing a copy of the sample AOO VC summary table with edits from the AOO Cultural Heritage Researcher and Coordinator for CNL review.				√					√	
May 04, 2023 Incoming email	Email from the AOO Senior Policy Strategist to a CNL Communications Officer with a copy of the AOO AKLUS document with edits from the AOO Cultural Heritage Researcher and Coordinator for CNL review.					√				√	
May 10, 2023 Meeting	This meeting is between representatives of CNL (including the Senior Communications Officer, Communications Officer, Indigenous Engagement Coordinator and Manager, NPD Regulatory Approvals) and AOO (Including, Senior Policy Strategist and Cultural Heritage Coordinator)) to discuss NSDF updates, the Socio-Economic Study, VC table update and the AKLUS recommendations and commitment language drafting.				√	√				√	
May 15, 2023 Outgoing email	This email from a CNL Communications Officer to the AOO Senior Policy Strategist following up on action items noted during the 2023 May AOO/CNL working group. CNL sent the AOO, a copy of the presentation from the April 19th working group meeting, the revised work plan to reflect the changes to the June 14th working group meeting and the emails related to the AOO funding request and CNL's response. CNL also outlined their outstanding action items.										√
May 17, 2023 Outgoing email	This email from a CNL Communications Officer to the AOO Senior Policy Strategist seeking validation of the AOO I&C Table. CNL respectfully requested a response by 2023 June 20. AOO confirmed receipt.									√	
June 07, 2023 Outgoing email	This email from a CNL Communications Officer to AOO Senior Policy Strategist is to provide AOO with a simplified Commitments table. CNL also identified that the next step would be reviewing the table at the next working group and welcomed feedback and/ or comments.			√							√
June 08, 2023 Incoming email	The AOO notified CNL that they hired a new Executive Director.										√

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June 14, 2023 Meeting	This meeting is between representatives of CNL (including the Senior Communications Officer, Indigenous Engagement Coordinator, Manager, NPD Regulatory Approvals and Decommissioning and Environmental Specialist) and AOO (Including, Senior Policy Strategist, Director and Cultural Heritage Researcher and Coordinator) to discuss NPD Project next steps and identify funding. The AOO to share the proposal for the socio-economic study. Both parties reviewed CNL's incorporation of comments on Commitments 3 & 9, and the I&C table and identify commitments that address next steps in the final column of the table.			√	√					√	
June 14, 2023 Incoming email	This email from AOO Senior Policy Strategist to CNL Senior Communications is to provide CNL with a copy of the AOO proposed construction/mitigation measures prepared by the AOO Cultural Heritage Researcher and Coordinator.										√
June 15, 2023 Incoming email	This email from CNL Indigenous Engagement Coordinator to the AOO Senior Policy Strategist provided the AOO with the actions captured at the 2023 June 14 NPD Closure Project Monthly Meeting. AOO confirmed receipt of the email.										√
June 16, 2023 Incoming email	This email from CNL Senior Communications officer to AOO Senior Policy Strategist is to provide the AOO with the summary of AOO valued components that were previously agreed on.										√
July 04, 2023 Emails	This email from CNL Communications officer to AOO Senior Policy Strategist is to provide the AOO with the draft agenda for the Wednesday, July 12th AOO-NPD monthly meeting. On the draft agenda is the review of Commitments and the Table of Interests and Concerns next steps and validation. AOO confirmed the agenda and noted they would invite Shared Value Solutions to attend briefly while discussing the Socio-Economic Study commitment. CNL also asked if AOO is still interested in the tour and AOO confirmed.						√			√	√
July 12, 2023 Meeting (Virtual)	This meeting is between representatives of CNL (including the Communications Officer, Indigenous Engagement Coordinator, Manager, NPD Regulatory Approvals and Decommissioning and Environmental Specialist, and Manager Communications and Engagement) and AOO (Including, Senior Policy Strategist, and Cultural Heritage Researcher and Coordinator) to discuss NSDF, NPD Project next step, summer 2023 NPD site tour and AOO/NPD commitments.						√			√	
July 12, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to AOO Senior Policy Strategist is to provide the AOO with the actions captured at the 2023 July 12 NPD Closure Project Monthly Meeting. AOO confirmed receipt of the email.										√
July 12, 2023 Outgoing Email	This email from CNL Communications Officer to AOO Senior Policy Strategist is to provide the AOO an updated version of the AOO NPD workplan.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communication
July 14, 2023 Outgoing Email	This email from CNL Communications Officer to AOO Senior Policy Strategist is to provide the AOO with an updated version of the AOO Interest and Concerns table and the commitments table.									√	
July 17, 2023 Outgoing Email	This email from CNL Communications Officer to AOO Senior Policy Strategist is to request that due to resourcing, the AOO NPD site tour be moved to 2023 August 15. AOPFN confirmed date change.										√
July 25, 2023 Outgoing Email	This email from CNL Communications Officer to AOO Senior Policy Strategist is to propose a draft agenda for the 2023 August 15 NPD site tour.										√
July 27, 2023 Outgoing Email	This meeting is between CNL Communications Officer and AOO Senior Policy Strategist is to discuss NPD text and language edits.						√			√	√
August 01, 2023 Outgoing Email	This email from CNL Communications Officer to AOO Senior Policy Strategist is to confirm the logistics of the 2023 August 15 NPD Site tour.										√
August 09, 2023 Outgoing Email	This email from CNL Communications Officer to AOO Senior Policy Strategist is to confirm the logistics of the 2023 August 15 NPD Site tour, and to provide the AOO with the draft agenda for the tour. CNL also requested AOO staff names for who is attending the tour. AOO confirmed the six staff would be attending.										√
August 09, 2023 Telephone Call	This phone call from AOO Senior Policy Strategist to CNL Communications Officer is to discuss the logistics of the 2023 August 15 NPD tour and invoicing.										√
August 10, 2023 Telephone Call	This email from CNL Communications Officer to AOO Senior Policy Strategist is to provide AOO with the funding-related information requested during the call on 2023 August 09.										√
August 15, 2023 Tour	CNL hosted an AOO-NPD site tour on 2023 August 15 NPD. Participants included CNL (Manager, Communications and Engagement, Indigenous Engagement Coordinator, Manager NPD Regulatory Approvals,) and AOO (Including Senior Policy strategist, Executive director, Meeting Coordinator, Sr. Communications Strategist, Cultural and Heritage Researcher & Coordinator and Fisheries and Wildlife Management Advisor)						√		√	√	√
August 15, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to AOO Cultural and Heritage Researcher and Coordinator is to provide AOO with links to the 2022 CRL and 2021 NPD environmental reports.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communication
August 16, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to AOO is to provide them with the actions from the 2023 August 15 AOO NPD Site Tour.										√
August 22, 2023 Outgoing Email	This email from CNL Communications Officer to AOO is to provide them with the presentation and photos cleared by CNL security for release. CNL also provided the link to the CNL YouTube page to view the walking tour-type videos of NPD.										√
August 22, 2023 Outgoing Email	This email from CNL Communications Officer to AOO is to provide them with the Benthic Invertebrates Study. AOO Senior Project Development Manager thanked CNL for the NPD Site tour and informed CNL that being onsite to see the remaining infrastructure, vegetation and ground water wells really helped to put commitments into perspective. AOO also noted that they will be sending the vegetation survey report in the coming week.										√
September 01, 2023 Outgoing Email	This email from CNL Communications Officer to the AOO is to provide the AOO with the draft agenda for the 2023 September 13 monthly working group.										√
September 13, 2023 Meeting	This meeting between CNL (including the Manager of Communications and Engagement Manager, of NPD, Decommissioning and Environmental Specialist, Communications Officer and Indigenous engagement coordinator,), AECL (including Director of Communications, Manager of Communications and Engagement), and AOO (Senior Project Development Manager, and Cultural and Heritage Researcher and Coordinator) is to discuss the NSDF pre-constructions commitments, Additional site visit and any follow up from the 2023 August tour, Introduction to monitoring current and planned, and November ANR meeting.								√		√
September 14, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to AOO Senior Policy Strategist is to provide the AOO with the actions captured at the 2023 September 13 NPD Closure Project Monthly Meeting. AOO confirmed receipt of the email.										√
September 19, 2023 Incoming Email	This email from AOO Senior Project Development Manager is to provide CNL with a copy of the AOO-NPD Site visit field notes, as well as the date for the 2023 November AOO- ANR Monthly working group. CNL thanked AOO for the field note files.									√	√
September 26, 2023 Outgoing Email	This email from CNL Communications Officer to the AOO is to confirm the dates of the 2023 October AOO - CNL monthly meeting. The meeting date was confirmed for 2023 October 18th.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communication
October 06, 2023 Outgoing Email	This email from CNL Communications Officer to the AOO is to provide a response to AOO's question about rainwater in the NPD Stack. CNL provided a written answer to this question.										√
October 16, 2023 Outgoing Email	This email from CNL Communications Officer to the AOO is to provide the AOO with the draft agenda for the 2023 October 18 monthly working group meeting on NPD.										√
October 17, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to AOO is to provide an invite to the 2023 October 20 Career Fair being held In Pembroke. AOO confirmed receipt of the invitation and noted it was distributed to ANRs and Algonquin Businesses.										√
October 18, 2023 Meeting	This meeting is between CNL (including the Communications Officer, Indigenous Engagement Coordinator, Manager, Communications and Engagement, Manager, NPD Regulatory Approvals, Decommissioning and Environmental Specialist Communications Officer) and the AOO (including, Executive Director, Senior Policy Strategist, and Cultural Heritage Researcher and Coordinator). This meeting was to discuss the NSDF Footprint and NSDF commitments, NPD, and the 2023 November ANR meeting.										√
October 18, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to AOO is to provide the actions from the 2023 October 18 AOO - CNL monthly meeting.										√
October 18, 2023 Outgoing Email	This email from CNL Communications Officer to the AOO is to provide the AOO with the draft slide deck for the 2023 November ANR Meeting.										√
November 03, 2023 Outgoing Email	This email from CNL communications officer to the AOO is to provide the draft agenda for the 2023 November 08 Monthly Working group meeting.										√
November 07, 2023 Incoming Email	This email from AOO Senior Project Development Manager to CNL Communications Officer is to inform CNL that the 2023 November ANR meeting is cancelled. The AOO noted that working group meetings will be placed on hold.										√
November 28, 2023 Webinar	AOO representatives attended the webinar NPD – Planning for Site Restoration.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communication
December 05, 2023 Outgoing Email	This email from CNL Communications Officer to AOO Senior Project Development Manager is to confirm if the NPD Closure Project is still on hold. AOO confirmed that the ANRs have not yet convened and asked to postpone until the New Year.										√
January 04, 2024 Outgoing Email	This email from CNL Communications Officer to AOO Senior Project Development Manager is to confirm the 2024 January AOO - CNL Monthly NPD Meeting scheduled for 2024 January 10. AOO informed CNL that the meeting should be postponed and noted their interest in beginning discussions on the management of archaeological resources. CNL proposed a meeting to discuss logistics.									√	√
January 10, 2024 Meeting	This meeting between AOO (including, Senior Project Development Manager, Cultural Heritage Researcher and Coordinator, Natural Resource and Cultural Strategist, and Cultural Heritage Advisor), and CNL (Including Acting Director, Indigenous Engagement Coordinator, Decommissioning and Environmental Specialist, and Communications Officer) is to discuss the AOO - CNL Archeological Management Workshop.									√	√
January 10, 2024 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to AOO is to provide the actions from the 2024 January 10 AOO - CNL Archeological Resource Management Workshop Planning meeting.										√
January 16, 2024 Outgoing Email	This email from CNL Communications Officer to AOO Senior Project Development Manager is to confirm the dates for the 2024 spring AOO - CNL Archeological Resource Management Workshop. CNL proposed 5 dates. AOO confirmed that 2 of the options proposed were suitable.									√	√
January 17, 2024 Incoming Email	This email from AOO Senior Project Development Manager to CNL is to provide the draft article on AOOs visit to NPD.										√
January 18, 2024 Outgoing Email	This email from CNL NPD Closure Project Director to AOO Senior Project Development Manager provided notes and suggestions on the draft article on AOOs visit to NPD.										√
February 09, 2024 Outgoing Email	This email from CNL Communications Officer to AOO Senior Project Development Manager is to confirm the AOO - CNL 2024 February 14 NPD Meeting. AOO confirmed the meeting date.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communication
February 14, 2024 Meeting	This meeting is between representatives of CNL (including the Communications Officer, Director, NPD, Decommissioning and Environmental Specialist, and Manager and Director of Communications and Engagement, NPD environmental Analyst) and AOO (including, Senior Project Development Manager and Cultural Heritage Researcher and Coordinator, and Project Consultation Advisor) to act as the February monthly NPD meeting. Discussion included, NPD Invoicing, updating the NPD Workplan, and a meeting date for Cultural Heritage workshop.									√	√
February 14, 2024 Outgoing Email	This email from CNL Communications Officer to AOO Senior Project Development Manager with follow up on a few of the action items noted at the meeting on 2024 February 14. CNL attached a field monitoring schedule.										√
February 15, 2024 Outgoing Email	This email from CNL Communications Officer to AOO Senior Project Development Manager provided the requested 2023 meeting dates, who attended the meetings and the topics. AOO confirmed receipt.										√
February 21, 2024 Emails	This email exchange between the AOO Senior Project Development Manager and a CNL Communications Officer shared information about 2022 meeting dates.										√
March 05, 2024 Outgoing Email	This email from a CNL Communications Officer to AOO Senior Project Development Manager is to postpone the monthly meeting being held on 2024 March 12 due to March Break. CNL noted focusing on the draft Project Specific Contribution Agreement and workplan for the AOO in the meantime. AOO confirmed the cancellation.										√

AOO - Mapping of Key Interests and Concerns

Table C-2 presents a mapping of how the key interests and concerns relate to detailed feedback and input from the AOO, up to March 2024.

Table C-2 has 3 columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, why it is important to the Indigenous Nation, community or organization, and connects it to a project aspect or an Aboriginal or treaty right wherever possible. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 presents details of the key interest or concern that the Indigenous Nation, community or organization has identified formally in writing and/or verbally to CNL.

Table C-2 Mapping of AOO Key Interests and Concerns

Topic	Key Interests and Concerns	Specific feedback provided by the AOO on this interest/concern
1. Algonquin Knowledge, Land and Resource Use and Cultural Impacts	(a) Algonquin traditional knowledge should be collected and incorporated into the EIS. It is important to the AOO that CNL solicit and use the AOO's community-specific knowledge in order to properly characterize current site conditions, develop scenarios that accurately represent potential future uses of the site, and ensure that species and traditional uses are properly considered by the project. This is a project-specific concern.	In its comments on the 2017 draft EIS, the AOO identified the need for traditional knowledge to be incorporated into the EIS. Through the Contribution Agreement between the AOO and CNL, the AOO requested funding for an Algonquin Knowledge and Land Use Study (AKLUS). The AKLUS report identified the recommendations and concerns with respect to traditional land and resource use and cultural impacts, including a request for funding of an Algonquin Country foods survey and monitoring program designed to monitor species harvested and gathered by Algonquins.
1. Algonquin Knowledge, Land and Resource Use and Cultural Impacts	(b) Impact on ability to practice traditional activities. As stewards of the lands and waters, it is important to the AOO that the environment around the site of the NPD Closure Project, including flora and fauna, are protected, and that the rights and interests of AOO members are upheld in relation to the environment (i.e., hunting, trapping, gathering, fishing and cultural ceremonies). This is a project-specific concern.	In its comments on the 2017 draft EIS, the AOO raised concerns about residual nuisance effects that could impact land use access for traditional practices and lack of mitigation measures. With respect to traditional land and resource use and cultural impacts, the AKLUS report identified the following concerns: • Loss of connection to and use of lands and water; • Safety of harvesting and consuming harvested foods; • Changes, past and present, in access to important Algonquin cultural sites. The AKLUS report identified recommendations and concerns with respect to traditional land and resource use and cultural impacts, including a request for funding of an Algonquin Country foods survey and monitoring program designed to monitor species harvested and gathered by Algonquins.
1. Algonquin Knowledge, Land and Resource Use and Cultural Impacts	(c) Safety of harvested and gathered foods. It is important to the AOO that the environment, including the flora and fauna, is protected, and to ensure that the rights and interests of AOO members are upheld. This is both a site-wide and project-specific concern.	Within the AKLUS report, participants identified concerns about the safety of harvesting and gathering, and of consuming harvested and gathered foods. The AKLUS recommendations also included a request for funding of an Algonquin Country foods survey and monitoring program designed to monitor species harvested and gathered by Algonquins.
1. Algonquin Knowledge, Land and Resource Use and Cultural Impacts	(d) Lack of AOO-specific mitigation measures, monitoring program, accommodation and compensation measures. It is important to the AOO that species of importance are monitored and protected in a way that recognizes the interdependencies between ecological, socio-economic, community and cultural health. It is also important to the AOO to accommodate and/or compensate those who may experience adverse impacts from the project. This is both a site-wide and project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. These comments included concerns about: • Lack of AOO-specific mitigation measures for cultural resources, harvesting locations, and areas of traditional ecological knowledge of significance; • Lack of AOO-specific environmental effects monitoring plan and program for protecting and mitigating potential impacts on areas of traditional land use areas of cultural significance; • Concern regarding accommodation and compensation of trapline holders within the Regional Study Area. The AKLUS report identified the following concerns with respect to traditional land and resource use and cultural impacts:

Topic	Key Interests and Concerns	Specific feedback provided by the AOO on this interest/concern
		• Request that species of importance to Algonquins are monitored, protected and that recommendations from the AKLUS are adhered to for each (a list of species of importance is provided in the AKLUS); • Proposal for a holistic, Algonquin-specific follow-up program approach to monitoring that recognizes the interdependencies between ecological, socio-economic, community and cultural health. The AKLUS report also outlined mitigation measures for Algonquin land use and occupancy values that were identified to address concerns regarding potential impacts of the NPD Closure Project.
1. Algonquin Knowledge, Land and Resource Use and Cultural Impacts	(e) Concern about balancing the need for long-term nuclear waste storage and the risk of impacts to ancestral or Algonquin values. It is important to the AOO that CNL provide information and commitments that will encourage further engagement and address community members' perception of risk to ancestral values, including particular species and traditional knowledge and land use activities. This is a project-specific concern.	The AKLUS report identified concerns about the balance between the need for long-term nuclear waste storage and the risk of the project activities impacting ancestral values. Note: the risk of the project impacts on ancestral values is discussed in Row 4(a) below.
2. Unceded Algonquin traditional territory	(a) The AOO would like recognition in the EA that the NPD site is within the unceded Algonquin traditional territory. This is important to the AOO because this area is part of ongoing land claim negotiations. This is both a site-wide and project-specific concern.	In its comments on the 2016 Project Description, the AOO requested that a statement be included in the Project Description acknowledging that the NPD site is in the unceded Algonquin traditional territory.
3. Alternatives	(a) Concern about the suitability of In-situ disposal (ISD). It is important to the AOO that future users of land on the NPD site are protected. This is a project-specific concern.	In its comments on the 2017 draft EIS, the AOO raised a concern about the suitability of ISD as an alternative.
3. Alternatives	(b) Concern that the EIS does not provide enough information on the alternatives to ISD. It is important to the AOO that they have enough information to be able to evaluate the alternatives**.** This is a project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. Some were related to provision of information on alternative means: • The AOO expressed the opinion that CNL has provided insufficient discussion of alternatives to in-situ disposal in its 2017 draft EIS; • It is AOO's position that CNL has failed to adequately address the requirements of *CEAA,* 2012; • The AOO has requested that CNL provide a quantitative assessment of the impacts of each alternative means on VCs.
4. Archaeology and Cultural Heritage	(a) Concerns about the impact of the project on features of cultural importance. It is important to the AOO to that its members are aware of any remaining Algonquin cultural heritage resources on the NPD site, and these resources be preserved. It is also important that the AOO be given the opportunity to be involved in any future archaeological activities at the site. This is a project-specific concern.	In its comments on the NPD Project Description, the AOO stated the significance of archaeological resources within their claim area. The AOO submitted formal comments on the 2017 draft EIS. Several were related to archaeology: • AOO indicated it was not provided adequate notice to participate in the Stage 1 Archaeological Assessment field visit and requested notice and capacity to participate in future archaeological activities; • The AOO expressed interest in a long-term archaeological agreement with CNL, which would involve additional field research to be conducted in collaboration with the AOO; • The AOO note that Algonquins used the area prior to European contact, and therefore, there may be areas of significance to AOO; • The AOO have requested an archaeological monitor for oversight activities at the NPD site.

Topic	Key Interests and Concerns	Specific feedback provided by the AOO on this interest/concern
		The AKLUS report identified the following concerns with respect to traditional land and resource use and cultural impacts: • Changes, past and present, to accessing important Algonquin cultural sites; • Access to a historic family village site near the NPD site; • Balancing the need for long-term nuclear waste storage and risk of the project activity impacts to ancestral values. Note: the need for long-term nuclear waste storage is discussed in Row 1(d) above. In the recommendations of the AKLUS report, the AOO propose: • CNL funding to conduct further archaeological assessments across the NPD site; • Protection of areas of archaeological potential during decommissioning activities; • Development of a stop-work process; • Development of a sustainable archaeological research program.
5. Accidents & Malfunctions	(a) Contingency plans for extreme weather and natural hazards that may impact or damage the NPD facility. It is important to the AOO that CNL demonstrate that it has planned for the potential impacts of flooding and other extreme weather events, because the frequency and intensity of such events is expected to increase due to climate change. This is a project-specific concern.	In its comments on the 2017 draft EIS, the AOO expressed concern about extreme weather and natural hazard contingency planning.
6. Engagement	(a) Continued meaningful engagement using best practices. It is important to the AOO that its members be meaningfully engaged on the project, because the project is located within the unceded Algonquin traditional territory. This is a project-specific concern.	In its comments on the 2017 draft EIS, the AOO requested continued engagement using best practices. In addition, at the start of the project, the AOO communicated that it wanted to ensure that engagement occurred with all 10 communities that are included under the umbrella of the AOO, not just AOPFN.
6. Engagement	(b) Establishment of an AOO-specific Aboriginal Engagement plan and a Long-Term Relationship Agreement (LTRA). It is important to the AOO that formal plans and agreements are in place with CNL because they provide opportunities for the AOO to discuss all the issues that are important to them related to CNL operations. This is a site-wide concern.	The AOO submitted formal comments on the 2017 draft EIS. Several were related to communication, engagement and engagement, including: • The AOO request an AOO-specific Aboriginal Engagement Plan that includes establishing a clear communication protocol between CNL and the AOO, provides a schedule for engagement opportunities, and identifies what opportunities will be provided for further input on the project; • The AOO request that AECL/CNL enter into negotiations with the AOO to establish a LTRA; • The AOO has requested that future consultation, engagement, accommodations, monitoring and oversight, and communications be included as part of LTRA discussions; this refers to engagement beyond that in support of current projects; • The AOO has requested that as part of LTRA discussions employment, training, contracting, and other economic interests be included as part of LTRA discussions; this includes NPD.
7. EA Process and Methodology	(a) Concern about the process for identifying potential project-environment interactions: technical decisions should be explained clearly and peer-reviewed. It is important to the AOO that the decisions taken by technical staff are transparent and traceable. The AOO feel that the use of peer review would ensure that technical decisions are supported by evidence and correct interpretations. This is a project-specific concern.	In its comments on the 2017 draft EIS, the AOO sought additional technical detail and explanation on how CNL had identified potential project-environment interactions.

Topic	Key Interests and Concerns	Specific feedback provided by the AOO on this interest/concern
7. EA Process and Methodology	(b) Interest in additional cumulative effects analysis: • Releases from NPD, CRL and other sources along the Ottawa River; • Overall NPD site, including all sources of contamination. Information about cumulative effects is important to the AOO because the AOO is interested in the overall protection of the Kichi-Sìbì and the NPD site, not just the impacts of a single project. This is a project-specific concern.	In its comments on the 2017 draft EIS, the AOO requested that an analysis of cumulative effects be conducted for the releases from the NPD site and those from CRL and other industries and cities on the Ottawa River. The AOO also requested an assessment of cumulative effects of the overall NPD site, including all sources of contamination (landfills, wetlands, stored materials, etc.). The AKLUS report included a recommendation requesting an Algonquin led cumulative effects assessment.
7. EA Process and Methodology	(c) Concerns about the methodology for determination of significance of adverse residual effects. It is important to the AOO that events with the potential for a high level of effects are carried through the assessment as far as is reasonable. This is a project-specific concern.	In its comments on the 2017 draft EIS, the AOO expressed a concern about the methodology used for determination of significance of adverse residual effects. The AOO requests that CNL employs a lower threshold for the determination of significant adverse residual effects.
8. End State, Site Restoration and Future Use of the Land	(a) Engagement/consultation on end state, site restoration and future land use of the site. It is important to AOO that its members be engaged/consulted meaningfully, not just informed, on end state, site restoration and future land use. Additionally, it is important to the AOO that the end state of the NPD site is safe for future land users. This is both a site-wide and a project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. Several were related to end state, site restoration and future use of the land; topics of concern and interest included: • Request for consultation and engagement on the site restoration plan and involvement of Algonquin community members in associated activities; • Recommendation that CNL/AECL enter formal discussion with AOO regarding potential land transfer arrangements. In the AKLUS report, the AOO request that CNL and AECL commit to discussing future use and ownership of the NPD property and obtaining a Record of Site condition under O. Reg. 153/04 to initiate the land transfer process. In addition, the AOO has reviewed and provided comments on the Environmental Site Assessments (ESA) as they relate to future use of the land.
8. End State, Site Restoration and Future Use of the Land	(b) Participation in activities related to end state, site restoration and future land use of the site. Involvement is important to the AOO, to ensure transparency and promote confidence in these activities. This is both a site-wide and project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. Several were related to end state, site restoration and future use of the land; topics of concern and interest included: • Interest in having Algonquin community members participate in revegetation activities and long-term environmental monitoring; • Request for consultation and engagement on the site restoration plan and involvement of Algonquin community members in its associated activities; • In the AKLUS report, the AOO request that Algonquin community members are provided opportunities to participate in follow-up monitoring and restoration work.
8. End State, Site Restoration and Future Use of the Land	(c) Impact of future socio-political changes on land use. It is important to the AOO that CNL fully consider and assess the impacts of potential future socio-political conditions. This is both a site-wide and project-specific concern.	In their comments on the 2017 draft EIS, the AOO expressed concern over how CNL considered future socio-political changes that might impact land use.
8. End State, Site Restoration and Future Use of the Land	(d) Long-term liability of the site beyond decommissioning. The AOO have concerns about the long-term integrity of the concrete vault, facility exterior walls and foundations. The AOO considers activities using the seven generation lens and thus is concerned about who will be responsible if environmental events (such as earthquakes) affect the facility over the long term. It is important to the AOO that the end state of the NPD site is safe for future land users. This is a project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. Several were related to end state, site restoration and future use of the land. One topic of concern was the long-term liability of the site beyond decommissioning.

Topic	Key Interests and Concerns	Specific feedback provided by the AOO on this interest/concern
9. Environmental Effects and Mitigation Measures	(a) Potential impacts to Ottawa River shoreline and to fish, wildlife and plants. This is of interest to the AOO because the Kichi-Sibì and these species are of particular importance to the AOO. This is a project-specific concern.	In their comments on the 2017 draft EIS, the AOO expressed concern about restoration of the Ottawa River shoreline. The AKLUS report identified concerns and interests related to end state, site restoration and future use of the land, including: • Concern about potential impacts to fish, wildlife and plant species of importance to Algonquins; • Request that fish, wildlife and plant species of importance to Algonquins be protected and monitored, and that recommendations from the AKLUS are adhered to for each species. Impacts to the shoreline, and appropriate mitigation or accommodation.
10. Indigenous Health	(a) Postclosure Safety Assessment and Indigenous Health. It is important to AOO that the Algonquin lifestyle is accurately reflected when predicting radiation doses to AOO citizens. This is a project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. The incorporation of the Algonquin lifestyle in CNL's Postclosure Safety Assessment (PostSA) technical supporting document (TSD) and the assessment of Indigenous health were technical aspects identified by the AOO. The AOO was seeking verification that models of AOO citizen exposure and doses are representative and accurate for use in the development of critical group scenarios and resource use.
11. Monitoring	(a) Participation in activities related to environmental and cultural heritage stewardship and monitoring. Involvement is important to AOO to ensure transparency and promote confidence in these activities. This is both a site-wide and project-specific concern.	The AOO has requested more generally that it wants a role in future environmental and cultural heritage stewardship and monitoring for the CRL and NPD sites. The AOO submitted formal comments on the 2017 draft EIS. Several were related to monitoring, and topics of interest and concern included: • Request that CNL provide opportunities for direct involvement in CNL's EnvP program for the AOO, as the AOO are stewards of the lands and waters. Transparency in the monitoring process and inclusion of Algonquin community members to build confidence in the monitoring program; • Request that CNL provide opportunities for the AOO and Algonquin community members to play an active role in all monitoring of the NPD site, as the AOO are stewards of the lands and waters; • Request that CNL create an Environmental Review Board to promote the effective participation of AOO within the environmental management and monitoring programs for the NPD Closure Project.
11. Monitoring	(b) Review of the CNL's draft follow-up monitoring plans. It is important to the AOO that it has an opportunity to provide input into monitoring details (e.g., frequency, location, parameters). This is a project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. Several were related to monitoring, and topics of interest and concern included: • Request that CNL provide the following monitoring plans to the AOO for their review and comment: surface water, groundwater, terrestrial environment, restoration, archaeological and AOO-specific environmental effects; • Monitoring of the terrestrial environment; • Monitoring of effects on traditional land and resource use; • Request for the installation of a monitoring well and collections system downgradient of the NPD site. The AOO submitted technical comments on the draft follow-up monitoring plans. Concerns and interests identified in this review included: • Interest in better understanding the post-closure modelling; • Concerns about the groundwater sampling frequency.
11. Monitoring	(c) AOO recommendations and requests for additional monitoring. Implementing these requests would provide additional assurances to AOO community members, and others, who may resume using the site for a range of uses in the future. This is a project-specific concern.	In their comments on the 2017 draft EIS, the AOO expressed concern regarding the lack of baseline monitoring for benthic invertebrates, water quality, and contaminants in fish tissues. The AOO submitted technical comments on the draft follow-up monitoring plans. Concerns and interests identified in this review included: • Concerns related to mercury in groundwater;

Topic	Key Interests and Concerns	Specific feedback provided by the AOO on this interest/concern
		• Request for funding of an Algonquin Country foods survey and monitoring program designed to monitor species harvested and gathered by Algonquins; • Request for funding to expand the Kichi-Sìbì Guardians environmental monitoring program; • Request that CNL undertake annual monitoring of sediment and benthic macroinvertebrates with active participation by AOO Kichi-Sìbì Guardians; • Request for vegetation monitoring once every five years during the Institutional Controls Phase; • Inclusion of effectiveness monitoring of SAR mitigation measures in the draft Follow-up Environmental Monitoring Plan; • Recommendation that CNL maintain at least five monitoring wells downgradient of each landfill. The AKLUS report identified the following concerns and interests and made several requests and recommendations related to monitoring: • Safety of harvesting and gathering and consuming harvested and gathered foods; • Request that species of importance to Algonquins are monitored, protected and that recommendations from the AKLUS are adhered to for each (a list of species of importance is provided in the AKLUS); • Proposal for a holistic, Algonquin-specific follow-up program approach to monitoring that recognizes the interdependencies between ecological, socio-economic, community and cultural health; • Request for funding of an Algonquin Country foods survey and monitoring program designed to monitor species harvested and gathered by Algonquins.
11. Monitoring	(d) Monitoring Plan design and implementation and communication of changes. As long-term stewards and users of the land, itis important to the AOO to be actively involved in oversight of the NPD area. This is a project-specific concern.	The AOO submitted technical comments on the draft follow-up monitoring plans. Concerns and interests identified in this review included: • Concern about how the derived release level (DRL) report is used in the development of the draft Follow-up Effluent Monitoring Plan; • Recommendation to include monitoring metrics that evaluate cumulative impacts from multiple stressors; • Interest in reviewing annually the follow-up monitoring reporting, which would provide an important opportunity for the AOO to understand and evaluate the monitoring activities and environmental performance of the project; • Concern that the draft follow-up monitoring plans lack clarity on how exceedances are addressed and how the AOO will be informed of an exceedance; • Concern about adaptive management of the draft follow-up monitoring plans, specifically changes that would reduce frequency of sampling and how these changes would be communicated.
12. Protection of the Ottawa River	(a) Contamination in the Ottawa River and the environment. As stewards of the lands and waters, it is important to the AOO that the environment, including flora and fauna are protected. AOO expressed that the protection of the Ottawa River is of extremely high priority to AOO. This is a project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. Several comments were related to protection of the Ottawa River; topics of interest included: • Washout pit (an engineered catchment that collect surface water from equipment washout); • Historic water discharges; • Protection of the Ottawa River with a specific interest in drainage systems. The AOO's technical comments on the draft follow-up monitoring plans included concern about release of radionuclides to the environment. The AKLUS report identified the following concerns related to monitoring: • Proximity of the project to the Kichi-Sìbì; • Potential for contamination to waterways, plants, fish and wildlife. The AKLUS report identified a concern that there is a lack of modelling to understand how contamination from groundwater reaches the Kichi-Sìbì.

Topic	Key Interests and Concerns	Specific feedback provided by the AOO on this interest/concern
13. Protection of Flora and Fauna	(a) Potential impacts to habitat and biota, and related follow-up program elements. As stewards of the lands and waters, it is important to the AOO that the environment around the site of the NPD Closure Project including flora and fauna, are protected, and that the rights and interests of AOO members are upheld in relation to the environment (i.e., hunting, trapping, gathering, fishing and cultural ceremonies). This is a project-specific concern.	The AOO's technical comments on the draft follow-up monitoring plans included concern about release of radionuclides to the environment. The AOO submitted formal comments on the 2017 draft EIS. Several were related to protection of flora and fauna: • Potential impacts to migratory birds and their habitat; • Potential impacts to wetland ecosystems by dust from demolition activities; • Lack of details regarding the exact locations of project activities that could impact terrestrial vegetation and wetlands; • Concern about potential exposure of contaminants to fish; • Ecological Risk Assessment. The AKLUS report identified the following concerns and interests related to the protection of flora and fauna, and requests for monitoring: • Potential for contamination of waterways, plants, fish and wildlife; • Bioaccumulation of contaminants in fish species; • Potential impacts to fish, wildlife and plant species of importance to Algonquins (a list of species of importance is provided in the AKLUS); • Request that species of importance to Algonquins are monitored and protected, and that recommendations from the AKLUS are adhered to for each (a list of species of importance is provided in the AKLUS.
13. Protection of Flora and Fauna	(b) Species at Risk. AOO expressed the importance of flora and fauna to their communities, culture and Aboriginal Rights and Title. This is a project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. Several comments were related to protection of flora and fauna: • Impacts to SAR including American eel and lake sturgeon; • Potential impacts to Chimney Swifts and avian species at risk (SAR); • Potential impacts to reptilian SAR and the use of exclusion fencing. The AKLUS report identified a concern about impacts to SAR.
14. Socio-economic	(a) Lack of assessment of Indigenous socio-economic conditions and effects. The AOO consider this information and assessment necessary in order to understand the extent of the socio-economic conditions of AOO communities' socio-economic and how those may be influenced by NPD Closure Project activities. This is a project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. Several were related to socio-economic interests; concerns include: • Lack of an assessment of the socio-economic conditions and effects the project will have on Algonquin community members interacting with the NPD Closure Project; • Concern regarding residual nuisance effects that could impact economic livelihood opportunities of Algonquin community members and lack of mitigation measures for these effects; • In particular, the AOO indicated an interest in CNL including a description of the socio-economic conditions for Indigenous Nations, communities and organizations that CNL is interacting with, a description of socio-economic interactions and their effects, a complete assessment including socio-economic indicators, and a description of planned monitoring and mitigating for socio-economic effects.
14. Socio-economic	(b) The EIS is missing some key Indigenous socio-economic and well-being components (VCs) and interactions. It is important to the AOO that all potential interactions and impacts be considered in order to fully evaluate the effects of the project on AOO citizens. This is a project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. Several were related to socio-economic interests, including: • Concern regarding the limited list of socio-economic VCs; • Concern regarding the adequacy of the effects assessment, specifically the lack of key socio-economic and community well-being components in the assessment.

Topic	Key Interests and Concerns	Specific feedback provided by the AOO on this interest/concern
14. Socio-economic	(c) Lack of plans for monitoring of socio-economic effects, accommodations and compensation. It is important to the AOO that CNL work with its members to develop a plan for monitoring socio-economic effects of the project, to ensure that potential negative effects are minimized and that positive effects are fully realized. AOO believes that plans are needed for AOO citizens to be adequately accommodated and compensated for any impacts experienced as a result of the project. This is both a site-wide and a project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. Several were related to socio-economic interests, including: • Concern about the absence of a socio-economic effects monitoring plan; • Lack of accommodations and compensation to address impacts to the Kichi-Sìbì. The AKLUS report included a recommendation requesting that a socio-economic accommodation plan be developed to address concerns about cumulative effects and unavoidable impacts.
14. Socio-economic	(d) The EIS does not discuss employment or procurement opportunities for the AOO. It is important to the AOO to understand the way in which CNL plans to engage the AOO in developing employment and procurement opportunities for the proposed project. This is both a site-wide and project-specific concern.	In their comments on the 2017 draft EIS, the AOO expressed concern about a lack of information on how CNL will engage the AOO in developing employment and procurement opportunities.
15. Technical	(a) Derived Release Limits (DRLs). It is important to AOO to review the DRLs to ensure they comply with relevant standards and that the critical group reflects the Algonquin lifestyle. This is a site-wide concern.	The AOO submitted formal comments on the 2017 draft EIS, including a technical comment related to derived release limits (DRLs). The AOO provided specific comments on DRLs in July 2020. The following interests and concerns were identified: • A request for additional information on how CNL has grouped radionuclides and a request to establish DRLs for all nuclides known to be in the reactor vault; • The need to include groundwater as a transport pathway for the derivation of DRLs; • Adoption of a model that has an adequate sample size and considers the Algonquin lifestyle in its calculation of exposure/dose to the critical group; • Concerns about exclusion of certain foods from the ingestion modelling; • A recommendation to model a critical group with exposure pathways dominated by resources from hunting, trapping, fishing and gathering of berries and medicinal plants; • A concern about the maximum atmospheric deposition in relation to the location of the critical group; • A concern about the quality of the data used for NPD DRLs.
15. Technical	(b) Emissions and discharges. It is important to the AOO that emissions in the atmospheric environment of contaminants are properly assessed and are mitigated and monitored as appropriate. This is a project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. The comments involved several technical topics, including: • Emissions - noise, dust, air; • Lack of dispersion modelling for discharges from the wells area sump and for groundwater seepage.
15. Technical	(c) Technical suitability of cement and batch plant construction details. It is important to the AOO that the cement used for the project is appropriate and scientifically defensible. It is also important to understand the locations of project activities so that potential effects on terrestrial vegetation and wetlands are properly assessed. This is a project-specific concern.	The AOO comments on the 2017 draft EIS, included comments related to the technical suitability of cement (and natural analogues) and the batch plant construction details.
15. Technical	(d) Ecological Risk Assessment methodology and revisions. As stewards of lands and waters, it is important to the AOO that the environment, wildlife, and plants are protected. This is a project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. Several were technical comments on the Ecological Risk Assessment, including: • A request to amend the EcoRA to incorporate second iteration of models and re-interpretation of results; • A concern that the screening process of exclusion of radionuclides in the EcoRA based on the lack of a dose coefficient is unfounded; • A lack of reporting on doses to non-human species in **Table 2.16** of the EcoRA.

Topic	Key Interests and Concerns	Specific feedback provided by the AOO on this interest/concern
15. Technical	(e) Terrestrial Study Area Rationale. It is important to the AOO that the rationale for selecting the terrestrial Regional Study Area is clearly provided, as the baseline description of the terrestrial environment is critical for understanding the current state of VCs and evaluating the project-related effects. This is a project-specific concern.	The AOO submitted formal comments on the 2017 draft EIS. Several were related to protection of flora and fauna: • Concern about the lack of rationale for establishing the terrestrial environment Regional Study Area.
16. Valued Components	(a) Engagement, input and participation in VC selection. It is important to the AOO that CNL provide opportunities for meaningful engagement on VCs to ensure that the VCs incorporate species important to traditional users of the land. This is a project-specific concern.	In its comments on the 2017 draft EIS, the AOO expressed concern about the lack of clear engagement of Indigenous peoples on the selection of candidate VCs for the NPD Closure Project. The AKLUS recommendations identified an interest in conducting a collaborative CNL-AOO VC gap analysis between the findings of the AKLUS and the draft EIS.
16. Valued Components	(b) Concerns regarding the limited VCs selected for the NPD Closure Project and recommendations for VCs to be included. This topic is of interest to the AOO because these species are features of particular importance to the AOO. This is a project-specific concern.	In its comments on the 2017 draft EIS, the AOO expressed interests and concerns related to VCs selected for the NPD Closure Project. Concerns included: • Concern about the narrow list of species on the list of VCs, including species under Traditional Land Use, and Terrestrial Environment and fish species (particularly, piscivorous fish species and species of importance to the AOO); • Concern about the limited list of socio-economic VCs. Throughout engagement activities and correspondence between the AOO and CNL, the AOO indicated interest in specific VCs. In a July 2020 letter to CNL, the AOO requested that CNL include the following VCs in the draft EIS and IER: • Fish: lake trout. sauger, muskellunge (fishing); • Mammals: beaver, marten, mink, otter, rabbit/hare, fox (trapping); elk (hunting); • Vegetation: key berry species including cranberries, blueberries. raspberries and service berries (gathering); • Mammals: muskrat, (trapping); black bear (hunting); • Birds: bald eagle (cultural significance); waterfowl and grouse (hunting). The AKLUS report identified a number of features within proximity to the NPD Closure Project, including: • Habitat for wildlife (e.g., moose, white-tailed deer, bear, fox, wolf, five-lined skink and wild turkey); • Habitat for plants (e.g., oak, pine, birch, many other medicines); • Cultural sites (e.g., burial sites, historically significant sites, spiritual sites); • Commercial trapping; • Spawning habitat; • Wildlife and harvesting and fishing areas; • Plant and natural materials gathering areas; • SAR habitat; • Travel routes; • Overnight locations; • Boat launches or landings.

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Algonquins of Ontario (AOO) – Summary of Interests and Concerns

Table C-3 below summarizes the interests and concerns that the AOO have raised on the NPD Closure Project up to March 2024, through comments submitted on the Project Description (June 2016), comments submitted on the 2017 draft EIS to the CNSC, comments submitted directly to CNL or through direct discussion and engagement between AOO and CNL.

The submission by the AOO on the Project Description can be found online: Comments on the project description for NPD from Algonquins of Ontario

The full submission of AOO comments on the 2017 draft EIS can also be found online: Comments on the 2017 draft EIS for NPD from Algonquins of Ontario. These comments were summarized by CNSC and included as part of the CNL Table: Consolidated Public and Indigenous Groups' Comments on the Nuclear Power Demonstration Closure Project Draft EIS: IAA - NPD - Consolidated Public and Indigenous Comments (April 2018).

Table C-3 has five columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, why it is important to the Indigenous Nation, community or organization, and connects it to a project aspect or an Aboriginal or treaty right wherever possible. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 summarizes CNL's response or conclusions as well as CNL's efforts to address this key interest or concern.
- Column 4 identifies where in the EIS the key interest or concern is addressed, and whether any changes were made to the EIS in response to the interest/concern. If these changes resulted in a different outcome in the EIS, this is also discussed.
- Column 5 summarizes the "Status" of the key interest or concern and the anticipated Next Steps towards achieving resolution of the key interest or concern. Not all concerns can be quickly or easily resolved, as some concerns go beyond the scope of the EA process, or there may divergent perspectives on certain interests or concerns. Note: this column does not, unless specifically confirmed by the Indigenous Nation, community or organization, mean that they have verified that the interest or concern has been dealt with to their satisfaction.

The Summary of *AOO Key Interests and Concerns* are the result of collaborative development through the Working Group, with validation of the status and next steps occurring at the AOO Working Group level through focused discussions in June and July of 2023. Note that validation of the interests and concerns was already achieved with the AOO in May 2022. Regular Algonquin Negotiation Representatives (ANR) meetings have not been occurring since March of 2023 and therefore the updates have not been reviewed and vetted by the ANRs. As soon as regular ANR meetings resume, taking into consideration the priorities and availability of the ANRs, the Working Group will bring the updates to the ANR Table for validation.

Table C-3 AOO Key Interests and Concerns

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA Process	Status of the Concern
1. Algonquin Knowledge, Land and Resource Use and Cultural Impacts	(a) Algonquin traditional knowledge should be collected and incorporated into the EIS. It is important to the AOO that CNL solicit and use the AOO's community-specific knowledge in order to properly characterize current site conditions, develop scenarios that accurately represent potential future uses of the site, and ensure that species and traditional uses are properly considered by the project. This is a project-specific concern.	CNL sent two letters asking specific questions of AOO to align with the requirements of *CEAA* (2012) Section 5(1)(c). These questions included: • Do you have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects? • Does [the AOO], or any members, have sites of ceremonial significance in close proximity [of NPD], or more generally, any cultural activities near [the NPD site]? The CNSC and CNL have contributed funds for the AOO to undertake an AKLUS, which was completed in December 2020. CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to recommendations from the AKLUS. CNL met twice with the AOO in 2023 to discuss the AKLUS recommendations and the parties are working to translate these to project commitments where appropriate. CNL incorporated the description of traditional land and resource use, and Indigenous valued components from the AKLUS into the EIS. This revised content was shared with AOO in May 2021, and CNL indicated to AOO that the revised content would be included in the 2021 draft EIS. AOO, AECL and CNL have signed a tri-partite Memorandum of Understanding (MOU) since these comments were received. One of the areas of mutual interest and concern is further discussion on incorporating	Where is this topic discussed in the EIS? **Section 8.9** of the EIS presents information about traditional land and resource use, including specific information about the AOO (**Section 8.9.2.2.3**). **Section 9.9** of the EIS assesses risk to traditional land and resource use VCs. **Section 9.1.1.1** of the EIS presents the future exposure scenarios and groups that are considered in the PostSA. The EIS and supporting studies have assumed that traditional uses do occur adjacent to the NPD site, whether on the Ottawa River or outside the restricted/fenced area. CNL has also assumed that in the future there is an interest to re-establish traditional use activities on the NPD site. What changes have been made (and where)? CNL has integrated the AKLUS findings and concerns into the EIS. Specifically, CNL expanded the description of traditional uses in **Section 8.9** of the EIS and added and evaluated new traditional land and resource use VCs in **Sections 6.3 and 9.9** of the EIS to ensure that AOO traditional knowledge becomes an integral component of the EIS and in CNL's consideration of potential effects.	Status: Resolved. CNL believes that this concern has been addressed through its support of the AKLUS and incorporation of results into the EIS. Next steps: CNL and AOO will continue refining project commitments. A final issues resolution meeting validating the close-out of this interest and confirming commitments is expected to occur later in 2023.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA Process	Status of the Concern
		AOO traditional land uses and resource values into the EA processes going forward. To this end, CNL has made improvements to the EIS that reflect further consideration and incorporation of the AOO traditional land and resource use values. The EIS includes information obtained from the AKLUS report. CNL sees opportunities in upcoming meetings within the MOU framework to discuss and endeavour to resolve these issues. CNL Response: In discussions with AOO, CNL agreed that traditional knowledge from the AOO and other Indigenous Nations, communities and organizations should be integrated into the EIS. CNL has contributed funding to the preparation of an AKLUS by the AOO and has integrated the findings and concerns into the EIS. CNL is supportive of the proposal for a comprehensive Country Foods survey to better understand and quantify Algonquins' consumption of wildlife, fish and plants near the NPD site. CNL recognizes how such a study can support long-term monitoring programs. The NSDF and NPD Projects have already provided capacity to the Algonquin community closest to the NPD site (the AOPFN (AOPFN)) in order to execute an AOPFN Harvest and Diet study. CNL has added an Indigenous receptor group to the Postclosure Safety Assessment (PostSA) Technical Supporting Document (TSD). The predicted peak dose to an Indigenous receptor (from the 3rd iteration PostSA) is 0.0004 mSv/yr which is 500 times less than the dose criterion. The analysis demonstrates that the impact on the public, Indigenous and the environment is negligible.	CNL added content from the AKLUS report to **Sections 6.3 and 8.9** of the EIS**.** The EIS update includes additional detail on the VC-related engagement process and how Indigenous interests have been incorporated into the VCs selected for the NPD Closure Project.	
1. Algonquin Knowledge, Land and Resource Use and Cultural Impacts	(b) Impact on ability to practice traditional activities. As stewards of the lands and waters, it is important to the AOO that the environment around the site of the NPD Closure Project, including flora and fauna, are protected, and that the rights and interests of AOO members are upheld in relation to the environment (i.e., hunting, trapping, gathering, fishing and cultural ceremonies). This is a project-specific concern.	AOO, AECL and CNL have signed a tri-partite MOU to support the negotiation of a Long-Term Relationship Agreement (LTRA). One of the areas of mutual interest and concern is environmental and cultural heritage monitoring programs, including joint monitoring, to ensure that the environment is adequately protected and the rights and interests of the AOO are upheld. CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to recommendations from the AKLUS. CNL met twice with the AOO in 2023 to discuss the AKLUS recommendations and the parties are working to translate these to project commitments where appropriate. CNL and the AOO are exploring site access, including the perception of barriers to site access and nearby important cultural sites for the AOO members, to determine an approach for culturally appropriate risk communications. CNL Response: CNL acknowledges AOO's concerns about the long-term safety of the NPD site and the potential impacts on the rights of the AOO, and other Indigenous Nations, communities and organizations, to practice traditional activities around the NPD site. CNL has assessed potential nuisance effects related to dust and noise, loss of connection to the land, safety of harvesting and consuming local foods, and changes to access to the land; no significant	Where is this topic discussed in the EIS? The EIS discusses concerns about potential loss of connection to land and water (e.g., feeling of discomfort or concern), and loss of land and water use in **Section 9.9.5** of the EIS. Nuisance effects during construction activities are assessed in the Decommissioning Safety Assessment (DecomSA) TSD and summarized in **Section 9.2** (atmospheric environment), **Section 9.9** (traditional land and resource use) and **Section 9.10** (Indigenous socio-economic conditions) of the EIS. Monitoring of nuisance effects is discussed in **Section 12** of the EIS**.** General plans for restoration and end state, including access considerations, are described in **Section 4.3.1.9** of the EIS. **Section 8.9** of the EIS presents information about traditional land and resource use, including specific information about the AOO (**Section 8.9.2.2.3**). **Section 9.9** of the EIS assesses risk to traditional land and resource use VCs. **Section 9.1.1.1** of the EIS presents the future exposure scenarios and groups that are considered in the PostSA TSD.	Status: Ongoing. See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that this concern has been addressed through its commitment to involving the AOO in the long-term monitoring for the NPD Closure Project. Next Steps CNL and AOO have established the following commitments which will help to address this concern: AOO-4 – Site Visit and Survey Work Provide an opportunity to and support pre-decommissioning site visit(s). Provide capacity for a baseline plant inventory survey. AOO-5 – Participation in monitoring and sharing of results CNL is committed to involve all interested Indigenous Nations, communities and organizations in the NPD Closure Project Follow-up Monitoring Program.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA Process	Status of the Concern
		adverse effects were identified in the assessment. CNL notes that the final end state is the only time when changes to access will occur; the final end state of the NPD site will be an improvement from current conditions. To instill confidence in the EIS findings and the effectiveness of the follow-up monitoring, CNL will involve the AOO and other Indigenous Nations, communities and organizations in the monitoring program, which aims to confirm whether the EIS predications around potential effects are accurate and to develop mitigation measures as needed. The PostSA TSD addresses the potential for concerns about loss of connection to land and water, and about food safety. The PostSA and EIS (and other supporting studies) have demonstrated that in the long-term, there are not scientifically based data concerns about the accessibility or safety of the NPD site, based on several different future use scenarios, including self-sufficient Indigenous receptors. The proposed activities will result in an enhancement of the NPD site from current conditions and may lead to an increase of wildlife and therefore improve the ability to practice traditional activities at the NPD site. These findings, which will be confirmed by monitoring, are anticipated to reduce concerns about loss of connection to land and water, and about food safety. Involvement of the AOO in monitoring (discussed in row 9(a)) will help to ensure transparency and lend confidence to monitoring activities and results, and in turn, the findings of the EIS. CNL's Public Information Program aims to enhance engagement with Indigenous peoples and address any potential feelings of loss of connection to and use of lands and water. With respect to monitoring species harvested and gathered by Algonquins: CNL has ensured that these species are captured in our valued components (VCs) and considered for monitoring as appropriate. In discussions with AOO, CNL agreed that traditional knowledge from the AOO and other Indigenous Nations, communities and organizations should be integrated into the EIS. CNL has contributed funding to the preparation of an AKLUS by the AOO and has integrated the findings and concerns into the EIS. CNL is supportive of the proposal for a comprehensive Country Foods survey to better understand and quantify Algonquins' consumption of wildlife, fish and plants near the NPD site. CNL recognizes how such a study can support long-term monitoring programs. The NSDF and NPD Projects have already provided capacity to the Algonquin community closest to the NPD site (the AOPFN (AOPFN)) in order to execute an AOPFN Harvest and Diet study.	The EIS and supporting studies have assumed that traditional uses do occur adjacent to the NPD site, whether on the Ottawa River or outside the restricted/fenced area. CNL has also assumed that in the future there is an interest to re-establish traditional use activities on the NPD site. <u>What changes have been made (and where)?</u> CNL added discussion of loss of connection to and use of lands and water to **Section 6.3** (interests and concerns related to VCs) and **Sections 9.3.1.1, 9.6.1.1, and 9.9.1.1** within the EIS**.** CNL has integrated the AKLUS findings and concerns into the EIS. Specifically, CNL expanded the description of traditional uses in **Section 8.9** of the EIS, and added and evaluated new traditional land and resource use VCs in **Sections 6.3 and 9.9** within the EIS to ensure that AOO traditional knowledge becomes an integral component of the EIS and in CNL's consideration of potential effects. CNL added content from the AKLUS report to **Sections 6.3 and 8.9** within the EIS**.** The EIS update includes additional detail on the VC-related engagement process and how Indigenous interests have been incorporated into the VCs selected for the NPD Closure Project.	On an annual basis, CNL and AOO will review together environmental monitoring results from the NPD site. CNL can share results with the AOO annually through to the end of the Institutional control period. AOO-1 – Socio-Economic Considerations, Monitoring and Mitigations Provide capacity to the AOO to undertake a socio-economic study with results captured in a subsequent revision of the Indigenous Engagement Report. Study recommendations will be implemented in CNL's project plans after collaborative review by CNL and the AOO. CNL and AOO will identify opportunities to improve CNL's monitoring and mitigations to ensure traditional knowledge is incorporated and that interdependencies between ecological, socio-economic, community and cultural health are recognized. AOO-10 – Ongoing Collaboration CNL is committed to continuing the working group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities).
1. Algonquin Knowledge, Land and Resource Use and Cultural Impacts	(c) Safety of harvested and gathered foods. It is important to the AOO that the environment, including the flora and fauna, is protected, and to ensure that the rights and interests of AOO members are upheld. This is both a site-wide and project-specific concern.	CNL gained a better understanding of the reasons for AOO's desire for funding for an Algonquin Country foods survey from a January 2022 follow-up discussion between AOO and CNL on AKLUS recommendations. The AOO wants to ensure that the lifestyle of the broader Algonquin Community is accurately represented and considered in CNL's PostSA TSD. CNL and AOO are working to develop project commitments to address outstanding concerns. AOO, AECL and CNL have signed a tri-partite MOU to support the negotiation of an LTRA. One of the areas of mutual interest and concern is environmental and cultural heritage monitoring programs, including joint	<u>Where is this topic discussed in the EIS?</u> Mitigation measures for the protection of flora and fauna are primarily outlined in **Sections 9.6.3.2**. <u>What changes have been made (and where)?</u> **Table 5.2-2** of the EIS has been revised. Any reference to contaminants being screened out because they are due to past NPD operations has been removed. The table has been updated to reflect the more comprehensive	<u>Status:</u> Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that this concern has been partially addressed through sharing information about the Indigenous receptor. CNL has assessed potential effects related to the safety of harvesting and

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		monitoring, to ensure that the environment is adequately protected and the rights and interests of the AOO are upheld. CNL has responded in writing to recommendations from the AOO AKLUS and has discussed the AKLUS recommendations as part of the January 2022 working group meeting and additional meetings early in 2023. The parties are working to translate the AKLUS recommendations to project commitments where appropriate. In April 2023, CNL also provided an overview of the Indigenous receptor evaluated as part of the environmental assessment for the project. <u>CNL Response:</u> CNL is supportive of the proposal for a comprehensive Country Foods survey to better understand and quantify Algonquins' consumption of wildlife, fish and plants near the NPD site. CNL recognizes how such a study can support long-term monitoring programs. The NSDF and NPD Projects have already provided capacity to the Algonquin community closest to the NPD site (the AOPFN (AOPFN)) in order to execute an AOPFN Harvest and Diet study. CNL has assessed potential effects related to the safety of harvesting and consuming local foods, and no significant adverse effects were identified in the assessment.	Environmental Site Assessment results that include consideration of contaminants from past activities. Changes have been made to **Section 8.5.3.1** to include a summary of how the discrete areas of contamination identified in the Environmental Site Assessment were handled. Changes have been made to **Section 9.6.3.2** to include additional mitigations related to milkweed (important habitat for monarch butterflies), migratory birds, bats, chimney swifts and milksnakes. The revised EcoRA TSD is now a standalone report and includes a clearer description of the method (in response to AOO formal comments on 2017 draft EIS). The EcoRA TSD continues to predict no undue effects on biota.	consuming local foods, and no significant adverse effects were identified in the assessment. <u>Next Steps</u> CNL and AOO have established the following commitments which will help to address this concern: AOO-4 – Site Visit and Survey Work Provide an opportunity to and support pre-decommissioning site visit(s). Provide capacity for a baseline plant inventory survey. AOO-5 – Participation in monitoring and sharing of results CNL is committed to involve all interested Indigenous Nations, communities and organizations in the NPD Closure Project Follow-up Monitoring Program. On an annual basis, CNL and AOO will review together environmental monitoring results from the NPD site. CNL can share results with the AOO annually through to the end of the Institutional control period. AOO-1 – Socio-Economic Considerations, Monitoring and Mitigations Provide capacity to the AOO to undertake a socio-economic study with results captured in a subsequent revision of the Indigenous Engagement Report. Study recommendations will be implemented in CNL's project plans after collaborative review by CNL and the AOO. CNL and AOO will identify opportunities to improve CNL's monitoring and mitigations to ensure traditional knowledge is incorporated and that interdependencies between ecological, socio-economic, community and cultural health are recognized. AOO-10 – Ongoing Collaboration CNL is committed to continuing the working group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities).

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1. Algonquin Knowledge, Land and Resource Use and Cultural Impacts	(d) Lack of AOO-specific mitigation measures, monitoring program, accommodation and compensation measures. It is important to the AOO that species of importance are monitored and protected in a way that recognizes the interdependencies between ecological, socio-economic, community and cultural health. It is also important to the AOO to accommodate and/or compensate those who may experience adverse impacts from the project. This is both a site-wide and project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to recommendations from the AKLUS. CNL presented a brief overview of the draft follow-up monitoring plans to the AOO Planning and Environment Working Group in September 2019, and AOO provided comments on these plans in 2020 July. CNL and the AOO are holding a workshop to further discuss the draft follow-up monitoring plans for the NPD Closure Project in 2022. CNL and the AOO will discuss the AOO's interests in developing an AOO specific environmental effects monitoring plan. CNL and the AOO will also discuss protection and mitigation efforts to help ensure that AOO traditional land and resource use and areas of cultural significance are respected. AOO, AECL and CNL have signed a tri-partite MOU since these comments were received. One of the areas of mutual interest and concern is further discussion on incorporating AOO traditional land uses and resource values into the EA processes going forward. To this end, CNL has made improvements to the EIS that reflect further consideration and incorporation of the AOO traditional land and resource use values. The EIS includes information obtained from the AKLUS report. CNL sees opportunities in upcoming meetings within the MOU framework to discuss and endeavour to resolve these issues. CNL Response: CNL has added and assessed additional Indigenous land and resource use VCs in the EIS, including those identified by the AOO. The EIS considers potential effects on trapping and notes that trapping does not occur on the NPD site. As such, CNL does not anticipate any impacts to trapline holders, and consequently, accommodation or compensation is not needed. However, CNL is open to discussing the NPD project with trapline holders within the Regional Study Area, and to further discussion with AOO about AOO-specific mitigation measures and follow-up programs.	Where is this topic discussed in the EIS? **Tables 6.3-1 and 6.3-2** of the EIS highlight how VCs identified by AOO are reflected in the species that are evaluated in the NPD EIS. **Section 8.9** of the EIS presents information about traditional land and resource use, including specific information about the AOO obtained from the AKLUS report (**Section 8.9.2.2.3**). **Section 9.9** of the EIS assesses risk to traditional land and resource use VCs. Mitigation and monitoring are discussed in **Sections 10 and 12** of the EIS. What changes have been made (and where)? CNL expanded the description of traditional uses in **Section 8.9** of the EIS and added and assessed additional traditional land and resource use VCs in **Sections 6.3 and 9.9** of the EIS. CNL added content from the AKLUS report to **Sections 6.3 and 8.9** of the EIS. The EIS update includes additional detail on the VC-related engagement process and how Indigenous interests have been incorporated into the VCs selected for the NPD Closure Project.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that this concern has been addressed by revisions to the EIS and through its commitment to involving the AOO in the long-term monitoring for the NPD Closure Project. Next Steps CNL and AOO have established the following commitments which will help to address this concern: AOO-5 – Participation in monitoring and sharing of results CNL is committed to involve all interested Indigenous Nations, communities and organizations in the NPD Closure Project Follow-up Monitoring Program. On an annual basis, CNL and AOO will review together environmental monitoring results from the NPD site. CNL can share results with the AOO annually through to the end of the Institutional control period. AOO-1 – Socio-Economic Considerations, Monitoring and Mitigations Provide capacity to the AOO to undertake a socio-economic study with results captured in a subsequent revision of the Indigenous Engagement Report. Study recommendations will be implemented in CNL's project plans after collaborative review by CNL and the AOO. CNL and AOO will identify opportunities to improve CNL's monitoring and mitigations to ensure traditional knowledge is incorporated and that interdependencies between ecological, socio-economic, community and cultural health are recognized. AOO-10 – Ongoing Collaboration CNL is committed to continuing the working group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities).

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1. Algonquin Knowledge, Land and Resource Use and Cultural Impacts	(e) Concern about balancing the need for long-term nuclear waste storage and the risk of impacts to ancestral or Algonquin values. It is important to the AOO that CNL provide information and commitments that will encourage further engagement and address community members' perception of risk to ancestral values, including particular species and traditional knowledge and land use activities. This is a project-specific concern.	CNL has responded in writing to AOO recommendations from the AKLUS. CNL met with the AOO and gave 5 presentations from 2016 to 2019, providing information and seeking input related to Alternative Means and/or In-Situ Disposal. CNL met again with the AOO in 2023 and provided a summary of the alternatives considered. CNL Response: CNL acknowledges that some AOO community members have concerns about the perceived tradeoff between the need for a solution to legacy waste and the risk of impacts from the NPD project as the proposed solution. Although waste at the NPD site is currently in safe storage, over time, the risk associated with this interim solution increases. That is why CNL is committed to addressing AECL's nuclear legacy liabilities through permanent solutions. CNL believes that dealing with the waste now, rather than passing the problem on to future generations, is the responsible approach. CNL has assessed the suitability of in-situ disposal (ISD) for NPD, and the resulting EIS shows that such disposal is safe for human health and the environment in the short term and long term. Design features make it conducive to disposing of the material in place. The proposed activities will result in an enhancement of the NPD site from current conditions. The waste is already at the site, and the proposed project will make the site safer. The assessment findings do not show impacts to ancestral values.	Where is this topic discussed in the EIS? **Section 4.1** of the EIS discusses the purpose and rationale of the NPD Closure project. Effects during the Post-Institutional Controls phase are assessed in the PostSA, and the EIS discusses effects to traditional land and resource use in **Section 9.9.3**. The EIS concludes that there are adverse residual effects on traditional land and resource use. What changes have been made (and where)? No changes to the EIS have been made in response to this concern.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that this concern has been addressed through regular sharing of information about project alternatives. Next Steps CNL and AOO have established the following commitments which will help to address this concern: AOO-10 – Ongoing Collaboration CNL is committed to continuing the working group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities). AOO-5 – Participation in monitoring and sharing of results CNL is committed to involve all interested Indigenous Nations, communities and organizations in the NPD Closure Project Follow-up Monitoring Program. On an annual basis, CNL and AOO will review together environmental monitoring results from the NPD site. CNL can share results with the AOO annually through to the end of the Institutional control period.
2. Unceded Algonquin Traditional Territory	(a) The AOO would like recognition in the EA that the NPD site is within unceded Algonquin traditional territory. This is important to the AOO because this area is part of ongoing land claim negotiations. This is both a site-wide and project-specific concern.	CNL has updated language throughout the EIS to reflect this information (see details in previous column). Subsequent to its comments on the Project Description, the AOO submitted formal comments on the 2017 draft EIS. The AOO did not repeat concerns expressed in the 2016 Project Description with respect to acknowledgement of the unceded Algonquin traditional territory. CNL shared the draft EIS (Rev. 1) with the AOO in May 2020, which included content in **Section 6.2.4.2** for AOO asserted rights and title for the unceded Algonquin traditional territory, including NPD. CNL Response: CNL fully acknowledges that NPD is located in the unceded Algonquin traditional territory.	Where is this topic discussed in the EIS? The NPD site is identified as unceded Algonquin traditional territory throughout the EIS. What changes have been made (and where)? **Section 6.2.4.2** now includes the following text: "The NPD site is located within the unceded Algonquin traditional territory. The Algonquins of Ontario have asserted existing Indigenous rights and title throughout the unceded Algonquin traditional territory, including the NPD site." Changes have been made to **Section 6.2, Section 8.9 and Appendix C** to identify that the NPD site is located within the unceded Algonquin Territory.	Status: Resolved. CNL believes that this concern has been addressed by revisions to the EIS. Next steps: A final issues resolution meeting validating the close-out of this interest is expected to occur later in 2023.

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3. Alternatives	(a) Concern about the suitability of In-situ disposal (ISD). It is important to the AOO that future users of land on the NPD site are protected. This is a project-specific concern.	To address these concerns, CNL added additional assessment to the Alternative Means TSD (details in next column). At a meeting with the AOO ANRs in September 2019, a summary of the Alternative Means for the project was presented and there was an opportunity for questions and discussion on this topic. CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL met with the AOO Infrastructure Working Group (including several ANRs) in 2023 to provide a summary of the alternatives considered and engaged in active discussions with the ANRs. This group also received a third party summary review on CNL's Alternative Means Assessment (AMA). CNL has received no follow-up questions/concerns on this topic. CNL Response: In discussions with the AOO, CNL agreed that protection of future land users is an important concern and has addressed it. CNL has assessed the suitability of ISD for NPD, and the EIS demonstrates that such disposal is safe for human health and the environment in the short term and long term. CNL has considered national and international standards and guidelines and continues to believe that the NPD facility has characteristics that support ISD. CNL acknowledges the expressed interest by AOO for future unrestricted land use. Should the preferred alternative of ISD be approved, it is important to note that the land subject to restricted access is less than 1% of the total area of the NPD site (2.53 of 385 hectares). Furthermore, after the Institutional Control period (during which CNL will monitor the site), there will be no land restrictions.	Where is this topic discussed in the EIS? Alternative means are discussed in the **Alternative Means Assessment TSD** (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS. What changes have been made (and where)? CNL enhanced the assessment of alternatives in the AMA TSD; for example, the projected radiological dose and Industrial Safety risk to workers for each alternative means was presented. This assessment has shown that ISD is safer than the removal alternative means. The revised Alternative Means TSD continues to identify ISD as the preferred means for decommissioning the NPD reactor.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that this concern has begun to be addressed through regular sharing of information about project alternatives. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-10 – Ongoing Collaboration CNL is committed to continuing the working group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities).
	(b) Concern that the EIS does not provide enough information on the alternatives to ISD. It is important to the AOO that they have enough information to be able to evaluate the alternatives**.** This is a project-specific concern.	In response to this concern, CNL added additional assessment to the Alternative Means TSD and expanded the discussion in the EIS (details in next column). At a meeting with the AOO ANRs in September 2019, a summary of the Alternative Means for the project was presented and there was an opportunity for questions and discussion on this topic. CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses. The AOO indicated in November 2021 that they still require time to review the AMA. CNL met with the AOO Infrastructure Working Group (including several ANRs) in 2023 and provided a summary of the alternatives considered. This group also received a third party summary review on CNL's AMA. CNL has received no follow-up questions/concerns on this topic. CNL Response: CNL prepared the AMA following the framework laid out in the Canadian Environmental Assessment Agency (CEAA) Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2015). CNL acknowledges that the AOO has requested more details on the strengths and weaknesses of each alternative.	Where is this topic discussed in the EIS? Alternative means are discussed in the **AMA TSD** (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS. What changes have been made (and where)? CNL has included additional information from the AMA TSD in **Section 4.2** of the EIS to provide greater clarity on how the alternative means assessment was completed and what the results mean. In addition, both the AMA TSD and **Section 4.2** of the EIS were updated to assess the projected radiological dose and industrial safety risk to workers for each option.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that this concern has been addressed by revisions to the EIS and through regular sharing of information about project alternatives. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-10 – Ongoing Collaboration CNL is committed to continuing the working group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities).

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4. Archaeology and Cultural Heritage	(a) Concerns about the impact of the project on features of cultural importance. It is important to the AOO to that its members are aware of any remaining Algonquin cultural heritage resources on the NPD site, and these resources be preserved. It is also important that the AOO be given the opportunity to be involved in any future archaeological activities at the site. This is a project-specific concern.	CNL's archaeology consultant determined that there was no potential for archaeological discoveries on the Site Study Area (where project activities will take place), because that area was completely disturbed during site construction. However, in response to concerns expressed by the AOO, CNL did conduct a Stage 1 Archaeological Assessment of the remainder of the NPD site. CNL shared the results of the Stage 1 Archaeological Assessment with the AOO and provided a summary and overview presentation of the archaeology work. CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to recommendations from the AKLUS. A January 2022 follow-up discussion between AOO and CNL on AKLUS recommendations gave CNL a better understanding of AOO's concerns on this topic, including the possibility of the project impeding access to a nearby historic cultural site. AOO requested a stop-work process; CNL and AOO are working to develop project commitments to address this concern. AOO, AECL and CNL have signed a tri-partite MOU to support the negotiation of an LTRA. One of the areas of mutual interest and concern is environmental and cultural heritage monitoring programs, including joint monitoring, to ensure that the environment is adequately protected and the rights and interests of the AOO are upheld. CNL Response: CNL has conducted a Stage 1 archaeological assessment and shared the results with the AOO. No further archaeological work is planned for NPD.	Where is this topic discussed in the EIS? Indigenous cultural resources and ceremonies, including the presence of Algonquin Cultural Sites and features, are discussed in in **Section 8.9.3** of the EIS. **Section 8.11.4** of the EIS summarizes the **Archaeology TSD,** including the findings of the Stage 1 archaeological assessment. What changes have been made (and where)? CNL updated several sections of the EIS in response to AOO comments and to include information from the AKLUS Report (**Sections 6.2, 6.3, 8.9, 9.9** of the EIS). Changes have been made to **Section 6.2.4.2** of the EIS to include information on CNL and AOO's work to progress towards an LTRA. Changes have been made to **Section 9.9.3.2** of the EIS to include proposed mitigation measures that will be employed if undocumented archaeological resources are discovered during the project. The EIS does not predict any adverse residual effects from the project on the Indigenous socio-economic environment (**Section 9.10.1.6**) or traditional land and resource use (**Section 9.9.3.3**), including access to cultural sites. As such, no changes to these sections were required.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that these have been addressed through AOO's closure of this item in its letter of May 2019 and CNLs responses to AKLUS recommendations. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-3 – Cultural Protection CNL is committed to joint review by CNL, AOO and mutually respected 3rd party SMEs of company and project specific cultural protection procedures/activities with AOO against best practice and consideration of Indigenous Knowledge. If needed a project specific cultural protection plan is developed to address any gaps identified. This topic may also be addressed through a future LTRA, to ensure adequate future engagement around archaeological resources at the NPD site.
5. Accidents & Malfunctions	(a) Contingency plans for extreme weather and natural hazards that may impact or damage the NPD facility. It is important to the AOO that CNL demonstrate that it has planned for the potential impacts of flooding and other extreme weather events, because the frequency and intensity of such events is expected to increase due to climate change. This is a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL Response: CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above-ground natural hazards and extreme temperature change, and has concluded that these events will have no undue effects on people or the environment around the site. The NPD site has an Emergency Procedure that will remain in place and be updated as required throughout the Decommissioning Execution and Institutional Controls phases of this project. This procedure focuses on the prevention, mitigation of, preparedness for, response to, and recovery from a wide range of abnormal and emergency conditions including fires, floods, hazardous spills, loss of power, earthquakes, and tornados. The Emergency Procedure also defines the actions of specific staff/roles in such events. Following any of these emergency events, as soon as it is safe for staff to do so, site and facility condition are evaluated, and any necessary actions will be taken to make repairs. The NPD Emergency Procedure is developed and maintained in accordance with CNL's company-wide Emergency Preparedness Program that has been accepted to meet the CNSC's	Where is this topic discussed in the EIS? **Section 8.12** of the EIS discusses the relevant natural disasters to which NPD may be exposed. **Section 9.14** of the EIS discusses the potential effects on the project of climate change, forest fires, floods, earthquakes, severe weather such as tornados, lightning strikes, ice storms, and changes to the Ottawa River. Additional details and a range of scenarios that encompass the potential impacts from extreme weather and natural hazards are examined in the DecomSA TSD and the PostSA TSD. What changes have been made (and where)? No changes have been made to the EIS in response to this concern.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that this concern has been substantially addressed through its response to specific comments on this topic received from AOO. Next Steps CNL and AOO have established the following commitments which will help to address this concern: AOO-10 – Ongoing Collaboration CNL is committed to continuing the working group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities).

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		requirements (under RegDoc 2.10.1 - *Nuclear Emergency Preparedness and Response).* Further, throughout all project phases (Decommissioning Execution, Institutional Controls and Post-Institutional Controls) CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above-ground natural hazards and extreme temperature change, and has concluded that these events will have no undue effects on people or the environment around the site.		This topic may also be addressed through a future LTRA, to ensure adequate sharing of emergency response planning at the community level.
6. Engagement	(a) Continued meaningful engagement using best practices. It is important to the AOO that its members be meaningfully engaged on the project, because the project is located within the unceded Algonquin traditional territory. This is a project-specific concern.	CNL heard AOO's request for ongoing engagement and, since 2016, has carried out extensive engagement with the AOO, and has implemented a MOU to progress towards an LTRA. For CNL, meaningful engagement involves listening to the community's concerns and making real changes as appropriate, for example: • Addition of VC to the project's VC list; • Changes to monitoring plan (see row later in this table); • Commitments to participation of Indigenous Nations, communities and organizations in future monitoring activities (see row later in this table); • Commitments to involving Indigenous Nations, communities and organizations in the site restoration plan. CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL Response: CNL has committed to open, transparent and continuing engagement with the AOO. The AOO leadership takes responsibility for communicating with all 10 communities under the AOO umbrella. By directing all its communications through the AOO, CNL ensures that all 10 AOO communities are included. Engagement Highlights: In June 2017, CNL held an AOO-specific open house to which the AOO invited its entire membership. AOO issues and concerns topics covered at the open house included: monitoring (current and proposed follow-up monitoring), future land use, protection of the Ottawa River, and EA methodology. Approximately 15 AOO members attended. In 2019 and into 2020 CNL responded in writing to the AOO's specific comments on the EIS and shared correspondence that tracked resolved and outstanding issues on topics of interest and concern to AOO. During the latter part of 2020 and the first half of 2021, AOO capacity and priorities precluded regular engagement on the NPD Closure Project. In May 2021, CNL offered further support to the AOO to ensure capacity was not a barrier to meaningful participation in the EA for the NPD Closure Project. The 2022 work plan developed collaboratively between AOO and CNL includes capacity to support continued meaningful participation in the EA for the NPD Closure Project.	Where is this topic discussed in the EIS? All 10 AOO communities are identified in **Section 6.2.2** of the EIS (Antoine Algonquin First Nation; AOPFN; Algonquin Nation Kijicho-Manito Madaouskarini; Bonnechere Algonquin First Nation; Algonquins of Greater Golden Lake First Nation; Mattawa/North Bay Algonquin First Nation; Ottawa Algonquin First Nation; Shabot Obaadjiwan First Nation; Snimikobi (Ardoch) (Beaver Creek) Algonquin First Nation; and Whitney Area Algonquins. These communities are described in greater detail in Section 3 of the IER. **Section 6.2.4.2** of the EIS summarizes CNL engagement with AOO to date and describes the collaborative work of CNL and AOO to progress towards an LTRA. What changes have been made (and where)? Changes have been made to **Section 6.2.4.2.1** to reflect new and planned engagement activities to support the AOO's meaningful participation in the EA process.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that these concerns are substantially addressed through AOO's closure of this item in its letter of May 2019 and regular ongoing engagement. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-10 – Ongoing Collaboration CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities). This topic may also be addressed through a future LTRA to enable continued meaningful engagement between the AOO and CNL on the NPD Closure Project.

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		In the fall of 2021, CNL shared with and sought input from AOO on the summary list of interests and concerns and overall support for CNL's 2021 EIS submission. To allow AOO time to respond and provide feedback, CNL delayed its EIS submission. In October 2021, the AOO and CNL met to discuss the prioritization of engagement on the NSDF Project and the NPD Closure Project to facilitate the AOO's desired "one-window" approach for engagement with CNL on the projects. A consolidated draft schedule was prepared by CNL in November 2021 and shared with AOO for review. At the January 25, 2022, meeting the two parties reviewed the schedule together, made edits and discussed the timeline for engagement activities during the first half of 2022. Capacity challenges at the AOO prevented progress on the work plan during most of 2022. However, in November 2022 in response to reach out by CNL and improved resource availability the AOO re-engaged on the NPD Project. Since that time the two parties have been meeting on a monthly (or more frequent) basis – total of 9 meetings between November 2022 and the end of April 2023. Thus far CNL and AOO have discussed the following outstanding concerns: Alternative Means, Valued Components, the AKLUS results and Indigenous Health. Additional meetings are planned for the remainder of 2023 to discuss the remaining outstanding interests: socio-economics, monitoring and end-state. The May 2023 Working Group meeting transitioned to formulating commitments for outstanding areas of concern. CNL expects to close-out all remaining concerns at a final issues resolution meeting in late 2023.		
6. Engagement	(b) Establishment of an AOO-specific Aboriginal Engagement plan and a Long-Term Relationship Agreement (LTRA). It is important to the AOO that formal plans and agreements are in place with CNL because they provide opportunities for the AOO to discuss all the issues that are important to them related to CNL operations. This is a site-wide concern.	In 2018, the AOO, AECL and CNL signed a tri-partite MOU to guide dialogue between the parties on matters of mutual interest. More specifically, the MOU was intended to be a vehicle to work towards the development of an LTRA amongst the parties. The MOU identified the need for both a Technical Group to deal with the NPD Closure Project and an LTRA Working Group that would advance an LTRA amongst the parties. The MOU broadly identified potential topic areas for the LTRA. Over 2019 and 2020, a Terms of Reference and work plan was developed for the LTRA. The LTRA intended to cover such topics as: AOO involvement in environmental and cultural monitoring and stewardship; employment / training; contracting; communications; consultation; etc. The LTRA also intended to cover the interests of all three parties with respect to both the CRL and NPD sites as well as other further projects and/or initiatives across the unceded Algonquin traditional territory. The LTRA discussions are relevant to NPD as it is expected that certain project specific initiatives and commitments will be implemented or realized through this agreement. Since 2020, discussion on the LTRA have not progressed. The parties are still working together on the NPD Closure Project and other projects, but LTRA discussions have not been prioritized. CNL Response: CNL acknowledges AOO's request for formal, AOO-specific engagement plans and agreements. CNL supports a "one-window" approach to all engagement activities (encompassing all projects, not just NPD) (work continues within the AOO/CNL Monthly Working Group for the NPD Closure	Where is this topic discussed in the EIS? **Section 6.2.4.2** of the EIS summarizes CNL engagement with AOO to date and describes the collaborative work of CNL and AOO to progress towards an LTRA. What changes have been made (and where)? Changes have been made to **Sections 6.2, 6.3, 8.9, 9.9, 12** in response to AOO comments and to reflect developments in the relationship between AOO and CNL.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes the concern about AOO's involvement is partially addressed with development of the LTRA. It is noted that the establishment of community-specific Engagement plans and LTRAs extend beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-10 – Ongoing Collaboration CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities). The parties are continuing discussion on an LTRA.

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		Project, which includes a six-month look-ahead schedule and prioritization schedule). CNL believes that building a long-term relationship with the AOO can enable future consultation, engagement, accommodations, monitoring and oversight, communications, employment, training, contracting, and other economic interests. <u>Engagement Highlights</u> In 2018, AECL, CNL, and the AOO signed a tripartite MOU. The parties have agreed to work together on items of mutual interest related to CNL operations and projects. It has been agreed by all parties that a future LTRA may include provisions on future consultation, engagement, and communications. It has been agreed by all parties that a future LTRA may include provisions on employment, training, contracting, and other economic opportunities. It has been agreed by all parties that an LTRA would not be project-specific but intended to cover CNL operations in the unceded Algonquin traditional territory. LTRA topics of consideration could include consultation and engagement, economic opportunities, future land uses, and environmental and cultural heritage stewardship and monitoring. CNL has provided funding to AOO to assist in progression towards an LTRA. CNL has discussed contracting opportunities and provided connections to CNL Procurement staff. The 2022 work plan developed collaboratively between AOO and CNL includes capacity to support continued meaningful participation in the EA for the NPD Closure Project. In October 2021, the AOO and CNL met to discuss the prioritization of engagement on the NSDF Project and the NPD Closure Project to facilitate the AOO's desired "one-window" approach for engagement with CNL on the projects. A consolidated draft schedule was prepared by CNL in November 2021 and shared with AOO for review. At the January 25, 2022 meeting the two parties reviewed the schedule together, made edits and discussed the timeline for engagement activities during the first half of 2022. Capacity challenges at the AOO prevented progress on the work plan during most of 2022. However, in November 2022 in response to reach out by CNL and improved resource availability the AOO re-engaged on the NPD Project. Since that time the two parties have been meeting on a monthly (or more frequent) basis – total of 9 meetings between November 2022 and the end of April 2023. Thus far CNL and AOO have discussed the following outstanding concerns: Alternative Means, Valued Components, the AKLUS results and Indigenous Health. Additional meetings are planned for the remainder of 2023 to discuss the remaining outstanding interests: socio-economics, monitoring and end-state. The May 2023 Working Group meeting transitioned to formulating commitments for outstanding areas of concern.		

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7. EA Process and Methodology	(a) Concern about the process for identifying potential project-environment interactions: technical decisions should be explained clearly and peer-reviewed. It is important to the AOO that the decisions taken by technical staff are transparent and traceable. The AOO feel that the use of peer review would ensure that technical decisions are supported by evidence and correct interpretations. This is a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL Response: CNL understands the AOO concerns about the subjectiveness of the development of the project-environment interactions matrix. The project-environment interactions matrix follows EA guidance and was developed with input from the technical experts involved in the preparation of TSDs. CNL's approach to identifying interactions for the matrix was to include all potential interactions, even those that may be considered "borderline." For each of the potential interactions identified, CNL is required to provide rationale in the EIS if it is not carried forward into later steps of the effects assessment. The interactions matrix is subject to review and comment from internal and external experts, and through public, stakeholder, and Indigenous engagement efforts. The 2017 EIS was reviewed by a Federal-Provincial Technical Review Team (consisting of the Canadian Nuclear Safety Commission, Environment and Climate Change Canada, Health Canada, Ontario Ministry of Environment, Conservation and Parks, Government of Quebec), members of the public and Indigenous Nations, communities and organizations. CNL addressed these comments and updated the EIS.	Where is this topic discussed in the EIS? **Section 5.2.2** of the EIS discusses the development of the project-environment interactions matrix. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that this concern has been substantially addressed through its response to specific comments on this topic received from AOO. Next Steps CNL and AOO have established the following commitments which will help to address this concern: AOO-10 – Ongoing Collaboration CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities). CNL and AOO will review together the technical topic responses and identify any remaining gaps. Resolution of any gaps identified will be a topic of a dedicated discussion at the Working Group level.
	(b) Interest in additional cumulative effects analysis: • Releases from NPD, CRL and other sources along the Ottawa River • Overall NPD site, including all sources of contamination Information about cumulative effects is important to the AOO because the AOO is interested in the overall protection of the Kichi-Sìbì and the NPD site, not just the impacts of a single project. This is a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL Response: CNL acknowledges AOO's concern about the effects on the Kichi-Sìbì and NPD site from various activities in the past, present and future. *CEAA* (2012) requires that a cumulative effects assessment be carried out for any residual adverse effects identified in the EIS. Since it was determined that no adverse residual effects are expected to occur from the NPD project (such as to Kichi-Sìbì water quality), there is no potential for the occurrence of cumulative effects, including no potential for synergistic and / or additive effects. These other requested analyses extend beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project.	Where is this topic discussed in the EIS? **Section 9.13** of the EIS describes the process for evaluating cumulative effects and presents CNL's assessment of cumulative effects for the NPD Closure Project. What changes have been made (and where)? No changes have been made to the EIS in response to this concern.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that this concern has been substantially addressed through its response to specific comments on this topic received from AOO. Next Steps CNL and AOO have established the following commitments which will help to address this concern: AOO-2 – Restoration Planning CNL will collaborate with AOO to ensure that the site restoration plan incorporates in its design traditional values, habitat protection and replanting species of cultural significance (e.g., medicines) as appropriate. CNL to coordinate a tri-party discussion (AOO, AECL, and CNL) about future access to the NPD site including the exclusion zone (undisturbed forested lands that surround the facility). CNL and AOO will review together the technical topic responses and identify any remaining gaps. Resolution of any gaps identified will be a topic of a dedicated discussion at the Working Group level.

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7. EA Process and Methodology	(c) Concerns about the methodology for determination of significance of adverse residual effects. It is important to the AOO that events with the potential for a high level of effects are carried through the assessment as far as is reasonable. This is a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses. In response to AOO's request that CNL employ a lower threshold for determination of significant adverse residual effects, CNL has offered to present all environmental effects of the project to AOO and explain the process and thresholds for determination of significance of adverse residual effects. CNL Response: CNL acknowledges the AOO's concerns about the methodology of determining significance of residual effects. The criteria used for the evaluation of significance are from CNSC REGDOC 2.9.1 (2020), Environmental Protection: Environmental Principles, Assessments and Protection Measures. CNL has offered to present to AOO its findings on the environmental effects of the project and explain the process and thresholds for determination of significance of adverse residual effects.	Where is this topic discussed in the EIS? **Section 9.1.2** of the EIS explains the methodology used for the determination of significance of residual effects. It also presents the criteria used for the evaluation of significance, which are from CNSC REGDOC 2.9.1 (2020), Environmental Protection: Environmental Principles, Assessments and Protection Measures. **Section 11** of the EIS, Conclusion on Significance, discusses the assessment findings. What changes have been made (and where)? No changes have been made to the EIS in response to this concern.	Status: Resolved. CNL believes that this concern has been substantially addressed through its response to specific comments on this topic received from AOO. Next Steps CNL and AOO will review together the technical topic responses and identify any remaining gaps. Resolution of any gaps identified will be a topic of a dedicated discussion at the Working Group level.
8. End State, Site Restoration and Future Use of the Land	(a) Engagement/consultation on end state, site restoration and future land use of the site. It is important to AOO that its members be engaged/consulted meaningfully, not just informed, on end state, site restoration and future land use. Additionally, it is important to the AOO that the end state of the NPD site is safe for future land users. This is both a site-wide and a project-specific concern.	CNL acknowledges AOO's request for ongoing engagement and consultation related to site restoration and future land use. AOO, AECL and CNL have signed a tri-partite MOU to support the negotiation of an LTRA. One of the areas of mutual interest and concern is land – rehabilitation and remediation programs. CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to recommendations from the AKLUS and comments on the ESA studies. CNL will be engaging the AOO in the process to develop a Draft Restoration Plan with AOO. CNL Response: CNL has completed a Phase II Environmental Site Assessment (ESA) to characterize soil, groundwater and sediment for chemicals of potential concern and has provided an evaluation against federal and provincial environmental standards for residential/parkland and commercial/industrial land uses. The Phase 2 ESA is consistent with the requirements defined in O. Reg. 153/04 and is sufficient for the purposes of due diligence. A Record of Site Condition (RSC) is not required as part of this work. In the event of a sale or transfer of lands, any outstanding documentation needed to move this forward (e.g., RSC, as required) would be prepared at that time. CNL has indicated its commitment to continued meaningful engagement with AOO about site restoration, end state and future land use of the site.	Where is this topic discussed in the EIS? General plans for restoration and end state are described in **Section 4.3.1.9** of the EIS. **Section 6.2.4.2** of the EIS discusses CNL's engagements efforts to date and path forward for continued meaningful engagement and describes the collaborative work to progress towards an LTRA. What changes have been made (and where) CNL provided additional detail related to restoration of the site following decommissioning in **Section 4.3.1.9.** Additionally, changes have been made to **Sections 6.2** to include the current status of engagement with the AOO related to this concern As the topic of potential land transfer agreements involves AECL and is focused on activities that extend beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project, the EIS is not expected to change as a result of this concern.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that this concern has been partially addressed through its response to specific comments on this topic received from AOO. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-2 – Restoration Planning CNL will collaborate with AOO to ensure that the site restoration plan incorporates in its design traditional values, habitat protection and replanting species of cultural significance (e.g., medicines) as appropriate. CNL to coordinate a tri-party discussion (AOO, AECL, and CNL) about future access to the NPD site including the exclusion zone (undisturbed forested lands that surround the facility). AOO-4 – Site Visit and Survey Work Provide an opportunity to and support pre-decommissioning site visit(s). Provide capacity for a baseline plant inventory survey. This topic may also be addressed through a future LTRA to ensure adequate future engagement with the AOO in longer-term environmental stewardship and monitoring activities.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA Process	Status of the Concern
8. End State, Site Restoration and Future Use of the Land	(b) Participation in activities related to end state, site restoration and future land use of the site. Involvement is important to the AOO, to ensure transparency and promote confidence in these activities. This is both a site-wide and project-specific concern.	CNL acknowledges AOO's interest in participating in revegetation activities and environmental monitoring, and in ongoing consultation related to site restoration and future land use. The AOO, AECL and CNL have signed a tri-partite MOU to support the negotiation of an LTRA. One of the areas of mutual interest and concern is land – rehabilitation and remediation programs. CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to recommendations from the AKLUS. CNL will share the Draft Restoration Plan with AOO for review once it is developed. CNL Response: CNL is committed to providing opportunities for AOO community members to participate in activities related to site restoration, end state and future land use of the site, including monitoring programs. At the project level, follow-up monitoring for the NPD Closure Project will include monitoring of environmental components critical to the AOO.	Where is this topic discussed in the EIS? General plans for restoration and end state are described in **Section 4.3.1.9** of the EIS. **Section 6.2.4.2** of the EIS discusses involvement of the AOO in the monitoring program and describes the collaborative work to progress towards an LTRA. **Section 12** of the EIS discusses how feedback from Indigenous Nations, communities and organizations has been incorporated into the draft follow-up monitoring plans and will continue to be used in the refinement of the plans. What changes have been made (and where)? Changes have been made to **Sections 6.2, 6.3, 8.9 and 9.9** of the EIS in response to AOO comments and to include new information from the AKLUS Report. No changes have been made to the EIS regarding participation in these activities.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that this concern has been partially addressed through its response to specific comments on this topic received from AOO. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-2 – Restoration Planning CNL will collaborate with AOO to ensure that the site restoration plan incorporates in its design traditional values, habitat protection and replanting species of cultural significance (e.g., medicines) as appropriate. CNL to coordinate a tri-party discussion (AOO, AECL, and CNL) about future access to the NPD site including the exclusion zone (undisturbed forested lands that surround the facility). AOO-4 – Site Visit and Survey Work Provide an opportunity to and support pre-decommissioning site visit(s). Provide capacity for a baseline plant inventory survey. This topic may also be addressed through a future LTRA, to enable AOO involvement in longer-term environmental stewardship and monitoring activities.
	(c) Impact of future socio-political changes on land use. It is important to the AOO that CNL fully consider and assess the impacts of potential future socio-political conditions. This is both a site-wide and project-specific concern.	CNL heard AOO's concern about the impact of future socio-political changes on land use and addressed it in the responses to AOO comments. CNL Response: As shown in the PostSA TSD, CNL's development of scenarios includes consideration of relevant future changes in land use. These could arise from various future situations including changes to socio-political conditions. Specifically, hypothetical future presence of a full-time self-sufficient Indigenous potential exposure group (PEG) at the NPD site has been assessed. The analysis demonstrates that under all scenarios, the impact on the public, Indigenous and the environment is negligible.	Where is this topic discussed in the EIS? The evaluation of FEPs in the PostSA TSD considers relevant future changes in land use, for example, under FEP 1.4 Future Human Actions and FEP 1.4.2 Social and Institutional Developments. FEP 1.4.2 looks at the changes in social patterns and degree of local government, planning and regulation. Potentially significant social and institutional developments include: changes in planning controls and environmental legislation; demographic change and urban development; changes in land use; and loss of records or societal memory of the facility location and hazards. What changes have been made (and where)? In response to AOO comments, a full-time self-sufficient Indigenous potential exposure group has been added to the PostSA TSD and EIS. The analysis demonstrates that under all scenarios, impact on the public, Indigenous and the environment is negligible.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes this concern has been addressed by revisions to the EIS. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-2 – Restoration Planning CNL will collaborate with AOO to ensure that the site restoration plan incorporates in its design traditional values, habitat protection and replanting species of cultural significance (e.g., medicines) as appropriate. CNL to coordinate a tri-party discussion (AOO, AECL, and CNL) about future access to the NPD site including the exclusion zone (undisturbed forested lands that surround the facility). This topic may also be addressed through a future LTRA.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA Process	Status of the Concern
8. End State, Site Restoration and Future Use of the Land	(d) Long-term liability of the site beyond decommissioning. The AOO have concerns about the long-term integrity of the concrete vault, facility exterior walls and foundations. The AOO considers activities using the seven generation lens and thus is concerned about who will be responsible if environmental events (such as earthquakes) affect the facility over the long term. It is important to the AOO that the end state of the NPD site is safe for future land users. This is a project-specific concern.	CNL heard AOO's concern about long-term liability of the site and addressed it in its responses to AOO comments. CNL has developed monitoring programs that extend into the Institutional Controls period, to ensure that the public, Indigenous and the environment are protected. CNL Response: CNL, as the licensee, is responsible for conducting ongoing monitoring and maintenance of the site during the Institutional Controls period. The PostSA TSD demonstrates that the impact on the public, Indigenous and the environment is negligible, under all scenarios, beyond the Institutional Controls period.	Where is this topic discussed in the EIS? This topic will be discussed as part of the LTRA with the participation of AECL as the owner of the NPD site. However, the long-term liability of the site extends beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project. Therefore, it is not discussed in the EIS. What changes have been made (and where)? No changes were made in the EIS related to long-term liability.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that this concern has been partially addressed through its response to specific comments on this topic received from AOO. It is noted that this topic extends beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-10 – Ongoing Collaboration CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities). AOO-5 – Participation in monitoring and sharing of results CNL is committed to involve all interested Indigenous Nations, communities and organizations in the NPD Closure Project Follow-up Monitoring Program. On an annual basis CNL and AOO will review together environmental monitoring results from the NPD site. CNL can share results with the AOO annually through to the end of the Institutional Control period. This topic may also be addressed through a future LTRA, to ensure adequate sharing of emergency response planning at the community level.
9. Environmental Effects and Mitigation Measures	(a) Potential impacts to Ottawa River shoreline and to fish, wildlife and plants. This is of interest to the AOO because the Kichi-Sibì and these species are of particular importance to the AOO. This is a project-specific concern.	CNL acknowledges AOO's concern about impacts to species of importance and has responded in writing to AOO comments and AKLUS recommendations. The NPD Closure Project is not expected to adversely impact the shoreline. CNL Response: In discussions with AOO, CNL agreed that protection of the Ottawa River shoreline and fish, wildlife, and plants is important. The EIS demonstrated there are no predicted adverse impacts from the project on the Ottawa River shoreline or on any fish, wildlife or plants.	Where is this topic discussed in the EIS? Effects to the shoreline are evaluated in the EIS as part of the Surface Water Environment discussion. There will not be any changes to or disturbance of the Ottawa river shoreline from NPD Closure Project activities. The EIS does not predict any adverse residual effects on the Surface Water Environment (**Section 9.3.3.5**). The EIS does not predict any adverse residual effects on the aquatic environment (**Section 9.4.3.3**) or the terrestrial environment (**Section 9.6.3.3**) resulting from potential emissions during the NPD Closure project.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes this concern has been addressed by revisions to the EIS. Next steps: CNL and AOO have established the following commitments which will help to address this concern:

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		Follow-up monitoring for the NPD Closure Project will include monitoring of environmental components that the AOO has identified as important.	CNL has developed mitigation measures and draft follow-up monitoring plans for the protection of the Kichi-Sibì (**Sections 9.3.3.2 and 12.3** of the EIS) and for the protection of flora and fauna (**Sections 9.4.3.2 and 9.6.3.2 and 12.3** within the EIS**).** What changes have been made (and where)? Changes have been made to **Sections 6.2, 6.3, 8.9, 9.6 and 9.9** of the EIS in response to AOO comments and to include new information from the AKLUS Report. Specific mitigation measures that were added in response to comments include activities to exclude bats from accessing the facility, and activities to protect monarch butterflies (such as sweeping of work areas, avoiding vegetation removal during periods of monarch presence, and reseeding with milkweed). These are outlined in **Sections 9.6.3.2 and 9.6.3.3** of the EIS. Changes have been made to **Section 9.3.3.2** to update and expand mitigation measures for the protection of surface water, including the Kichi-Sibì. In response to AOO comments, CNL also revised the draft Follow-up Environmental Monitoring Plan to address the specific interests and concerns expressed by the AOO: annual sediment monitoring and monitoring of SAR mitigation measures (**Section 12.3** of the EIS).	AOO-5 – Participation in monitoring and sharing of results CNL is committed to involve all interested Indigenous Nations, communities and organizations in the NPD Closure Project Follow-up Monitoring Program. On an annual basis, CNL and AOO will review together environmental monitoring results from the NPD site. CNL can share results with the AOO annually through to the end of the Institutional Control period. AOO-4 – Site Visit and Survey Work Provide an opportunity to and support pre-decommissioning site visit(s). Provide capacity for a baseline plant inventory survey. AOO-10 - Ongoing Collaboration CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities). AOO-2 – Restoration Planning. CNL will collaborate with AOO to ensure that the site restoration plan incorporates in its design traditional values, habitat protection and replanting species of cultural significance (e.g., medicines) as appropriate.
10. Indigenous Health	(a) Postclosure Safety Assessment and Indigenous Health. It is important to AOO that the Algonquin lifestyle is accurately reflected when predicting radiation doses to AOO citizens. This is a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses. In the 3rd iteration of the PostSA TSD issued in March 2020, CNL included a Potential Exposure Group consisting of a family of self-sufficient Indigenous receptors in the NPD Area. The exposure profile in the postclosure period was developed based on a traditional Indigenous lifestyle, pre-European contact (SENES 2014). This lifestyle results in a more cautious dose estimate than that based on current-day lifestyle, where some food is store-bought and likely not from the contaminated area. In April 2023, CNL made a presentation to the AOO Working Group summarizing how the Indigenous lifestyle is evaluated through the PostSA TSD looking specifically at how an Indigenous person might interact with the land and biota at and surrounding the NPD site. CNL Response: CNL has added an Indigenous receptor group to the PostSA TSD (see below).	Where is this topic discussed in the EIS? The EIS presents the PostSA results for the Indigenous receptor group in **Section 9.10.2**. What changes have been made (and where)? An Indigenous receptor was added to the human health assessment in the PostSA TSD and EIS.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that they have addressed this concern, with revisions to the EIS and technical discussion on this topic. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-10 – Ongoing Collaboration CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications

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		The predicted peak dose to an Indigenous receptor (from the 3rd iteration PostSA) is 0.0004 mSv/yr which is 500 times less than the dose criterion. The analysis demonstrates that the impact on the public, Indigenous and the environment is negligible. AOO involvement in monitoring activities will help to promote confidence in verifying EIS predictions. SENES Consultants. 2014. *Aboriginal Lifestyle Characterization*. NWMO TR-2014-13. June.		and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities). This topic may also be addressed through a future LTRA, to enable AOO's involvement in longer-term environmental stewardship and monitoring activities at the NPD site.
11. Monitoring	(a) Participation in activities related to environmental and cultural heritage stewardship and monitoring. Involvement is important to AOO to ensure transparency and promote confidence in these activities. This is both a site-wide and project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to recommendations from the AKLUS, and the AOO comments on draft follow-up monitoring plans. CNL has committed to involving Indigenous Nations, communities and organizations in its environmental monitoring programs. The AOO, AECL and CNL have signed a tri-partite MOU to support the negotiation of an LTRA. One of the areas of mutual interest and concern is environmental and cultural heritage monitoring programs, including joint monitoring, to ensure that the environment is adequately protected and the rights and interests of the AOO are upheld. CNL Response: CNL is committed to providing opportunities for AOO community members to participate in monitoring activities. At the project level, follow-up monitoring for the NPD Closure Project will include monitoring of environmental components critical to the AOO such as monitoring of surface water, groundwater and air quality. CNL is committed to a country foods study involving the AOO, as requested by the AOO, to verify project assumptions, and to build confidence/trust in the project's activities and the long-term performance of the closed facility. CNL is committed to co-developing a project specific cultural and heritage protection plan (CHPP) with the AOO.	Where is this topic discussed in the EIS? CNL has indicated in **Section 6.2.4.2.3** that it is willing to involve the AOO in its monitoring programs. What changes have been made (and where)? No changes have been made to the EIS regarding participation in these activities. However, the shared activities are a topic of the LTRA.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that they have addressed this concern in its response to EIS comments and by initial commitment discussions. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-4 – Site Visit and Survey Work Provide an opportunity to and support pre-decommissioning site visit(s). Provide capacity for a baseline plant inventory survey. AOO-5 – Participation in monitoring and sharing of results CNL is committed to involve all interested Indigenous Nations, communities and organizations in the NPD Closure Project Follow-up Monitoring Program. On an annual basis, CNL and AOO will review together environmental monitoring results from the NPD site. CNL can share results with the AOO annually through to the end of the Institutional Control period. AOO-1 – Socio-Economic Considerations, Monitoring and Mitigations Provide capacity to the AOO to undertake a socio-economic study with results captured in a subsequent revision of the Indigenous Engagement Report. Study recommendations will be implemented in CNL's project plans after collaborative review by CNL and the AOO. CNL and AOO will identify opportunities to improve CNL's monitoring and mitigations to ensure traditional knowledge is incorporated and that

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				interdependencies between ecological, socio-economic, community and cultural health are recognized. AOO-10 – Ongoing Collaboration CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities).
11. Monitoring	(b) Review of the CNL's draft follow-up monitoring plans. It is important to the AOO that it has an opportunity to provide input into monitoring details (e.g., frequency, location, parameters) This is a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to AOO comments on draft follow-up monitoring plans. CNL has committed to involving Indigenous Nations, communities and organizations in its environmental monitoring programs Working Group discussion is planned for summer 2023 to hear additional feedback on the draft follow-up monitoring plans. CNL Response: CNL shared the draft follow-up monitoring plans with AOO for comment in August 2019. The planned monitoring proposed in the draft follow-up monitoring programs includes SAR and SAR habitat monitoring, as well as potential vegetation monitoring only if there is an unexpected result in groundwater monitoring.	Where is this topic discussed in the EIS? The follow up monitoring program is described at a high level in **Section 12** of the EIS. What changes have been made (and where)? Changes have been made to **Section 12** to include significant details from the 3 draft follow-up monitoring plans for effluent, environment and groundwater developed since the 2017 EIS.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that this concern is addressed. AOO has provided review comments on the draft follow-up monitoring plans and CNL has provided responses. Next Steps CNL and AOO have established the following commitments which will help to address this concern: AOO-5 – Participation in monitoring and sharing of results CNL is committed to involve all interested Indigenous Nations, communities and organizations in the NPD Closure Project Follow-up Monitoring Program. On an annual basis, CNL and AOO will review together environmental monitoring results from the NPD site. CNL can share results with the AOO annually through to the end of the Institutional Control period. AOO-1 – Socio-Economic Considerations, Monitoring and Mitigations Provide capacity to the AOO to undertake a socio-economic study with results captured in a subsequent revision of the Indigenous Engagement Report. Study recommendations will be implemented in CNL's project plans after collaborative review by CNL and the AOO. CNL and AOO will identify opportunities to improve CNL's monitoring and mitigations to ensure traditional knowledge is incorporated and that interdependencies between ecological, socio-economic, community and cultural health are recognized.

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11. Monitoring	(c) AOO recommendations and requests for additional monitoring. Implementing these requests would provide additional assurances to AOO community members, and others, who may resume using the site for a range of uses in the future. This is a project-specific concern.	AOO, AECL and CNL have signed a tri-partite MOU to support the negotiation of an LTRA. One of the areas of mutual interest and concern is environmental and cultural heritage monitoring programs, including joint monitoring, to ensure that the environment is adequately protected and the rights and interests of the AOO are upheld. As part of the LTRA the AOO will have the opportunity to make recommendations on environmental and cultural monitoring that would address ecological-community health inter-dependencies of importance to the AOO. CNL Response: Follow-up monitoring for the NPD Closure Project will include monitoring of environmental components critical to the AOO. To supplement baseline data, a study of sediment, benthic invertebrates and fish habitat features was undertaken upstream, adjacent to and downstream of the NPD site in 2020, and the report was provided to the AOO. The study determined that the Ottawa River benthic invertebrate community near NPD is healthy and typical of what is observed in many large, soft-bottomed, relatively deep river systems. This study can be repeated when decommissioning is complete, to verify if the project has had an impact. CNL is planning to regularly monitor the Ottawa River water quality before the project begins. CNL is willing to discuss fish tissue sampling with the AOO and review past studies of fish tissue in the NPD area. A very small amount of mercury remains in the NPD facility (estimated to be less than 0.01 kg from past leaks of instruments like thermometers). Because mercury is detected in the facility sump liquid, it is one of the parameters that will be monitored in groundwater and surface water. Regarding AOO's requests for annual vegetation monitoring to confirm the contamination pathway around the grouted facility, and annual monitoring of sediment and benthic macroinvertebrates immediately offshore of NPD, CNL believes that the planned monitoring is sufficient, i.e. monitoring vegetation around groundwater monitoring wells only if there is an unexpected result in groundwater monitoring, and undertaking sediment monitoring if there is an unexpected result in either groundwater or surface water monitoring. CNL has committed to involving Indigenous Nations, communities and organizations in its environmental monitoring programs and to hosting workshops in spring 2022 to further discuss draft follow-up monitoring plans.	Where is this topic discussed in the EIS? The follow up monitoring program is described at a high level in **Section 12** of the EIS. What changes have been made (and where)? Changes have been made to **Section 12** of the EIS to include significant details from the three draft follow-up monitoring plans for effluent, environment and groundwater developed since the 2017 EIS. The benthos and fish habitat survey is important baseline data for the follow-up monitoring program. The results of this study have been incorporated into **Section 8.3** and **Section 8.4** of the EIS. The results reinforce the baseline presented for both the surface water and aquatic environments.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that they have substantially addressed this concern in their response to EIS comments and by revisions to the EIS. Next Steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-5 – Participation in monitoring and sharing of results CNL is committed to involve all interested Indigenous Nations, communities and organizations in the NPD Closure Project Follow-up Monitoring Program. On an annual basis, CNL and AOO will review together environmental monitoring results from the NPD site. CNL can share results with the AOO annually through to the end of the Institutional Control period. AOO-1 – Socio-Economic Considerations, Monitoring and Mitigations Provide capacity to the AOO to undertake a socio-economic study with results captured in a subsequent revision of the Indigenous Engagement Report. Study recommendations will be implemented in CNL's project plans after collaborative review by CNL and the AOO. CNL and AOO will identify opportunities to improve CNL's monitoring and mitigations to ensure traditional knowledge is incorporated and that interdependencies between ecological, socio-economic, community and cultural health are recognized. CNL is committed to continuing the Working Group with AOO. It is understood that work progressed through the Working Group may lead to refinements of commitments in the future.

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11. Monitoring	(d) Monitoring Plan design and implementation and communication of changes. As long-term stewards and users of the land, itis important to the AOO to be actively involved in oversight of the NPD area. This is a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to recommendations from the AKLUS, and the AOO comments on draft follow-up monitoring plans. CNL has committed to involving Indigenous Nations, communities and organizations in its environmental monitoring programs and Working Group discussion is planned for summer 2023 to hear additional feedback on the draft follow-up monitoring plans. CNL is open to discussing with the AOO the preferred ways of AOO involvement in monitoring plan design, implementation and communication of changes. CNL Response: Follow-up monitoring for the NPD Closure Project will include monitoring of environmental components critical to the AOO. There is no long-term effluent monitoring at NPD that will require the use of DRLs. Once the project enters the Institutional Controls phase, the only effluents are minor releases from maintenance activities, and DRLs are no longer used. Doses to receptors during the Post-Institutional Controls phase are assessed in the PostSA TSD. The PostSA TSD also assesses dose to an Indigenous receptor group. The assessment demonstrates that the impact on the public, Indigenous and the environment is negligible. CNL is committed to sharing the results of annual follow up monitoring with the AOO and communicating the changes to the program resulting from adaptive management throughout the monitoring period.	Where is this topic discussed in the EIS? The follow up monitoring program is described at a high level in **Section 12** of the EIS. What changes have been made (and where)? • CNL has committed to updating the draft follow-up monitoring plans based on AOO feedback to provide clarity that mitigation measures will be implemented in the event of an exceedance. • The draft follow-up monitoring plans remain draft and CNL is seeking feedback from all Indigenous Nations, communities and organizations and the public. These plans will not be finalized until the CNSC renders a decision for the project.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that this concern has been partially addressed through its response to specific comments on this topic received from AOO. Next Steps CNL and AOO have established the following commitments which will help to address this concern: AOO-5 – Participation in monitoring and sharing of results CNL is committed to involve all interested Indigenous Nations, communities and organizations in the NPD Closure Project Follow-up Monitoring Program. On an annual basis, CNL and AOO will review together environmental monitoring results from the NPD site. CNL can share results with the AOO annually through to the end of the Institutional Control period. AOO-1 – Socio-Economic Considerations, Monitoring and Mitigations Provide capacity to the AOO to undertake a socio-economic study with results captured in a subsequent revision of the Indigenous Engagement Report. Study recommendations will be implemented in CNL's project plans after collaborative review by CNL and the AOO. CNL and AOO will identify opportunities to improve CNL's monitoring and mitigations to ensure traditional knowledge is incorporated and that interdependencies between ecological, socio-economic, community and cultural health are recognized. CNL is committed to continuing the Working Group with AOO. It is understood that work progressed through the Working Group may lead to refinements of commitments in the future.

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12. Protection of the Ottawa River	(a) Contamination in the Ottawa River and the environment. As stewards of the lands and waters, it is important to the AOO that the environment, including flora and fauna are protected. AOO expressed that the protection of the Ottawa River is of extremely high priority to AOO. This is a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to recommendations from the AKLUS, and the AOO comments on draft follow-up monitoring plans. In 2018, CNL ceased the practice of discharging liquid effluent from the facility sumps to the Ottawa River in response to public and Indigenous concerns and arranged instead for water to be sent to the Waste Treatment Centre at the CRL site. CNL has committed to involving Indigenous Nations, communities and organizations in its environmental monitoring programs and to hosting workshops in spring 2022 to gather feedback on the draft follow-up monitoring plans. CNL Response: The potential for contamination to reach the Ottawa river is assessed in the EIS and is supported by long term modelling and detailed groundwater modelling. The EIS predicts no effects to surface water (including the Ottawa river) and follow up monitoring will be implemented to confirm these predictions. CNL has added information to the EIS about the washout pit and historic water discharges from the wells area sump. Monitoring results capture the effects of historic activities. Groundwater modelling was conducted for the NPD site. The PostSA TSD incorporates the results of groundwater modelling and, where necessary, uses conservative assumptions, (e.g., the tile drains remain functional and serve as a faster pathway to the Ottawa River), and considers the tile drains to have failed (so that the facility resaturates more quickly). The PostSA TSD concludes that no residual effects are expected from potential contaminant migration in groundwater. The tile drain system is expected to fail at some point during the Institutional Controls phase.	Where is this topic discussed in the EIS? The follow-up monitoring program is described at a high level in **Section 12** of the EIS. **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment, including the Ottawa River. The EIS does not predict any adverse residual effects on the surface water environment (encompassing the Ottawa River) (**Section 9.3.3.5**). Groundwater modelling has been conducted in the Groundwater Modelling TSD. What changes have been made (and where)? Changes have been made to **Section 12** to include significant details from the 3 draft follow-up monitoring plans for effluent, environment and groundwater developed since the 2017 EIS. Mitigation measures for the protection of surface water, including the Ottawa River, in **Section 9.3.3.2** have been updated and expanded. Based on AOO feedback, the project scope (**Section 4.3.1.3**) has been clarified with improved definition of requirements for the washout pit. CNL has also provided additional explanation in **Section 8.3.3** to clarify the history and basis for monitoring of the wells area sump. CNL will review data from facility characterization activities that were completed after the draft Follow-up Effluent Monitoring Plan was prepared. CNL will ensure that the draft Follow-up Effluent Monitoring Plan takes into consideration all radionuclides that may be released from demolition of the reactor building.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that they have addressed this concern in their response to EIS comments and by revisions to the EIS. Next Steps CNL and AOO have established the following commitments which will help to address this concern: AOO-10 – Ongoing Collaboration CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities). Future dialogue may include dedicated discussions with SMEs on the importance of water. AOO-1 – Socio-Economic Considerations, Monitoring and Mitigations Provide capacity to the AOO to undertake a socio-economic study with results captured in a subsequent revision of the Indigenous Engagement Report. Study recommendations will be implemented in CNL's project plans after collaborative review by CNL and the AOO. CNL and AOO will identify opportunities to improve CNL's monitoring and mitigations to ensure traditional knowledge is incorporated and that interdependencies between ecological, socio-economic, community and cultural health are recognized.
13. Protection of Flora and Fauna	(a) Potential impacts to habitat and biota, and related follow-up program elements. As stewards of the lands and waters, it is important to the AOO that the environment around the site of the NPD Closure Project including flora and fauna, are protected, and that the rights and interests of AOO members are upheld in relation to the environment (i.e., hunting, trapping, gathering, fishing and cultural ceremonies). This is a project-specific concern.	CNL has completed additional site characterization since issuing the 2017 draft EIS. CNL undertook baseline studies of benthic macroinvertebrate, sediment quality and water quality in the Ottawa River in the summer of 2020. Samples were taken upstream, downstream and adjacent to the NPD facility. CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to recommendations from the AKLUS, and the AOO comments on draft follow-up monitoring plans. CNL has included the AOO VC species in the EIS	Where is this topic discussed in the EIS? The follow up monitoring program is described at a high level in **Section 12** of the EIS. CNL has indicated that it is willing to involve the AOO in its monitoring programs (**Section 6.2.4.2.3**). **Section 6.3** of the EIS discusses VCs identified by Indigenous Nations, communities and organizations and shows how they are included or represented in the EIS.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that they have addressed this concern in their response to EIS comments and by revisions to the EIS. Next Steps CNL and AOO have established the following commitments which will help to address this concern:

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		CNL Response: As shown in the EIS, there are no adverse impacts from the project on the Ottawa River or to any fish, birds, wildlife or plants within the terrestrial, riparian and aquatic ecosystems. Monitoring results capture the effects of historic release of radionuclides. CNL will follow Environment and Climate Change Canada guidance for the protection of migratory birds and their habitat. CNL will undertake continuous air monitoring to ensure that the wetlands are protected. The EIS demonstrates that there are no predicted adverse impacts from the project on the Ottawa River shoreline or onto any fish, wildlife or plants. Follow-up monitoring for the NPD Closure Project will include monitoring of environmental components that the AOO has identified as important. At the project level, follow-up monitoring for the NPD Closure Project will include monitoring of environmental components critical to the AOO.	What changes have been made (and where)? The EIS was updated with significant details developed compared to the 2017 draft EIS. These details come through the development of the 3 draft follow-up monitoring plans for effluent, environment and groundwater. Changes have been made to **Section 4.3.1.2** to include the preferred location for the batch plant, which is not predicted to have any effect on terrestrial vegetation or wetland areas, as the area was previously disturbed and is well away from wetlands.	AOO-4 – Site visit ad survey work Provide an opportunity to and support pre-decommissioning site visit(s). Provide capacity for a baseline plant inventory survey. AOO-5 – Participation in monitoring and sharing of results CNL is committed to involve all interested Indigenous Nations, communities and organizations in the NPD Closure Project Follow-up Monitoring Program. On an annual basis, CNL and AOO will review together environmental monitoring results from the NPD site. CNL can share results with the AOO annually through to the end of the Institutional Control period. AOO-10 – Ongoing Collaboration CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities).
13. Protection of Flora and Fauna	(b) Species at Risk. AOO expressed the importance of flora and fauna to their communities, culture and Aboriginal Rights and Title. This is a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to recommendations from the AKLUS. In 2019, 2020, 2021 and 2023, Indigenous Nations, communities and organizations and the public were invited to participate in the National Chimney Swift Roost Counts. CNL Response: Impacts to Species at Risk (SAR) are assessed using the SAR VCs selected. Lake sturgeon, listed as Threatened under COSEWIC, is included as a VC and is assessed in Section 9.4.3. The American eel is represented as a benthic fish receptor in the Ecological Risk Assessment (EcoRA) TSD. In the EcoRA TSD, additional protective measures were applied, such as adding an extra safety factor to the radiological benchmarks for SAR species and selecting chemical benchmarks protective at the individual level. CNL has developed a number of mitigation measures to ensure the protection of biota, including SARs. Some of the planned measures are specific to the protection of specific SARs, such as chimney swifts and bald eagles.	Where is this topic discussed in the EIS? Potential impacts to SAR are assessed using the SAR VCs selected in the EIS, which include the bald eagle (**Section 9.6.3**). Lake sturgeon, listed as Threatened under COSEWIC, is included as a VC and is assessed in **Section 9.4.3**. What changes have been made (and where)? CNL has included additional mitigation measures related to migratory birds and avian and herpetofauna species at risk in **Section 9.6.3.2** of the EIS	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that they have addressed this concern in their response to EIS comments and by revisions to the EIS. Next Steps CNL and AOO have established the following commitments which will help to address this concern: AOO-4 – Site visit ad survey work Provide an opportunity to and support pre-decommissioning site visit(s). Provide capacity for a baseline plant inventory survey. AOO-5 – Participation in monitoring and sharing of results CNL is committed to involve all interested Indigenous Nations, communities and organizations in the NPD Closure Project Follow-up Monitoring Program.

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				On an annual basis, CNL and AOO will review together environmental monitoring results from the NPD site. CNL can share results with the AOO annually through to the end of the Institutional Control period. AOO-10 – Ongoing Collaboration CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities).
14. Socio-economic	(a) Lack of assessment of Indigenous socio-economic conditions and effects. The AOO consider this information and assessment necessary in order to understand the extent of the socio-economic conditions of AOO communities' socio-economic and how those may be influenced by NPD Closure Project activities. This is a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment. CNL has revised the EIS to include Indigenous socio-economic and well-being receptors, assess project interactions, describe current Indigenous socio-economic and well-being conditions (based on information provided by the AOO and other Indigenous Nations, communities and organizations) and assess the potential impacts of the project on Indigenous socio-economics and health, including nuisance effects. Mitigation measures, monitoring and follow-up activities are also discussed. CNL provided AOO with digital access to the EIS, which includes a new section on Aboriginal health and socio-economic factors. CNL has also offered support to the AOO to complete a socio-economic study. Results to be available late in 2023. <u>CNL Response:</u> CNL has acknowledged this gap and revised the EIS and Indigenous Engagement Report (IER) to include sections on Indigenous socio-economics and health. These sections aim to include the interests of Indigenous Nations, communities and organizations, such as the AOO, in the consideration of the potential impacts of the NPD Closure Project. The EIS and IER conclude that there are no adverse residual effects predicted to the Indigenous Socio-economic environment.	<u>Where is this topic discussed in the EIS?</u> **Sections 8.10 and 9.10** of have been added to the EIS to focus on Indigenous Socio-economic and Health and introduce specific Indigenous receptors. **Section 8.10** summarizes current conditions, and **Section 9.10** assesses potential effects. **Section 10.3** of the EIS describes mitigation measures to minimize effects to Indigenous socio-economic conditions and health, including outlining the process to be followed in the event of discovering previously undocumented archaeological resources, limiting off-site transportation to Highway 17 and site roads, limiting construction activities to between 7 a.m. and 7 p.m. wherever possible, etc. <u>What changes have been made (and where)?</u> CNL added **Sections 8.10 and 9.10** (discussed above) to the EIS as a result of these comments. Changes have been made to **Section 5.2.4** (Valued Components) to reflect the new environmental components, sub-categories and receptors. Changes have been made to **Section 10.3** to include mitigation measures for the new Indigenous socio-economic and health receptors. CNL also added new sections to the IER to cover Indigenous socio-economic and health factors and to include the new Indigenous receptors.	<u>Status:</u> Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes this concern will be substantially addressed by completion of the socio-economic study and review of study results as they pertain to potential impacts from the project. <u>Next steps:</u> CNL and AOO have established the following commitments which will help to address this concern: AOO-1 – Socio-Economic Considerations, Monitoring and Mitigations Provide capacity to the AOO to undertake a socio-economic study with results captured in a subsequent revision of the Indigenous Engagement Report. Study recommendations will be implemented in CNL's project plans after collaborative review by CNL and the AOO. CNL and AOO will identify opportunities to improve CNL's monitoring and mitigations to ensure traditional knowledge is incorporated and that interdependencies between ecological, socio-economic, community and cultural health are recognized.
14. Socio-economic	(b) The EIS is missing some key Indigenous socio-economic and well-being components (VCs) and interactions. It is important to the AOO that all potential interactions and impacts be considered in order to fully evaluate the effects of the project on AOO citizens.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL has revised the EIS to include consideration of potential interactions of the project with numerous Indigenous well-being and health components, such as population and demographics, economy and employment, housing	<u>Where is this topic discussed in the EIS?</u> **Section 5.2.2** of the EIS shows the revised Interactions Matrix, which includes the new Indigenous socio-economic and well-being receptors. **Section 5.2.4** of the EIS describes the new Indigenous socio-economic and well-being compartments and VCs.	<u>Status:</u> Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes this concern will be substantially addressed by completion of the socio-economic study

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA Process	Status of the Concern
	This is a project-specific concern.	and infrastructure, Indigenous resident use and enjoyment of property, decision-making, the health of members of the public, and worker receptors. With the addition of these new interactions, CNL can assess the effects of the project on components that are important to AOO and other Indigenous Nations, communities and organizations. CNL provided AOO with digital access to the EIS, which includes a new section on Aboriginal health and socio-economic factors. CNL has also offered support to the AOO to complete a socio-economic study. Results to be available late in 2023. CNL Response: CNL has acknowledged this gap and revised the EIS and IER to include specific consideration of project interactions with Indigenous socio-economics and health. To address the gap, CNL has now included Indigenous socio-economic and Indigenous health environmental compartments and carrying them through the interactions matrix, description of current conditions, and evaluation of effects.	**Sections 8.10 and 9.10** of the EIS have been added to focus on Indigenous socio-economic and Health, including introduction of specific Indigenous receptors. **Section 8.10** summarizes current conditions, and **Section 9.10** assesses potential effects. **Section 10.3** of the EIS presents mitigation measures to minimize effects to Indigenous socio-economic conditions and health. What changes have been made (and where)? CNL revised the interactions matrix (**Section 5.2.2 of the EIS**) to include the new Indigenous socio-economic and well-being receptors. Changes have been made to **Section 5.2.4** (Valued Components) to reflect the new environmental components, sub-categories and receptors. CNL added **Sections 8.10 and 9.10** (discussed above) to the EIS as a result of these comments. Changes have been made to **Section 10.3** to include mitigation measures for the new Indigenous socio-economic and health receptors. CNL also added new sections to the IER to cover Indigenous socio-economic and health factors and include the new Indigenous receptors.	and review of study results to assess gaps in the VCs selected to assess impacts to socio-economics. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-1 – Socio-Economic Considerations, Monitoring and Mitigations Provide capacity to the AOO to undertake a socio-economic study with results captured in a subsequent revision of the Indigenous Engagement Report. Study recommendations will be implemented in CNL's project plans after collaborative review by CNL and the AOO. CNL and AOO will identify opportunities to improve CNL's monitoring and mitigations to ensure traditional knowledge is incorporated and that interdependencies between ecological, socio-economic, community and cultural health are recognized.
14. Socio-economic	(c) Lack of plans for monitoring of socio-economic effects, accommodations and compensation. It is important to the AOO that CNL work with its members to develop a plan for monitoring socio-economic effects of the project, to ensure that potential negative effects are minimized and that positive effects are fully realized. AOO believes that plans are needed for AOO citizens to be adequately accommodated and compensated for any impacts experienced as a result of the project. This is both a site-wide and a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses. AOO, AECL and CNL have signed a tri-partite MOU to support the negotiation of an LTRA. One of the areas of mutual interest and concern is environmental and cultural heritage monitoring programs, including joint monitoring, to ensure that the environment is adequately protected and the rights and interests of the AOO are upheld. CNL Response: CNL is of the opinion it has assessed accurately all of the pathways associated with the NPD Closure Project, compliant with *CEAA* (2012). The EIS did not predict effects to socio-economic VCs. Therefore, no specific Indigenous socio-economic monitoring activities, compensation, or accommodations have been identified. Monitoring in other environmental components will confirm the EIS predictions (i.e., that no effects are expected in the Indigenous socio-economic environment). CNL is open to discussing socio-economic monitoring measures during construction activities with the AOO and other Indigenous Nations, communities and organizations. CNL is committed to working with the AOO to identify barriers for accessing economic opportunities from the project, mitigation of those barriers and ways	Where is this topic discussed in the EIS? **Section 6.2.4.2** of the EIS presents information on the work to progress developing an LTRA. **Sections 8.10 and 9.10** of the EIS have been added to focus on Indigenous socio-economic conditions, including economy and employment. **Section 8.10** summarizes current economic and employment conditions, and **Section 9.10** assesses potential effects and discusses CNL's plan to fully realize the potential for economic and employment benefits to Indigenous Nations, communities and organizations. What changes have been made (and where)? No changes were made to the EIS in response to this concern.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-9 – Economic Participation and Benefit CNL is committed to improved economic participation and benefits for Indigenous Peoples from its projects. CNL recognizes that there is an opportunity to improve in this area. CNL will continue working with the AO to improve systems that support economic participation and benefits. CNL will review together with AOO the scope and activities for the NPD project and share contracting and employment opportunities. AOO-10 – Ongoing Collaboration

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA Process	Status of the Concern
		to monitor the degree to which Algonquins are able to take advantage of benefits of the project.		CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities). This topic may also be addressed through a future LTRA to enable AOO's involvement in employment and procurement opportunities.
14. Socio-economic	(d) The EIS does not discuss employment or procurement opportunities for the AOO. It is important to the AOO to understand the way in which CNL plans to engage the AOO in developing employment and procurement opportunities for the proposed project. This is both a site-wide and project-specific concern.	CNL has revised the EIS to include consideration of Indigenous economic and employment opportunities as part of the new assessment of Indigenous socio-economics. AOO, AECL and CNL have signed a tri-partite MOU to support the negotiation of an LTRA. The areas of mutual interest and concern include: contracting opportunities, employment considerations and economic impact awareness. CNL has been working with Indigenous Nations, communities and organizations on facilitating such economic and contracting opportunities. CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL Response: CNL has provided information to AOO on the processes involved in Indigenous employment and procurement for the project. CNL is committed to improved economic participation and benefits for Indigenous Peoples from its projects. CNL recognizes that there is an opportunity to improve in this area and has developed an Indigenous Procurement Strategy.	Where is this topic discussed in the EIS? **Section 5.2.4** of the EIS describes the new Indigenous socio-economic VCs, which include Indigenous economy and employment. **Section 6.2.4.2** of the EIS describes the work to progress towards an LTRA. **Sections 8.10 and 9.10** of the EIS have been added to focus on Indigenous socio-economic conditions, including economy and employment. **Section 8.10** summarizes current economic and employment conditions, and **Section 9.10** assesses potential effects and discusses CNL's plan to fully realize the potential for economic and employment benefits to Indigenous Nations, communities and organizations. CNL will proactively seek, engage, and support discussion on issues and opportunities. What changes have been made (and where)? Changes have been made to **Section 5.2.4** (Valued Components) to include economy and employment as a VC under the new Indigenous socio-economic compartment. CNL added **Sections 8.10 and 9.10** (discussed above) to the EIS as a result of these comments.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that they have addressed this concern, with revisions to the EIS and recent work to develop an Indigenous Relations Procurement Strategy. It is noted that employment or procurement opportunities extend beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-9 – Economic Participation and Benefit CNL is committed to improved economic participation and benefits for Indigenous Peoples from its projects. CNL recognizes that there is an opportunity to improve in this area. CNL will continue working with the AO to improve systems that support economic participation and benefits. CNL will review together with AOO the scope and activities for the NPD project and share contracting and employment opportunities. AOO-10 – Ongoing Collaboration CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities). This topic may also be addressed through a future LTRA to enable AOO's involvement in employment and procurement opportunities.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA Process	Status of the Concern
15. Technical	(a) Derived Release Limits (DRLs). It is important to AOO to review the DRLs to ensure they comply with relevant standards and that the critical group reflects the Algonquin lifestyle. This is a site-wide concern.	CNL has responded in writing to AOO comments on the topic of DRLs. <u>CNL Response:</u> There is no long-term effluent monitoring at NPD that will require the use of DRLs. Once the project enters the Institutional Controls phase, the only effluents are minor releases from maintenance activities, and DRLs are no longer used. Doses to receptors during the Post-Institutional Controls phase are assessed in the PostSA TSD. The PostSA TSD also assesses dose to an Indigenous receptor group. The assessment demonstrates that the impact on the public, Indigenous and the environment is negligible.	<u>Where is this topic discussed in the EIS?</u> The DRL report is beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project. <u>What changes have been made (and where)?</u> The DRL report is not part of the scope of the EA submission, and no changes were made.	<u>Status:</u> Resolved. Although the DRL Report extends beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project. CNL is following up on this issue with the AOO. <u>Next Steps</u> CNL and AOO will review together the technical topic responses and identify any remaining gaps. Resolution of any gaps identified will be a topic of a dedicated discussion at the Working Group level.
	(b) Emissions and discharges. It is important to the AOO that emissions in the atmospheric environment of contaminants are properly assessed and are mitigated and monitored as appropriate. This is a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses. In 2018, CNL ceased the practice of discharging liquid effluent from the facility sumps to the Ottawa River in response to public and Indigenous concerns and arranged instead for water to be sent to the Waste Treatment Centre at the CRL site. <u>CNL Response:</u> The EIS describes noise and dust mitigation measures, and monitoring is planned as part of the EA follow-up monitoring. Air releases of substances that will not be removed from the facility prior to decommissioning are assessed in the DecomSA TSD and are below relevant criteria. The EIS does not predict any adverse residual effects on the aquatic or terrestrial environment as a result of potential emissions during the NPD Closure Project.	<u>Where is this topic discussed in the EIS?</u> **Section 9.2.3** of the EIS provides the mitigation measures and monitoring for dust and noise; the draft follow-up monitoring plans provide details for monitoring of hazardous substances during decommissioning activities that may make them airborne. **Section 4.3.1.2** of the EIS includes the preferred location for the batch plant, which is not predicted to have any effect on terrestrial vegetation or wetland areas, as the area was previously disturbed and is well away from wetlands. Air releases are assessed in **Sections 8.5.2.1** and **8.6.1** of the DecomSA TSD. **Section 9.2.3** of the EIS provides the mitigation measures and monitoring for dust and noise. The EIS does not predict any adverse residual effects on the aquatic (**Section 9.4.3.3**) or terrestrial environment (**Section 9.6.3.3**) as a result of potential emissions during the NPD Closure Project. The PostSA TSD includes dispersion modelling for groundwater discharge in the Ottawa River <u>What changes have been made (and where)?</u> The EIS was updated to include additional information about PCBs removal. Changes have been made to **Section 12** to include significant details from the 3 draft follow-up monitoring plans for effluent, environment and groundwater developed since the 2017 EIS, including monitoring of hazardous substances.	<u>Status:</u> Resolved. CNL believes that they have addressed this concern, with revisions to the EIS. <u>Next steps:</u> CNL and AOO will review together the technical topic responses and identify any remaining gaps. Resolution of any gaps identified will be a topic of a dedicated discussion at the Working Group level.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA Process	Status of the Concern
15. Technical	(c) Technical suitability of cement and batch plant construction details. It is important to the AOO that the cement used for the project is appropriate and scientifically defensible. It is also important to understand the locations of project activities so that potential effects on terrestrial vegetation and wetlands are properly assessed. This is a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL Response: Comparing Roman concrete and the grout to be used in the NPD facility (a mixture of blast furnace slag, Portland cement, and sand), shows the similarities between both materials. The NPD grout fill will be 90% blast furnace slag, which is a pozzolanic material similar to the volcanic ash used in Roman cements. Due to the depth below surface, the grouted facility will also not experience freeze-thaw cycles and will be at a relatively constant ground temperature. The natural cements have also been exposed to a wide range of climate conditions over millions of years, which encompasses multiple periods of climate change and the effects of continental drift. The project has prepared a Cementitious Materials Synthesis Report that provides additional technical information and research supporting the performance of the concrete to understand how it will behave. The PostSA accounts for the degradation of concrete over time, and the PostSA results show that doses to receptors are below regulatory criteria, and that the NPD Closure Project is safe in the short-term and the long-term. The preferred location for the batch plant is not predicted to have any effect on terrestrial vegetation or wetland areas, as the area was previously disturbed and is well away from wetlands.	Where is this topic discussed in the EIS? Natural analogues are discussed in **Section 4.1.2** of the EIS. Batch plant construction details are discussed in **Section 4.3.1.2** of the EIS. What changes have been made (and where)? In response to comments from the AOO and others, the EIS now includes an updated discussion of natural analogues (**Section 4.1.2**), including cement, and their relevance to the project. The preferred location for the batch plant was added to **Section 4.3.1.2** of the EIS. This location is not predicted to have any effect on terrestrial vegetation or wetland areas, as the area was previously disturbed and is well away from wetlands.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that they have addressed this concern, with revisions to the EIS. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-7 – Details of the Batch Plant CNL is committed to providing the construction details for the batch plant wash-out pit to the AOO once they are available and will review together with AOO to understand any concerns. CNL and AOO will review together the technical topic responses and identify any remaining gaps. Resolution of any gaps identified will be a topic of a dedicated discussion at the Working Group level.
	(d) Ecological Risk Assessment methodology and revisions. As stewards of lands and waters, it is important to the AOO that the environment, wildlife, and plants are protected. This is a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL Response: The EcoRA has been revised to incorporate the latest results from the safety assessments and to report doses to non-human biota. To compensate for the lack of dose coefficients for these radionuclides, a conservative approach was taken in the revised EcoRA TSD where the lowest No Effect Concentrations were used as the screening criteria. The concentrations of these radionuclides in all environmental media for all credible PostSA scenarios were below the No Effect Concentrations.	Where is this topic discussed in the EIS? The EIS uses the results of the EcoRA in the assessment of exposure-related effects (both radiological and non-radiological) to biota in the aquatic and terrestrial environmental components (**Sections 9.4** and **9.6**) What changes have been made (and where)? The EcoRA has been revised to directly incorporate the latest results from the safety assessments and to report doses to non-human biota in the main EcoRA report. Table 2.16 has been removed from the EcoRA, however, the risk to non-human biota from a flood is still discussed.	Status: Resolved. CNL believes that they have addressed this concern, with revisions to the EIS. Next steps: CNL and AOO will review together the technical topic responses and identify any remaining gaps. Resolution of any gaps identified will be a topic of a dedicated discussion at the Working Group level.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA Process	Status of the Concern
15. Technical	(e) Terrestrial Study Area Rationale It is important to the AOO that the rationale for selecting the terrestrial Regional Study Area is clearly provided, as the baseline description of the terrestrial environment is critical for understanding the current state of VCs and evaluating the project-related effects. This is a project-specific concern.	CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to recommendations from the AKLUS, and the AOO comments on draft follow-up monitoring plans. CNL Response: The intent of the Regional Study Area is to capture the area within which the potential effects of the NPD Closure Project may interact with the effects of other projects, resulting in the potential for cumulative effects. Specifically, the terrestrial Regional Study Area was established to capture areas where other projects may take place (e.g., the des Joachims dam at Rolphton Ontario and the Chalk River Laboratories site), in order to assess any cumulative effects from projects at those sites.	Where is this topic discussed in the EIS? **Section 8.6.1** presents the spatial boundaries selected by CNL to assess potential effects to the terrestrial environment. What changes have been made (and where)? Changes have been made to **Section 8.6.1** to include additional rationale for the selection of the terrestrial Regional Study Area.	Status: Resolved. CNL believes that they have addressed this concern, with revisions to the EIS. Next steps: CNL and AOO will review together the technical topic responses and identify any remaining gaps. Resolution of any gaps identified will be a topic of a dedicated discussion at the Working Group level.
16. Valued Components	(a) Engagement, input and participation in VC selection. It is important to the AOO that CNL provide opportunities for meaningful engagement on VCs to ensure that the VCs incorporate species important to traditional users of the land. This is a project-specific concern.	CNL has engaged with the AOO by seeking input on VCs, providing funds to support the AKLUS, incorporating additional VCs in the EIS, sharing the update with the AOO and requesting feedback on it. CNL has sent two targeted letters asking specific questions of the AOO to align with the requirements of *CEAA* (2012) Section 5(1)(c). These questions included: • Do you have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects? • Does [the AOO], or any members, have sites of ceremonial significance in close proximity [of NPD], or more generally, any cultural activities near [the NPD site]? CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to recommendations from the AKLUS. At the request of AOO, CNL has prepared a summary table that maps AOO VCs to those VCs used in CNL's assessment. This table also shows how the project is protective of each VC, whether any potential impacts have been identified and how CNL will monitor to confirm those VCs remain protected. CNL Response: The EIS outlines how Indigenous engagement and input has influenced the VCs used in the assessment. CNL added VCs to the EIS in response to AOO feedback (see row below). CNL has and continues to engage with the AOO on resolving interests and concerns related to VCs and on developing project commitments.	Where is this topic discussed in the EIS? The EIS now includes a section on Indigenous engagement related to VC selection (**Section 6.3.1.1**) What changes have been made (and where)? The EIS update includes additional detail on the VC-related engagement process and how Indigenous interests have been incorporated into the VCs selected for the NPD Closure Project.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that they have addressed this concern, with revisions to the EIS and the VC mapping exercise. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-6 – Valued Components CNL will continue to engage with the AOO on the topic of Valued Components (VCs) as long as there is interest from the AOO. At the AOO's request, CNL has shared a VC mapping table that provides the intersection of VCs identified through the AOO AKLUS with the VC's used in CNL's assessment. AOO-10 – Ongoing Collaboration CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities).

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA Process	Status of the Concern
16. Valued Components	(b) Concerns regarding the limited VCs selected for the NPD Closure Project and recommendations for VCs to be included. This topic is of interest to the AOO because these species are features of particular importance to the AOO. This is a project-specific concern.	CNL has sent two targeted letters asking specific questions of the AOO to align with the requirements of *CEAA* (2012) Section 5(1)(c). These questions included: • Do you have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects? • Does [the AOO], or any members, have sites of ceremonial significance in close proximity [of NPD], or more generally, any cultural activities near [the NPD site]? CNL has included VCs from Indigenous feedback in **Section 6.3.2** of the EIS – specifically in **Tables 6.3-1(a) and 6.3-2**; VCs identified by AOO through the AKLUS are listed and where necessary mapped to representative species to show how they are considered in CNL's assessment. CNL has responded in writing to AOO comments on this topic, citing relevant sections of the EIS as part of the comment responses and has also responded in writing to recommendations from the AKLUS. At the request of AOO, CNL has prepared a summary table that maps AOO VCs to those VCs used in CNL's assessment. This table also shows how the project is protective of each VC, whether any potential impacts have been identified and how CNL will monitor to confirm those VCs remain protected. CNL Response: CNL considers all of the VCs identified by AOO. Some VCs are considered directly (i.e., either added to, or already in, the EIS), and some are considered via representative species. CNL also considers the features identified by AOO in their AKLUS. The EIS assesses effects to these VCs and no impacts are predicted.	Where is this topic discussed in the EIS? The EIS includes expanded description of traditional uses in **Section 8.9**. **Section 9.9** describes the VCs related to Traditional Land Use. **Section 9.6.3.2** describes the mitigation, monitoring and follow up activities for the Terrestrial Environment VCs. **Tables 6.3-1** and **6.3-2** of the EIS highlight how VCs identified by AOO are represented by the species that are evaluated in the NPD EIS. What changes have been made (and where)? The EIS was updated to show how the VCs identified by the AOO are included or represented by species that are evaluated in the NPD EIS. Some VCs are considered directly (i.e., either added to or already in the EIS), and some are considered via representative species. The EIS was updated to include an expanded description of traditional uses and to describe the VCs related to Traditional Land Use, including the rationale, mitigation, monitoring and follow-up activities related to the Traditional Land Use VCs. CNL added new sections and VCs for the Indigenous socio-economic environment.	Status: Ongoing See Note at the top of this table – the Working Group want this to be recognized as a positive descriptor of status. CNL believes that they have addressed this concern, with revisions to the EIS and VC mapping exercise. Next steps: CNL and AOO have established the following commitments which will help to address this concern: AOO-6 – Valued Components CNL will continue to engage with the AOO on the topic of Valued Components (VCs) as long as there is interest from the AOO. At the AOO's request, CNL has shared a VC mapping table that provides the intersection of VCs identified through the AOO AKLUS with the VC's used in CNL's assessment. AOO-10 – Ongoing Collaboration CNL is committed to continuing the Working Group with AOO to promote continued open communication, information sharing and education including collaborating on the development of communications and engagement material for various audiences (e.g., AOO staff, ANRs and specific communities).

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Appendix C.2 – Record of Engagement and Tables of Interests and Concerns for the Algonquins of Pikwàkanagàn First Nation (AOPFN)

This Appendix provides a complete record of all engagement between CNL and AOPFN from June 2015 to March 2024 (Table C-4). Table C-4 includes the date and method of the communication/engagement, the topics discussed and participants. The table also highlights engagements where key EA topics were discussed. The key EA topics align with "Generic Guidelines for Preparation of an Environmental Impact Statement Pursuant to the *Canadian Environmental Assessment Act*, 2012" as well as the requirements of REGDOC 3.2.2 "Indigenous Engagement" and guidance specific to NPD provided by the CNSC in January 2021 (e-doc # 6467843).

Following the record of engagement is a mapping of how the summary of interests and concerns were compiled (Table C-5), as well as a summary of interests and concerns raised by AOPFN (Table C-6).

Section 6.2.4.3.1 of the EIS summarizes the engagement activities that have taken place to date between CNL and the AOPFN.

Table C-4 Record of Engagement with Algonquins of Pikwàkanagàn First Nation (AOPFN)

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
December 01, 2015 Meeting	This meeting between AOPFN representatives (including the Chief, five councillors and AOPFN staff members) and CNL representatives (including the CEO, the Vice-President of Human Resources, the General Manager of Health, Safety, Security and Environment, the Vice President of Corporate Affairs, the Vice President of Decommissioning and Waste Management, the Director of the proposed NSDF, and Corporate Communications staff) was held at the CRL site and the NPD Closure Project was introduced within the context of a larger vision of the new contractor company. The meeting agenda included: • Welcome and Introductions; • CNL Vision 2026; • AOPFN Overview; • CNL Human Resources Overview; • Site tour.										√
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the AOPFN Chief introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5(1)(c), the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* • *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
December 22, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the AOPFN Chief inquired about asserted rights and traditional activities in the region around CRL. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested a better understanding of AOPFN's historic and/or modern day use of lands in and/or near both of the projects and asked the following questions: • *Does the AOPFN have traditional territory or reserve lands near the NSDF and/or NPD Closure Project?* • *What is the history of the AOPFN using the areas around the two projects?* • *Do you have any members of the AOPFN that currently live in close or reasonable proximity to either of the projects?* • *Do you have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects?* • *Does the AOPFN, or any members, have sites of ceremonial significance in close proximity to either of the two sites, or more generally, any cultural activities near either of the two sites?* CNL also indicated interest in learning more about the AOPFN and any asserted rights, interests or activities members might undertake in the local or regional areas in proximity to the project.				√	√				√	√
January 10, 2017 Incoming letter	This letter from the AOPFN Chief to CNL's Director of Corporate Communications was advising CNL that the AOPFN were engaged in discussions with the federal government and advised CNL not to finalize any plans at this point.					√					√
November 15, 2017 Outgoing email	This email from a CNL communications officer to the AOPFN Chief enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and the environmental assessment, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	
November 17, 2017 Outgoing email	This email from a CNL communications officer to the AOPFN Chief enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: "CNL would be pleased to update information in this current draft with input from your community."	√	√	√	√	√	√	√	√	√	√
May 16, 2019 Outgoing email	This email from a CNL communications officer to the AOPFN Chief was an invitation to participate in the National Roost Monitoring Program at the NPD site for evening bird counts, on May 22, May 26, May 30, May 30 and June 03, to help monitor and understand Chimney Swift spring migration.										√
May 2019 Outgoing correspondence	This correspondence between the AOPFN representative on the ESC and a communications officer with CNL included the details of the June 20, 2019 ESC meeting.										√
June 12, 2019 Outgoing email	This email from a CNL communications officer to the AOPFN Chief was an invitation to an online webinar discussion on June 17, 2019 that focuses on how IAEA guidance is applied to the NPD Closure Project. A Q&A discussion followed.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 18, 2019 Outgoing email	This email from a CNL communications officer to the AOPFN Chief was an invitation to a bi-monthly breakfast briefing on June 26, 2019. The topic of discussion was Protecting the Chimney Swifts at NPD. A Q&A discussion followed.										√
July 25, 2019 Outgoing email	This email from a CNL communications officer to the AOPFN Chief was an invitation to NPD public open houses on August 1 and 8, 2019. These included the option of a chimney swift roost count viewing. The open houses provided an opportunity to talk about the project with CNL subject matter experts and access information on all aspects of the project and the environmental assessment.										√
July 2019 Outgoing correspondence	This correspondence between the AOPFN representative on the ESC and a communications officer with CNL included the details and invitation to the NPD Open Houses held at the facility on held on August 01, 2019 and August 08, 2019, which incorporated an Indigenous cultural ceremony led by an Indigenous CNL staff member.										√
September 11, 2019 Outgoing email	This email from a CNL communications officer to the AOPFN Chief was an invitation to the third Breakfast Briefing on September 18, 2019. The topic of discussion was NPD Engineering Challenges. A Q&A discussion followed.										√
September 24, 2019 Outgoing email	This email from a CNL communications officer to the AOPFN Chief was an invitation to an online webinar discussion on September 30, 2019. The topic was engineering challenges of the NPD Closure Project. A Q&A discussion followed.										√
September 2019 Outgoing correspondence	This correspondence between the AOPFN representative on the ESC and a communications officer with CNL included the details of the October 24, 2019 ESC meeting.										√
In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
March 06, 2020 Incoming letter	This letter from the AOPFN's Consultation Coordinator to CNL's Director of Corporate Communications was to invite the NPD Closure Project and NSDF Project staff to a community meeting on 2020 April 07 to provide a project overview/update followed by a question period.										√
March 13, 2020 Incoming email	This email from the AOPFN's Consultation Coordinator to a CNL Communications Officer was to postpone the 2020 April 07 community meeting due to COVID-19.										√
April 23, 2020 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Communications Officer was to request six documents related to the NPD Closure Project's draft EIS.	√	√	√	√	√	√	√	√	√	
April 29, 2020 Outgoing email	This email from CNL communications staff to the AOPFN Consultation Coordinator was enclosing the requested six documents on the NPD Closure Project as well as a preliminary version of the revised draft EIS for review.	√	√	√	√	√	√	√	√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 06, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the AOPFN Chief enclosed a preliminary version of the 2020 EIS and an updated IER and indicated an interest in meeting with the AOO. This letter included a list of topics of interest the AOO had brought forward and the status of each. These included: • Technical issues; • Traditional knowledge; • Future land use (site restoration); • Socio-economic interests; • Monitoring; • Alternative means; • Indigenous health; • Archaeology. The letter also asked for feedback on the following seven questions: • *Do the Algonquin of Pikwàkanagàn First Nation have additional information that they would like to provide in the context of traditional territory near the NPD site?* • *Do the Algonquin of Pikwàkanagàn First Nation have any members who currently live close or in reasonable proximity to the NPD site?* • *Do the Algonquin of Pikwàkanagàn First Nation have historical and/or current traditional practices near the NPD site, specifically we are interested in members' traditional uses such as trapping (traditional or commercial), hunting, fishing (traditional or commercial), gathering and practicing cultural ceremonies?* • *Do the Algonquin of Pikwàkanagàn First Nation have sites of ceremonial significance in close proximity or more generally any cultural activities near the NPD site?* • *Tell us about any important resources, uses, activities, values and interests to the Algonquin of Pikwàkanagàn First Nation near the NPD site.* • *If there is use in close proximity to the NPD site, is current community use different than historic use and can a description of those difference be provided?* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights.*	√	√		√	√	√	√	√	√	
May 11, 2020 Outgoing email	This email from a CNL communications officer to the AOPFN Consultation Coordinator was to follow-up to see if the AOPFN had any questions on the material to support their review of the revised draft EIS.										√
May 11, 2020 Incoming email	This email from the AOPFN's Consultation Coordinator to a CNL communications officer was in response to the previous email and stated that at this time there was no further information needed.										√
May 13, 2020 Incoming letter	This letter from AOPFN's Chief to CNL's Manager of Stakeholder Relations was confirming interest in direct AOPFN-CNL engagement and an LTRA for the NSDF Project and the NPD Closure Project.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 03, 2020 Virtual meeting	This meeting was an initial meeting between AOPFN representatives, including the Consultation Coordinator and consultants, and CNL representatives, from the NPD Closure Project team (including the Director and Manager of Regulatory Approvals) and ERM Stakeholder Relations (including the Manager of Stakeholder Relations and two communications officers), to discuss the development of a project-specific contribution agreement between AOPFN and CNL. Actions were recorded and next dates were suggested.									√	√
June 24, 2020 Virtual meeting	This meeting was the second meeting between CNL staff (including ERM Stakeholder Relations manager and communications officers and NPD Closure Project staff, including the Director and Manager of Regulatory Approvals) and AOPFN representatives (including the consultation coordinator and consultants) to discuss the development of a contribution agreement between AOPFN and CNL. Actions were updated and new ones recorded, next dates were suggested.									√	
July 09, 2020 Virtual meeting	This meeting was the third meeting between CNL staff (including ERM Stakeholder Relations manager and communications officers and NPD Closure Project staff, including the Director and Manager of Regulatory Approvals) and AOPFN representatives (including the consultation coordinator and consultants) to discuss the development of a contribution agreement between AOPFN and CNL. Actions were updated and new ones recorded, next dates were suggested.										√
July 17, 2020 Incoming letter	This letter from the Chief of AOPFN to the Project Director for the NPD Closure Project enclosed the AOPFN comments on a preliminary version of the 2020 EIS. Key interests and concerns from these comments focused on the following: • Alternative Means Assessment and In-situ Disposal; • Baseline characterization; • Consultation, Engagement and Communications; • EA process and methodology; • End state and future land use; • Environmental monitoring; • Indigenous content within EIS; • Effects on Indigenous rights; • Traditional Knowledge, Land and Resource Use and Cultural Impacts; • Valued Components.		√		√	√			√	√	
July 23, 2020 Virtual meeting	This meeting was the fourth meeting between CNL staff CNL staff (including ERM Stakeholder Relations manager and communications officers and NPD Closure Project staff, including the Director and Manager of Regulatory Approvals) and AOPFN representatives (including the consultation coordinator and consultants) to discuss the development of a contribution agreement between AOPFN and CNL. Actions were updated and new ones recorded, next dates were suggested.									√	√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
August 13, 2020 Virtual meeting	This meeting was the fifth meeting between CNL staff (including ERM Stakeholder Relations manager and communications officers and NPD Closure Project staff, including the Director and Manager of Regulatory Approvals) and AOPFN representatives (including the consultation coordinator and consultants) to discuss the development of a contribution agreement between AOPFN and CNL. Actions were updated and new ones recorded, next dates were suggested.										√
August 26, 2020 Virtual meeting	This meeting was the sixth meeting between CNL staff (including ERM Stakeholder Relations manager and communications officers and NPD Closure Project staff, including the Director and Manager of Regulatory Approvals) and AOPFN representatives (including the consultation coordinator and consultants) to discuss the development of a contribution agreement between AOPFN and CNL. Actions were updated and new ones recorded, next dates were suggested.									√	
September 10, 2020 Contribution agreement	The contribution agreement between CNL and the AOPFN, focused on supporting AOPFN to participate in the environmental assessment process for the NPD Closure Project (as well as the NSDF Project), was finalized and signed.										√
September 23, 2020 Virtual meeting	This meeting was the first working group meeting between CNL staff (including ERM Stakeholder Relations manager and communications officers and NPD Closure Project staff, including the Director and Manager of Regulatory Approvals) and AOPFN representatives (including the consultation coordinator and consultants). This meeting established working group guidelines and determined topics for 2020 October and November.					√				√	√
October 02, 2020 Incoming letter	This letter from the AOPFN Chief to the Director of the NPD Closure Project enclosed the AOPFN AKLUS Final Report on the NPD Closure Project.					√				√	√
October 09, 2020 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL communications officer sharing copies of the Requests for Proposals (RFP) for Culture and Rights and Diet and Harvest studies. CNL acknowledged receipt of the RFPs.									√	√
October 23, 2020 Virtual meeting	This meeting was an introductory meeting between CNL staff (including ERM Stakeholder Relations manager and communications officers and NPD Closure Project staff, including the Director and Manager of Regulatory Approvals) and AOPFN representatives (including the consultation coordinator and consultants) and the AOPFN Advisory Committee (made up of AOPFN community members). This meeting focused on an introduction to CNL as a corporation.									√	√
November 23, 2020 Outgoing email	This email from a CNL communications officer to the AOPFN Consultation Coordinator enclosed a letter detailing how the AKLUS, Harvest and Diet study and Culture and Rights study would be used in the IER and enclosing an excerpt of the NPD Closure Project's draft EIS that incorporated aspects of the AKLUS into the revised draft EIS to be submitted in December 2020.				√	√				√	√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 27, 2020 Virtual meeting	This meeting between (CNL staff (including ERM Stakeholder Relations manager and communications officers and NPD Closure Project staff, including the Director and Manager of Regulatory Approvals) and AOPFN representatives (including the consultation coordinator and consultants) and the AOPFN Advisory Committee (made up of AOPFN community members) was focused on an overview of the NPD Closure Project. The presentation focused on the following: • Overview of in-situ disposal; • NPD waste inventory; • Project timeline; • Current monitoring; • VC; • Effects on humans; • Follow-up monitoring. Questions from the AAC included the following: • How can we as a nation know that it is Low Level Waste (LLW) stored at NPD? • Better understanding needed of the difference between the NPD site and the CRL site. • What is relatively safe to CNL? • Is there any other facility using this system (in-situ)? • How old are the disposal sites that are using in-situ? • What is the contingency plan if the in-situ bursts? • Is this the only waste on the site (for this project)? • Are there ground water wells onsite? • Has any other site been considered for the waste (e.g. other provinces)? • Is there permanent below ground monitoring? • Valued Components are so broad and complicated, curious to how CNL evaluated those? • How does CNL look at the historical use of land by the First Nations people? • How does CNL evaluate what AOPFN needs will be in the future (20, 50, 100 years)? • Is the stack producing heat? Is that why the Chimney Shifts are using it in their migration? • Will lead shielding be a part of the construction of the facility? • Any consideration been given to an impact benefit agreement with AOPFN?	√		√	√	√			√	√	

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Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 30, 2020 Virtual meeting	This meeting was the first working group meeting CNL staff (including ERM Stakeholder Relations manager and communications officers and NPD Closure Project staff, including the Director and Manager of Regulatory Approvals) and AOPFN representatives (including the consultation coordinator and consultants) that was focused on the NPD Closure Project; the focus of discussion was the revised draft EIS comments and draft dispositions. The following actions arose from the discussion on the comments and dispositions: • CNL to send the AOPFN the NPD document that specifies what baselines were conducted, where the sites are and what has been done in each area. • The Project to verify any remaining baseline monitoring that needs to be completed and will update AOPFN. • The Project to provide clarification of additional baseline studies for migratory water fowls. • CNL to provide AOPFN with the online link to the NPD Closure Project documents. • CNL to provide AOPFN with the three draft follow-up monitoring plans. • CNL to share draft restoration plan with the AOPFN upon completion.	√	√	√	√	√			√	√	
December 14, 2020 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Communications Officer included revised comments/responses on (NPD) draft EIS from the 2020 November 30 working group meeting.										√
December 17, 2020 Virtual meeting	This meeting was the second working group meeting between CNL staff (including ERM Stakeholder Relations manager and communications officers and NPD Closure Project staff, including the Director and Manager of Regulatory Approvals) and AOPFN representatives (including the consultation coordinator and consultants) that was focused on the NPD Closure Project; the focus of discussion was the revised draft EIS comments and draft dispositions. The following actions arose from the discussion on the comments and dispositions: • CNL to send Valued Components table from the revised draft EIS as well as the introductory text that references the new species added. • AOPFN to provide example of a Chance Find Procedure. • AOPFN to review the scope of the three AOPFN studies and identify which gaps will be addressed. Identify remaining socio-economic impacts to re-assess based on input from AOPFN. • AOPFN to identify status of cultural training and is it available to CNL. • AOPFN to identify potential elements of monitoring and risk communication; what could that look like. • AOPFN to provide CNL with examples of existing guardian programs.				√				√	√	√
January 05, 2021 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL communications officer requested that the 2021 January 21 working group meeting agenda change and focus on the NSDF Project as AOPFN has a strict timeline with the CNSC on the NSDF Project. AOPFN will forward an agenda. CNL acknowledged working group meeting topic change. Note that the next few meetings were focused on the NSDF Project.										√

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May 05, 2021 Virtual meeting	This virtual meeting between CNL (including the Manager of Stakeholder Relations and the Director of Corporate Communications), AECL (including the Director of Communications and Government Reporting), and the AOPFN (including the Consultation Coordinator and two consultants) involved discussions on developing an LTRA.										√
May 11, 2021 Outgoing email	This email from CNL's Communications Officer to the AOPFN's consultation coordinator enclosed draft sections of the NPD Closure Project's latest revision of draft EIS (8.9 and 9.9) for verification of CNL's incorporation of the AOPFN's AKLUS as well as a preliminary list of commitments and indicated interest in meeting to discuss.									√	√
May 12, 2021 Virtual meeting	This virtual meeting between CNL (including the Manager of Stakeholder Relations and the Director of Corporate Communications), AECL (including the Director of Communications and Government Reporting), and the AOPFN (including the Consultation Coordinator and two consultants) involved discussions on developing an LTRA.									√	√
May 20, 2021 Virtual meeting	This virtual meeting between CNL (including the Manager of Stakeholder Relations and the Director of Corporate Communications), AECL (including the Director of Communications and Government Reporting), and the AOPFN (including the Consultation Coordinator and two consultants) involved discussions on developing an LTRA.									√	√
May 26, 2021 Virtual meeting	This virtual meeting between CNL (including the Manager of Stakeholder Relations and the Director of Corporate Communications), AECL (including the Director of Communications and Government Reporting), and the AOPFN (including the Consultation Coordinator and two consultants) involved discussions on developing an LTRA.									√	√
June 1, 2021 Incoming email	This email from the AOPFN's consultation coordinator was to request an NPD Closure Project meeting focus for the last week in June.									√	√
June 21, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the AOPFN Chief enclosed a draft summary of the AOPFN's interests and concerns for the NPD Closure Project for the AOPFN's review and verification.									√	√
June 29, 2021 Virtual meeting	This meeting between CNL staff (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and communications officers) and the AOPFN consultation coordinator and consultants included discussion on a work plan for the project, the preliminary draft commitments and the summary of interests and concerns. Actions brought forward at this meeting included: • CNL to forward sections of interest of EIS to AOPFN for review and feedback. • CNL to set up meeting in mid-July with AOPFN to discuss submission of implications letter for the three studies and feedback on AKLUS content in the traditional use section. • AOPFN to draft a list of commitments sought for the project, similar to what was done for NSDF.									√	√
July 6, 2021 Outgoing email	This email from a CNL Communications Officer to the Consultation Coordinator for the AOPFN enclosed the updated subsections that had incorporated the AKLUS information (8.9 and 9.9) for the AOPFN's review.	√			√			√		√	√
July 8, 2021 Emails	This email correspondence between a CNL communications officer and the Consultation Coordinator for the AOPFN involved meeting coordination for the Algonquin Advisory Committee meeting.										√

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July 13, 2021 Outgoing email	This email from a CNL Communications Officer to the Consultation Coordinator for the AOPFN was to coordinate the AAC meeting in July.										√
July 15, 2021 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Communications Officer enclosed the agenda for the AAC meeting.										√
July 19, 2021 Outgoing email	This email from a CNL Communications Officer to the Consultation Coordinator for the AOPFN was to coordinate the AAC meeting in July.										√
July 21, 2021 Virtual meeting	This virtual meeting between CNL (including the Manager of Stakeholder Relations and the Director of Corporate Communications), AECL (including the Director of Communications and Government Reporting), and the AOPFN (including the Consultation Coordinator and two consultants) involved discussions on developing an LTRA.									√	√
July 22, 2021 Virtual meeting	This meeting between CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and communications officers) and AOPFN representatives (including the consultation coordinator and consultants) and the AOPFN Advisory Committee (made up of AOPFN community members) included an updated overview of the NPD Closure Project and a discussion of the interests and concerns that CNL have heard to date from the AOPFN. The AOPFN expressed interest in the following topic areas: • Species at risk (including the Chimney Swifts); • Long term monitoring of the site; • Long term safety of the facility; • What-ifs.		√	√	√			√	√	√	√
July 26, 2021 Virtual meeting	This meeting between CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and communications officers) and AOPFN representatives (including the consultation coordinator and consultants) was a working group meeting where the AOPFN provided an overview of the implications of each of the following three studies, as well as the AOPFN Principles and Requirements document: AKLUS, Diet and Harvest Study and Culture and Rights Study.			√		√				√	
July 30, 2021 Incoming email	This email from the AOPFN Consultation Coordinator enclosed the AOPFN's comments on the updated subsections that had incorporated the AKLUS information (8.9 and 9.9).	√			√			√		√	√
August 4, 2021 Incoming email	This email from the AOPFN Consultation Coordinator to CNL's Communications Officer enclosed the AOPFN's comments on the *Table of Interests and Concerns* that CNL shared in June 2021.	√	√		√					√	
August 11, 2021 Incoming email	These two emails from the AOPFN Consultation Coordinator to CNL's Communications Officer enclosed the Diet and Harvest Study Report for the NPD Closure Project and the Culture and Rights Study Report for the NPD Closure Project. Each report came with a covering letter, as well.				√	√				√	
August 13, 2021 Incoming email	These two emails from the AOPFN Consultation Coordinator to a CNL Communications Officer enclosed the implications letter, discussing the implications of each of the following three studies: AKLUS, Diet and Harvest Study and Culture and Rights Study.				√	√				√	

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August 16, 2021 Outgoing email	This email from a CNL Communications Officer to the Consultation Coordinator for the AOPFN enclosed CNL edits to the transcript of the CNL AAC July 22, 2021 meeting.									√	√
August 31, 2021 Outgoing email	This email from a CNL Communications Officer to the Consultation Coordinator for the AOPFN enclosed the revisions to the *Table of Interests and Concerns* based on feedback from the AOPFN for the AOPFN's review.	√	√		√	√	√	√	√	√	
August 31, 2021 Incoming email	This email from the AOPFN Consultation Coordinator to CNL's Communications Officer enclosed the AOPFN's comments on the CNL's commitment table and commitments sought by AOPFN in relation to Nuclear Power Demonstration Closure project for review that CNL shared June, 2021.						√			√	
September 1, 2021 Incoming email	This email from the AOPFN Consultation Coordinator to CNL's Communications Officer was to coordinate an Algonquin Advisory Committee meeting on September 21 to discuss the four alternative means included in the alternative means assessment and to present materials on "what if" scenarios associated with the environmental effects of the project.		√							√	
September 2, 2021 Virtual Meeting	This meeting between CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and communications officers) and AOPFN representatives (including the Project Administrator, the Consultation Coordinator and consultants) involved discussions of the interests and concerns summary table. The following actions were recorded: • CNL to provide Table of Contents for December 2020 EIS to AOPFN to determine additional sections to review; • CNL to confirm three draft follow-up monitoring plans; • CNL to confirm "targeted letters" for AOPFN; • CNL to send Indigenous section for review; • CNL to resend updated 8.9 and 9.9; • CNL to send 8.10 and 9.10; • AOPFN to verify implementation of final edits on I&C table; • CNL to propose commitments text and send to AOPFN in advance of September 27; • CNL to coordinate bi-weekly working group meetings starting in October; • AOPFN to review Indigenous section from draft EIS.	√		√	√				√	√	
September 2, 2021 Outgoing email	This email from a CNL Communications Officer to the AOPFN Consultation Coordinator followed up on action items from the September 2, 2021 meeting, including: the table of contents from the December 2020 Environmental Impact Statement, the three draft follow-up monitoring plans and the three targeted letters referenced in the summary of interests and concerns.	√		√	√				√	√	
September 9, 2021 Incoming email	This email from the AOPFN Consultation Coordinator to CNL's Communications Officer enclosed the updated *Table of Interests and Concerns*. The AOPFN provided comments with recommended revisions to the table.									√	

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September 9, 2021 Incoming email	This email from the AOPFN Consultation Coordinator to CNL's Communications Officer enclosed a document of advice from AOPFN on what type of things CNL should be prepared to discuss and present at the AAC meeting in September 2021.		√								√
September 13, 2021 Virtual Meeting	This virtual meeting between CNL (including the Manager of Stakeholder Relations and the Director of Corporate Communications), AECL (including the Director of Communications and Government Reporting), and the AOPFN (including the Consultation Coordinator and two consultants) involved discussions on developing an LTRA.										√
September 17, 2021 Outgoing email	This email from the CNL Manager of Regulatory Approvals for the NPD Closure Project to the AOPFN Consultation Coordinator enclosed the Alternatives slide deck for the September 21, 2021 AAC Meeting. CNL committed to sending a second deck covering 'What-Ifs". The AOPFN acknowledged receipt.		√								
September 17, 2021 Outgoing email	This email from a CNL Communications Officer to the Consultation Coordinator for the AOPFN to follow-up on the working group meeting of September 2, 2021. The email enclosed the most current versions of key sections from the EIS, for the AOPFN's review and verification of sufficiency of CNL's incorporation of information from the AKLUS, Diet and Harvest Study, and the Culture and Rights Study. The key sections sent included the revised *Table of Interests and Concerns*, EIS Section 6.0 *Indigenous Engagement* (excerpt), EIS Sections 8.9 *Description of the Existing Environment, Traditional Land and Resource Use* and 9.9 *Assessment & Mitigation of Environmental Effects, Traditional Land and Resource Use* and the EIS Appendix (excerpt). CNL requested feedback by October 6, 2021.					√					√
September 20, 2021 Outgoing email	This email from a CNL Communications Officer to the Consultation Coordinator for the AOPFN enclosed the 'What-Ifs" slide deck for the September 21, 2021 Algonquin Advisory Committee (AAC) meeting									√	
September 21, 2021 Virtual Meeting	This meeting between CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and communications officers), AOPFN representatives (including the consultation coordinator, project administrator and consultants) and the AOPFN Advisory Committee (made up of AOPFN community members) involved discussions of the four alternative means included in the alternative means assessment. The AAC had several questions, which were discussed at the meeting, including the following: • With the removal of certain components on a percentage basis, how much is left? • What is the risk potential for contamination on the grounds during removal? • What is the importance of keeping a stack? • Has anything changed in the EIS since 2020? • Can this land be used for traditional use after clean up?		√	√	√	√				√	
September 22, 2021 Outgoing email	This email from a CNL Communications Officer to the Project Administrator and the Consultation Coordinator with the AOPFN was to coordinate next steps following the AAC meeting.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
September 24, 2021 Incoming email	This email from the AOPFN Project Administrator to a CNL Communications Officer was in follow-up to the AAC meeting on Alternative Means and stated that, “AOPFN's position remained that any aspects of the EIS that deals with potential impacts on AOPFN rights or the resources they rely upon, including the alternative means assessment, should both integrate those study findings - in ways verified by AOPFN - and reflect AOPFN perspectives.” The email also stated that it was, “AOPFN's strong preference, as stated previously, is that those discussions, reviews and revisions occur prior to refiling of the EIS, not afterward.”		√	√		√				√	
September 24, 2021 Outgoing email	This email from a CNL Communications Officer to the AOPFN Project Administrator was to confirm a meeting date and the delay of the commitments that were to be shared in advance of the next meeting.									√	√
September 27, 2021 Virtual Meeting	This meeting between CNL staff (including ERM Stakeholder Relations manager and communications officers and NPD Closure Project staff, including the Director and Manager of Regulatory Approvals) and AOPFN representatives (including the Consultation Coordinator and consultants) that was focused on the NPD Closure Project; the focus of discussion was developing project commitments. Specific actions that came forward were: • CNL to provide project timeline of activities; • CNL to add additional resourcing aspects to timing column; • AOPFN provides descriptions for priority scale 'priority level'.			√	√					√	√
September 28, 2021 Outgoing email	This email from a CNL Communications Officer to the AOPFN Project Administrator was to confirm a meeting date.										√
October 4, 2021 Emails	These emails between the Project Administrator for the AOPFN and a Senior Communications Officer with CNL were to coordinate a meeting on October 5.										√
October 5, 2021 Virtual Meeting	This meeting between CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and communications officers) and AOPFN representatives (including the consultation coordinator and consultants) and the AOPFN Advisory Committee (made up of AOPFN community members) provided an overview of What-ifs and effects of the environment on the project. Actions recorded at the meeting included: • CNL to share the newest version (2019) of the Annual Dose Report with the AOPFN. • CNL will flag more Indigenous participation in future studies as a topic for future discussion. • CNL to share air monitor and off-site reading information from previous ACC meeting with members. • CNL to share information on dose rate from NPD presently and in the future in addition to comparison to the dose rate over time for the other options. • CNL to share a copy of the Annual Dose Report of animals with AOPFN. • CNL to share information on the past post-closure safety assessment & current environmental monitoring (to cover off-site and downstream topics). • CNL to share a copy of the slide deck to members of the AOPFN.		√	√	√				√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 5, 2021 Emails	These emails between the Consultation Coordinator for the AOPFN and a Senior Communications Officer with CNL were to confirm upcoming receipt of the AOPFN review of NPD EIS content.										√
October 6, 2021 Incoming email	This email from the Consultation Coordinator for the AOPFN to a Senior Communications Officer with CNL enclosed the AOPFN comments on the revised draft EIS documents CNL provided on September 17, 2021 (Section 8.9, 9.9 and 6, as well as the record of engagement and *Table of Interests and Concerns*). As well, the AOPFN indicated that CNL's plan to resubmit the draft EIS in October was not agreeable to the AOPFN, highlighting several areas of work that the AOPFN would like to see progressed, prior to resubmission.	√	√	√	√	√				√	√
October 6, 2021 Outgoing email	This email was sent from a CNL Communications Officer to the AOPFN's Consultation Coordinator was to confirm receipt of the previous email.										√
October 7, 2021 Virtual Meeting	This meeting between CNL staff (including ERM Stakeholder Relations manager and communications officers and NPD Closure Project staff, including the Director and Manager of Regulatory Approvals) and AOPFN representatives (including the consultation coordinator and consultants) that was focused on the NPD Closure Project; this was the second meeting to discuss project commitments.									√	
October 13, 2021 Outgoing Email	This email was sent from a CNL Communications Officer in response to an email sent on October 6, 2021 enclosing revisions, including new interests to the *Table of Interests and Concerns*. This email reiterated the ongoing committal to address and resolve these concerns; this email enclosed the revised *Table of Interests and Concerns* and requested that AOPFN Consultation confirm the addition of two columns that encapsulate two added interests of AOPFN in the *Table of Interests and Concerns*.									√	
October 14, 2021 Virtual Meeting	This virtual meeting between CNL (including the Manager of Stakeholder Relations and the Director of Corporate Communications), AECL (including the Director of Communications and Government Reporting), and the AOPFN (including the Consultation Coordinator and two consultants) was to discuss the AOPFN's cultural protection program.										√
October 14, 2021 Incoming Email	This email from AOPFN Consultation to the ERM Stakeholder Relations team contained a memo and identified support on the approach that the AOPFN proposed to address their perspective on the Alternative Means identified by CNL.		√							√	
October 19, 2021 Outgoing Email	This email from a CNL Senior Communications Staff was to arrange a phone call to consult with AOPFN Consultation Coordinator pertaining to the NPD Closure Project EIS Submission before the Working Group Meeting on October 20, 2021.										√
October 20, 2021 Virtual Meeting	This meeting between CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and Communications Officers) was to discuss the delay of the NPD Closure Project EIS Submission to December 2021 and map out a mutually agreeable path forward for the inclusion of complimentary material from the AOPFN in the revised draft EIS. Discussion on the NPD Closure Project commitments also continued.			√						√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 22, 2021 Outgoing Email	This email from Senior Communications Staff to AOPFN was to follow-up from the NPD Closure Project Commitments meeting on October 20, 2021 to draft the path forward on EIS submission, specifically to address AOPFN concerns on language and content of the Draft EIS. The email enclosed an action plan, the most recently revised *Table of Interests and Concerns* for the AOPFN and the most recently updated list of VCs.		√	√	√					√	
October 29, 2021 Incoming Email	This email from the AOPFN Consultation Coordinator to CNL asked for CNL's response to AOPFN's request for funds for an AOPFN Alternative Means Assessment and whether CNL was willing to revisit the Contribution Agreement for aspects of the proposed work that exceed the originally envisioned scope of engagement.		√	√						√	
October 29, 2021 Outgoing Email	This email from the NPD Manager of Regulatory Approvals to the AOPFN Consultation Coordinator responded CNL was committed to funding the AOPFN Alternative Means Assessment (AMA), including the AOPFN words as is, and to amending the contribution agreement as necessary.									√	
November 2, 2021 Incoming Email	This email from AOPFN's Consultation to NPD's Manager of Regulatory Approvals responded to CNL's questions regarding the first point in the previous email. AOPFN Consultation directed CNL to an email that was sent on October 14, 2021 that included a Statement of Work (SOW) and the costs for an AOPFN AMA approach.										√
November 2, 2021 Outgoing Email	This email from NPD's Manager of Regulatory Approvals informed AOPFN Consultation of CNL's commitment to provide requested funds for an AOPFN Alternative Means Assessment perspective gathering process as outlined in the SOW shared on October 14, 2021.										√
November 2, 2021 Incoming Email	This email from AOPFN's Consultation Coordinator to a Communication Officer at CNL responded to CNL's October 22, 2021 email for Attachment 1 associated with additional tasks CNL hopes to accomplish during November 2021. AOPFN's response included timelines by which AOPFN would need documents and meetings with CNL, as well as costs over and above the existing Contribution Agreement for particular activities. AOPFN requested CNL to send AOPFN an email confirming the additional requested funding to be built into a CA amendment so that AOPFN's work could start effective immediately. AOPFN noted that the field work would not be conducted until Spring 2022 and that costs were not included in the attachment.										√
November 4, 2021 Outgoing Email	This email from a Communications Officer at CNL to AOPFN's Consultation Coordinator was regarding the current addition of funds to the contribution agreement for NPD Closure Project activities.										√
November 4, 2021 Incoming Email	This email from AOPFN's Consultation Coordinator to a CNL Communications Officer approved CNL to add a new schedule to the Contribution Agreement Amendment.										√
November 4, 2021 Outgoing Email	This email from a Communications Officer at CNL to AOPFN's Consultation Coordinator was in response to AOPFN's November 2 email to confirm that the requested additional funding would be built into a Contribution Amendment Agreement. This email was also to coordinate the meetings identified in AOPFN's November 2 email in addition to arranging another meeting to discuss the clarification of language in the summary of interests and concerns table. Meeting dates were proposed for both meetings. CNL also confirmed that they would send the sections of the EIS that were identified in the November 2 email by the end of the week.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
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November 4, 2021 Outgoing Email	This email from a Communications Officer at CNL to AOPFN's Consultation Coordinator was regarding the contribution agreement amendment.										√
November 4, 2021 Incoming Email	This email from AOPFN's Consultation Coordinator to a Communications Officer at CNL was to request that CNL send their draft comments and responses to AOPFN as soon as possible and proposed alternative meeting dates for the commitments meeting. AOPFN informed CNL of their availability to meet to discuss the *Table of Interests and Concerns*. AOPFN offered to meet sooner for the working group meeting if CNL were available.										√
November 4, 2021 Outgoing Email	This email from a Communications Officer at CNL to AOPFN's Consultation Coordinator was to inform AOPFN that they had consulted with NPD's Manager of Regulatory Approvals and that CNL would send the draft commitments on November 8, 2021. CNL asked AOPFN if it would still work to meet on the Friday.										√
November 4, 2021 Incoming Email	This email from AOPFN's Consultation Coordinator to a Communications Officer at CNL was to confirm a meeting date on commitments.										√
November 4, 2021 Outgoing Email	This email from a Communications Officer at CNL to the AOPFN's Consultation Coordinator was to confirm proposed meeting dates.										√
November 4, 2021 Incoming Email	This email from AOPFN's Consultation Coordinator was to confirm proposed meeting dates.										√
November 5, 2021 Outgoing Email	This email from a Senior Communications Officer at CNL to AOPFN's Consultation Coordinator was to provide the most up to date versions of: the AOPFN-CNL NPD EIS Action Plan, the *Table of Interests and Concerns* for the AOPFN, EIS Sections 4.2, 6.2.4.3, 6.3.2, 9.9, and 11, for the AOPFN to add text.	√	√	√	√	√				√	√
November 9, 2021 Outgoing Email	This email from a Senior Communications Officer at CNL to AOPFN's Consultation Coordinator and Project Administrator shared CNL's original draft commitments in addition to the updated draft commitments as of November 8, 2021.									√	√
November 15, 2021 Virtual Meeting	This was the AOPFN/CNL Working Group Meeting. This meeting between CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and Communications Officers was to go through proposed project commitments together. Where possible, some commitments were established to be included in the *Table of Interests and Concerns* "Next Steps" column found in the December 2021 revised draft EIS.									√	√
November 17, 2021 Incoming Email	This email from the AOPFN Project Administrator and Consultant to a CNL Communications Officer was to recommend some items for the agenda for the AOPFN Sub-working Group Meeting with CNL on Friday November 19, 2021.										√
November 18, 2021 Outgoing Email	This email from a CNL Communications Officer to the AOPFN Project Administrator and Consultant, was to inform AOPFN of a few items to add to the agenda for the AOPFN Sub-working Group Meeting with CNL on Monday November 22, 2021.									√	√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
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November 18, 2021 Incoming Email	This email from the AOPFN Project Administrator and Consultant to a CNL Communications Officer was to recommend that the discussion on Friday, November 19 be revised to include an initial walk through on the *Table of Interests and Concerns* to make sure that both parties are on the same page for Monday's discussion.									√	√
November 19, 2021 Outgoing Email	This email from a CNL Communications Officer to the AOPFN Project Administrator and Consultant, was to send a copy of the agenda for the meeting on Monday, November 22, 2021. The email also contained the most recent draft of AOPFN *Table of Interests and Concerns* for the NPD Closure Project.									√	√
November 19, 2021 Virtual Sub-Working Group Meeting	This meeting was between the AOPFN (Project Administrator and Consultant) and CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and a Senior Communications Officer). Preliminary feedback from the AOPFN on the *Table of Interests and Concerns* was discussed, as well as an agenda for the meeting on November 22, 2021.									√	√
November 22, 2021 Virtual Monthly Working Group Meeting	This meeting was between the AOPFN (Project Administrator, Consultation Coordinator and Consultants) and CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and Communications Officers). At this meeting the AOPFN's feedback on the *Table of Interests and Concerns* was discussed and CNL edited language and flagged outstanding issues..	√	√	√	√	√				√	√
November 23, 2021 Outgoing Email	This email from a CNL Communications Officer to AOPFN Consultation Coordinator shared an updated version of the Table of Interests with AOPFN's proposed language and feedback from the working group meeting incorporated for confirmation.										√
November 26, 2021 Incoming Email	This email from AOPFN Consultation Coordinator to Communications Officers with CNL attached the following documents with AOPFN's edits and additional text for inclusion in the revised draft EIS included: 1. *Table of Interests and Concerns;* 2. Section 6.2.4.3 Engagement (AOPFN); 3. Section 6.3.2 Valued Components Identified by Indigenous Peoples/Communities; 4. Section 4.2 on Alternative Means; 5. Section 9.9 on Traditional Lands and Resources Use; 6. Section 11 on Assessment Summary.		√	√	√	√				√	
November 29, 2021 Outgoing email	This email from a CNL Communications Officer to AOPFN Consultation Coordinator acknowledged receipt of the AOPFN materials for inclusion in the revised draft EIS.										√
December 10, 2021 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator attached the revisions to Schedule E of the Contribution Agreement Amendment incorporated for their review. CNL asked AOPFN to review and confirm the revisions CNL has incorporated and final costs associated to the NPD Closure Project activities, and return it to CNL so that they can send in to CNL's Legal team for stamp and then back to AOPFN for a final signature.										√
December 10, 2021 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer was to note that AOPFN had reviewed the changes and agreed with them. AOPFN directed CNL to proceed with the process.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
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December 13, 2021 Outgoing email	This email from a CNL Communications Officer to the AOPFN Consultation Coordinator attached the stamped Contribution Agreement Amendment for AOPFN signature. CNL noted that once it is signed, it can be returned for CNL signature and then CNL will return the final signed Contribution Agreement Amendment back to AOPFN.										√
December 15, 2021 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer acknowledged receipt of the amended Contribution Agreement. AOPFN noted that they would return a signed copy to CNL.										√
December 17, 2021 Incoming email	This email from the AOPFN consultant to a CNL Senior Communications officer requested some information to give to the AAC.										√
December 20, 2021 Outgoing email	This email from a CNL Senior Communications officer to the AOPFN consultant was to note that AOPFN will receive a response the week of January 4, 2022.										√
December 21, 2021 Outgoing email	This email from the AOPFN Acting Consultation Coordinator to CNL's Manager of Regulatory Affairs for the NPD Project was to inform CNL that AOPFN is looking forward to resuming our engagement with the Environment team at CNL in the new year. AOPFN noted that they are currently working on 2 items for AOPFN review before they can set a meeting date with CNL: 1) Refining a list of questions related to Risk Communications, and 2) A first draft of the recommended Guardians Training Modules schedule related to CNL sites. AOPFN noted that they would be in contact the week of January 10, 2022 to find a meeting date for both parties.										√
December 22, 2021 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator attached the stamped Contribution Agreement Amendment for AOPFN signature. CNL noted that once both partied sign the agreement the final signed Contribution Agreement Amendment back to AOPFN.										√
December 23, 2022 Outgoing letter	This letter addressed to the AOPFN Consultation Coordinator from CNL's Director of Corporate Communications requesting permission from the AOPFN (AOPFN) to use results of the AOPFN Diet and Harvest Study to update airborne and liquid release limits for the Chalk River Laboratories site. The AOPFN agreed that CNL could use the data provided in the AOPFN Diet and Harvest Report for other Environmental Purposes such as estimating dose to Indigenous Nations, communities and organizations , supporting updates to Derived Release rates etc.										√
January 04, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator stated that CNL be willing to provide a letter of support for the Guardian program funding application.										√
January 04, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator attached the signed Contribution Agreement amendment for the AOPFN's records.										√
January 07, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator informed AOPFN that there would be another delay in getting AOPFN responses.										√
January 14, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN consultant attached responses to AOPFN's questions regarding the AAC.										√

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January 17, 2022 Outgoing email	This email from a CNL Senior Communications officer to the AOPFN Consultation Coordinator enclosed a draft of an engagement schedule outlining activities from the contribution agreement for discussion at the AOPFN-CNL monthly meeting.										√
January 19, 2022 Working Group Meeting	This meeting was between the AOPFN (Project Administrator and Consultants) and CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and Communications Officers). At this meeting focus was on the Contribution and draft of an engagement schedule outlining activities from the contribution agreement.										√
January 26, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Project Administrator provided information about the early history of Chalk River Laboratories via a resource from the Deep River-based Society for the Preservation of Canada's Nuclear Heritage (SPCNH).										√
January 27, 2022 Incoming email	This email from the AOPFN Project Administrator to a CNL Senior Communications Officer attached a draft Engagement Schedule with AOPFN comments for review.										√
February 13, 2022 Incoming email	This email from the AOPFN consultant to a CNL Senior Communications ask for the below information for the February 22, 2022 AOPFN Advisory Committee meeting. 1. Can CNL provide a plain language information package on how ISD has been implemented at other sites in the past and what effects have been encountered during subsequent monitoring? 2. CNL is requested to provide exact information about how large the overall NPD site is (the whole AECL owned area, in hectares), and how large in hectares is the area shown in the images provided previously (the impacted area that will be subject to the Decommissioning). 3. CNL is requested to provide an estimation, for each of Alternatives 2, 3 and 4, of how long fencing will likely be kept around the decommissioned facility. And, if the fenced in area (in hectares) will differ between any of these alternatives, please provide that information as well. 4. CNL is requested to provide an estimation, for each of Alternatives 2, 3 and 4, of how long monitoring of the site will continue into the future. If there are differences in the type and intensity of monitoring required, this should be identified as well. 5. CNL is requested to provide an estimation, for each of Alternatives 2, 3 and 4, how long in months or years the active decommissioning stage would take (i.e., how long it would take to complete everything up to the end state (minus removal of the stack, which is a longer-term activity). 6. CNL is requested to provide an estimation of how many a. truckloads and b. mass of radioactive materials are still in the NPD site, and how much of that (broken down if possible to low level vs. intermediate level waste) will be removed in Alternative 2 (the only active Alternative that neither takes all the materials out or leaves all the materials in situ).		√								
February 15, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator was to clarify and propose new agenda items for the next meeting on February 23, 2022.										√

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February 15, 2022 Outgoing email	This email from the CNL Manager of Regulatory Approvals for the NPD Project to the AOPFN consultant attached CNL's responses to the questions asked via email on February 13, 2022.		√								
February 10, 2022 Working group meeting	This meeting was between the AOPFN (Project Administrator and Consultants) and CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and Communications Officers). At this meeting focus was on the NSDF EAFM however NPD staff we present.										√
March 08, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator was to inform AOPFN that CNL is revising how they present the summary table of interests and concerns to address a request from the Canadian Nuclear Safety Commission (CNSC). CNL requested that AOPFN confirm whether they would like to verify that the revised table still reflects their interests and concerns, focusing on the new column that ties their interest/concern to the project or Aboriginal and treaty right, and identify why it is of concern to your community.									√	
March 09, 2022 Outgoing email	This email from the AOPFN Consultation to a CNL Senior Communications Officer acknowledging receipt of the revised summary table of interest and concerns. AOPFN stated that they do not have additional time and funds to commit to this exercise at this time. CNL acknowledged the AOPFN email and noted it as an agenda item for the next working group meeting.									√	
March 11, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator shared the proposed agenda for the March 17, 2022 working group meeting for AOPFN approval. The agenda included: • Review updated Master Engagement Schedule (CNL commits to sending the updated schedule by end of day Monday, March 14); • Cross reference Contribution Agreement funding activities to Master Engagement Schedule; • Status of NPD Commitments; • Status of NPD Project interest and concerns tables. CNL committed to send AOPFN the updated Master Engagement Schedule by end of day Monday, March 14 for review prior to the Thursday meeting.									√	
March 14, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator sent the updated Master Engagement Schedule for AOPFN review prior to the Thursday meeting. CNL incorporated AOPFN edits and comments and hopes to finalize the schedule at the March 17, 2022 meeting.									√	√
March 16, 2022 Incoming email	This email from the AOPFN Project Administrator to a Senior Communications Officer accepted the agenda sent on March 11, 2022 and proved the names of who will be participating in the meeting.										√
March 17, 2022 Working Group Meeting	This meeting was between the AOPFN (Project Administrator and Consultants) and CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and Communications Officers). At this meeting focus was on the AOPFN's feedback on the Table of Interests and Concerns was, CNL edited language and flagged outstanding issues.									√	√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

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March 17, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator discussed the new summary table of interests and concerns for the NPD Closure Project. CNL was under the impression that AOPFN was not going to review the tables, this is different than recent communication with the Canadian Nuclear Safety Commission (CNSC). CNL asked AOPFN to confirm if they would like to review the tables, what the timeline would be for that review and if capacity is needed.									√	
March 29, 2022 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer clarified that when the AOPFN met with the CNSC March 23, 2022 that AOPFN gave the same response to them as CNL on March 09, 2022. AOPFN noted that would clarify with the CNSC.									√	
April 08, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator attached the repackaged summary table of interests and concerns. The updates to the table are based on feedback from the CNSC on the December 2021 draft EIS submission package. CNL noted AOPFN's comments about resourcing issues and offered to assist in any way.									√	
April 19, 2022 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer provided CNL the estimated costs in relation to the CNL/AOPFN 2022 Master Engagement Schedule. CNL confirmed receipt.										√
April 26, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator attached the updated master engagement schedule based on the last working group meeting.										√
April 28, 2022 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer attached the final version of the Nuclear Power Demonstration Project Decommission Alternative Means Assessment report on behalf of the AOPFN. CNL confirmed receipt.		√								
May 06, 2022 Outgoing email	Email invitation to the AOPFN to the CNL Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain. AOPFN confirmed that a member would be attending.										√
May 11, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator requested AOPFN to confirm if they would be reviewing the "repackaged" table of interests and concerns before the NPD Closure Project resubmits their revised draft Environmental Impact Statement (EIS). CNL offered a meeting in June 2022 to review and discuss the table.									√	
May 11, 2022 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer attached the master engagement schedule for review.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 11, 2022 Incoming email	This email from the AOPFN consultant to a CNL Senior Communications Officer was in response to CNL's May 11, 2022 email regarding a review of the table of interests and concerns. AOPFN confirmed that they could review the table and provide comments by June 24, 2022 and that CNL provide capacity. AOPFN requested the table be sent again.									√	
June 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN consultant confirmed AOPFN's review plan for the interest and concerns table. CNL offered a meeting June 27, 2022 to review the AOPFN comments as a group.									√	
June 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN consultant attached the most recent summary table of interests and concerns. CNL also sent a table (labeled "IC mapping") that shows how the interests and concerns that the AOPFN reviewed and revised in late 2021 are represented in the "repackaged" table.									√	
June 14, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN working group cancel the June 16, 2022 meeting.									√	
June 14, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN working group proposed a working group meeting on June 27, 2022. CNL proposed the following agenda: 1. AOPFN Alternative Means Assessment for the NPD Closure Project; 2. AOPFN review of the NPD Closure Project Interests and Concerns Table; 3. Master Engagement Schedule and Budget for 2022 (CNL to provide update to this schedule tomorrow). CNL would also be able to discuss any relevant updates on the LTRA. CNL sent a meeting invitation.		√							√	√
June 27, 2022 Working group meeting	This meeting was between the AOPFN (Project Administrator and Consultants) and CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and Communications Officers). CNL and the AOPFN discussed the AOPFN AMA, the AOPFN's review of the NPD Closure Project Interests and Concerns Table and updates to the engagement schedule.		√							√	√
June 27, 2022 Outgoing email	This email from the Manager of Regulatory Approvals for the NPD Project at CNL to the AOPFN consultant stated that CNL is looking forward to receiving AOPFN's review of the revised summary table of interests and concerns. CNL offered a meeting to discuss the comments.									√	
June 27, 2022 Incoming email	This email from the AOPFN Consultation Coordinator to the Manager of Regulatory Approvals for the NPD Project at CNL attached AOPFN's marginal comments and track changes on the Summary of Interests and Concerns document for review. AOPFN noted that it could not endorse this table as adequate for resubmission purposes until such time as column 2, in particular, is revised. AOPFN stated that column two did not accurately reflect the concerns and that CNL had classified the status of some of the issues.									√	
June 28, 2022 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer asked for clarification if CNL is to provide the Master Schedule and budget back to AOPFN.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 28, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator attached the attached the master engagement schedule and budget for 2022. CNL is agreeable to the budget proposed by the AOPFN and it will be confirmed through a contribution agreement amendment. CNL asked for more detailed on the on-site data collection at NPD, we are looking for a more detailed list of activities associated with budget.									√	√
July 05, 2022 Outgoing email	This email from the Manager of Regulatory Approvals for the NPD Project at CNL to the AOPFN Consultation Coordinator thanked AOPFN for the feedback on the repackaged Table of Interests and Concerns. To clarify the purpose of the table CNL requests a sub-working group meeting with the AOPFN. CNL noted the feedback related to status of resolution and next steps for several of the interests and concerns and we will update these accordingly in the summary table.									√	
July 13, 2022 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer provided the request for information about the detailed list of activities for the on-site seasonal survey for review. AOPFN does not any other comments on the Master schedule, and proposed a meeting towards the end of July to discuss next steps required.										√
July 13, 2022 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer proposed dated for the July 2022 working group meeting. AOPFN asked CNL to send the updated master engagement schedule for the contribution agreement.										√
July 14, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator requested information about the cost breakdown for the onsite seasonal survey. CNL attached the survey budget and engagement schedule for reference.										√
July 14, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator confirmed the below dates for engagement activities. • CNL – AOPFN working group meeting – July 28, 2022 (10 a.m. – 12 noon) o Proposed agenda for next working group meeting: ▪ Prioritization schedule touch base - has the NSDF hearing changed any priorities? ▪ Do we need a sub working group for any activities? ▪ Discussion on AOPFN's review of the NPD Closure Project Interests and Concerns Table. ▪ TBD. • Two-day (NSDF and NPD) summer inventory walk down date range – August 15 – 17, 2022. • NSDF and NPD site tours with the working group – August 16, 2022. • Two-day (NSDF and NPD) fall inventory walk down date range – October 3 – 7, 2022. CNL noted that CNL's legal counsel will be drafting a Contribution Agreement Amendment which will include an appendix which will include an updated schedule of activities.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 22, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator confirming dates for the summer and fall inventories. CNL asked to confirm August 17, 2022 and October 5, 2022 for the NPD inventory dates. CNL also proposed the below agenda and asked AOPFN to confirm. • Agenda for AOPFN – CNL working group site tour (NSDF/NPD) on August 16, 2022; • Prioritization schedule touch base; • Any need for a sub working group; • Discussion on AOPFN's review of the NPD Closure Project Interests and Concerns Table; • Other.									√	√
July 28, 2022 Working group meeting	This meeting was between the AOPFN (Consultation Coordinator and Consultants) and CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and Communications Officers). The focus of this meeting was the presentation and discussion of the AOPFN's Alternative Means Assessment. AOPFN and CNL discussed how the AMA could be integrated into the EIS. AOPFN and CNL discussed updated to the engagement schedule and AOPFN's review of the repackaged Interests and Concerns Table. CNL committed to sending the AOPFN and updated engagement schedule and existing comments on the three EAFMPs									√	√
August 02, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator to coordinate the site inventory collection and walk down with the AOPFN knowledge keepers at the NPD site on August 17 2022. CNL asked if the knowledge keepers would be interested in a facility tour.										√
August 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator noted the action items from the July 27, 2022 working group meeting. CNL attached the updated master engagement schedule for review.										√
August 04, 2022 Incoming email	This email from the AOPFN Project Administrator to a CNL Senior Communications Officer acknowledged receipt of the engagement schedule and introduced a new Project Coordinator who will be working on CNL files.										√
August 05, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator requested the list of participants for the AOPFN knowledge keeper visit to the NPD site.										√
August 05, 2022 Incoming email	This email from the AOPFN Project Coordinator to a CNL Senior Communications Officer provided the names of the participants for the AOPFN knowledge keeper visit to the NPD site.										√
August 05, 2022 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer declined the facility tour during the AOPFN knowledge keeper visit to the NPD site.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
August 05, 2022 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer attached the updated master schedule and list of actions. CNL acknowledged receipt and confirmed they would respond to comments.										√
August 05, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator requesting a pre-collection meeting with the knowledge keepers and CNL Environmental Protections staff.										√
August 05, 2022 Outgoing telephone call	Telephone call from a CNL Senior Communications Officer to the AOPFN Project Coordinator to discuss the AOPFN knowledge keeper visit to the NPD site.										√
August 08, 2022 Incoming email	This email from the AOPFN Project Coordinator to a CNL Senior Communications Officer provided updated on participants for the AOPFN knowledge keeper visit to the NPD site. CNL acknowledged and offered a meeting in advance.										√
August 10, 2022 Incoming email	This email from the AOPFN Project Lead, Economic Development Department to a CNL Senior Communications Officer confirmed another participant for the AOPFN knowledge keeper visit to the NPD site. AOPFN also confirmed they would follow up about a meeting before the inventory.										√
August 10, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Project Lead, Economic Development Department informed AOPFN that a pre-job meeting is now going to be held the morning of each day for your convenience. AOPFN acknowledged.										√
August 10, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Project Lead, Economic Development Department provided a registration link for the AOPFN knowledge keeper visit to the NPD site.										√
August 12, 2022 Incoming email	This email from the AOPFN Project Lead, Economic Development Department to a CNL Senior Communications Officer requesting CNL supply specific equipment for the AOPFN knowledge keeper visit to the NPD site. CNL acknowledged.										√
August 15, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Project Lead, Economic Development Department ask for confirmation on the participant for the AOPFN knowledge keeper visit to the NPD site. AOPFN acknowledged.										√
August 17, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator proposed rescheduling the Working Group NSDF/NPD site tour. AOPNF cancelled the meeting August 11, 2022.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
August 17, 2022 Site inventory	AOPFN knowledge keeper and AOPFN's consultant and CNL representatives (include environmental protection staff, NPD Project staff and ERM Stakeholder Relations) conducted the site inventory. The purpose of these field visits are to support AOPFN in the identification of their cultural and environmental values prior to possibly obtain authorization to proceed by the Canadian Nuclear Safety Commission (CNSC) with the NPD site closure. CNL staff assisted with environmental data collection, supported species identification, and answered questions regarding the NPD closure project and biodiversity monitoring as requested. The day started with a pre inventory meeting to discuss the plan for the day.								√		√
August 23, 2022 Incoming email	This email from the AOPFN Project Administrator to a CNL Senior Communications Officer requested the contact of the NPD team lead. CNL provide the contact for the Manager of Regulatory Approvals for the NPD Project.										√
September 07, 2022 Incoming email	This email from the AOPFN Project Administrator to a CNL Senior Communications Officer requested to move the monthly working group meeting by a week. CNL and AOPFN corresponded about a new meeting date.										√
September 15, 2022 Incoming email	This email from the AOPFN Project Administrator to a CNL Senior Communications Officer requested to plan the working group tour of NPD for October 04, 2022. CNL acknowledged.										√
September 16, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Project Administrator and Consultation Coordinator proposed to discuss the AOPFN's Alternative Means Assessment (AMA) for the NPD Closure Project at the September 21, 2022 working group meeting. CNL followed up on September 20, 2022.		√								
September 16, 2022 Outgoing email	Email invitation to the AOPFN working group tour for the tour of the NPD Facility.										√
September 20, 2022 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer confirmed that the AOPFN would lead the working group meeting discussion on the AMA. CNL acknowledged.		√								
September 21, 2022 Working group meeting	This meeting was between the AOPFN (Consultation Coordinator, Project Administrator, Project Coordinator and Consultants) and CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and Communications Officers) and AECL (Including the Director of Decommissioning). The focus of this meeting was the presentation and discussion of the AOPFN's Alternative Means Assessment. AOPFN and CNL discussed how the AMA could be integrated into the EIS.		√								

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Appendix C: Record of Engagement and Tables of Interests and Concerns

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		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
September 21, 2022 Incoming email	This email from the AOPFN Project Administrator to a CNL Senior Communications Officer requested an alternative date for the working group tour of the NPD facility.										√
September 26, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Project Administrator and Consultation Coordinator provided the link to the register for the AOPFN fall inventory on October 4&5, 2022. AOPFN acknowledged.										√
September 27, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Project Administrator and Consultation Coordinator was to follow up from the September 21, 2022 AMA working group meeting. CNL appreciated the opportunity for conversation around the key findings of the AMA. For next steps, CNL proposed: 1. CNL will share a written response to the Alternative Means recommendations by the end of October. 2. AOPFN and CNL to collaborate on how to incorporate the results of the AMA into the Environmental Assessment (EA) / Environmental Impact Statement (EIS). Note that CNL suggests the AOPFN update their EIS subsection on Alternative Means and reference the AMA (by the end of November), which CNL will then include as a technical reference in the EIS submission package to the CNSC. 3. AOPFN and CNL work together to bridge the gap on the opposing results for preferred option through development of related commitments. Related to the third proposed next step and in follow-up to the meeting, CNL attached the most recent version of the commitments.		√								√
September 27, 2022 Incoming email	This email from the AOPFN Project Administrator to a CNL Senior Communications Officer provided the list of participants for the October 5, 2022 NPD site inventory. AOPFN asked for additional logistical details.										√
September 27, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Project Administrator provided the details requested related to the October 5, 2022 NPD site inventory. CNL requested that each participant for the inventory register online. AOPFN acknowledged.										√
October 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN's consultation attached CNL memo: Summary of AOPFN Field Inventory Taking 2022 August 16 and 17 for the AOPFN-CNL site assessment in support of NSDF commitment AOPFN-21 "Pre-Project inventory work at site" as well as the AOPFN-CNL site assessment for the NPD site.								√		√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

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October 05, 2022 Site Inventory	AOPFN knowledge keeper and AOPFN's consultant and CNL representatives (include environmental protection staff, NPD Project staff and ERM Stakeholder Relations) conducted the site inventory. The purpose of these field visits are to support AOPFN in the identification of their cultural and environmental values prior to possibly obtain authorization to proceed by the Canadian Nuclear Safety Commission (CNSC) with the NPD site closure. CNL staff assisted with environmental data collection, supported species identification, and answered questions regarding the NPD closure project and biodiversity monitoring as requested. The day started with a pre inventory meeting to discuss the plan for the day.								√	√	
October 18, 2022 Incoming email	This email from the AOPFN Project Coordinator to a CNL Senior Communications Officer requested a proposed agenda for the October 20, 2022 working group meeting.										√
October 20, 2022 Outgoing email	This email from Manager of Regulatory Affairs for the NPD Project at CNL to the AOPFN Project Coordinator proposed an agenda for the October 20, 2022 working group meeting. CNL proposed: 1) Refresh on the commitments sought by AOPFN; 2) Discussion of commitments that are specific to the NPD site and the Decommissioning Execution phase of the project.										√
October 20, 2022 Incoming email	This email from the AOPFN Project Administrator to a CNL Senior Communications Officer attached documents related to the AOPFN Action Item from our July 27th AOPFN - CNL monthly working group meeting. That action was for AOPFN to send comments related to the three draft EAFMPs for the NPD Project. Documents attached: 1. Letter: *NPD – Draft EAMP Review;* 2. AOPFN comments on the NSDF draft EAFMP.								√		
October 20, 2022 Working group meeting	This meeting was between the AOPFN (Consultation Coordinator, Project Administrator, Project Coordinator and Consultants) and CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and Communications Officers). CNL and the AOPFN discussed the letter from the AOPFN on the next steps letter and reviewed the commitments list and made edits. CNL committed to issuing a revised letter to AOPFN, AOPFN will then formally respond. CNL also committed to sending AOFN the updated commitment list. AOPFN and CNL agreed to plan a site visit.										√
October 31, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Project Administrator ask for clarification as to why the Diet and Harvest Report specific to NPD was marked as confidential the Diet and Harvest Report specific to the NSDF project was marked as non-confidential. CNL asked is the NPD report need to be confidential.					√					

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November 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN consultant attached CNL memo: Summary of AOPFN Field Inventory Taking 2022 October 5 for the Nuclear Power Demonstration (NPD) commitment CNL has made to support AOPFN in conducting a site-wide Algonquin Knowledge Inventory at the NPD site.										√
November 08, 2022 Incoming email	This email from the AOPFN Project Administrator to a CNL Senior Communications Officer requested the next steps or action items noted during the October 20, 2022 working group meeting.										√
November 08, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Project Administrator sent the next steps or action items noted during the October 20, 2022 working group meeting. • CNL to send AOPFN updated NPD “next steps” or update letter; • AOPFN to send response to NPD letter once receipt of; • CNL to send updated contribution agreement amendment; • AOPFN and CNL to coordinate NPD site visit: o Suggested December or January. • CNL to send updated commitments to AOPFN; • AOPFN to review updated commitments (flagging which ones require future discussion for another commitments meeting). AOPFN acknowledged.									√	
November 09, 2022 Outgoing letter	This revised letter addressed to the AOPFN Chief from CNL’s Director of Indigenous Relations provided an update on the NPD Closure Project and included an updated engagement status section to reflect next steps discussed at the October 20, 2022 working group meeting.									√	
November 09, 2022 Outgoing letter	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator attached an updated CNL – AOPFN Contribution Agreement Amendment # 3 for AOPFN review and comment. CNL made edits based on the October 20, 2022 working group meeting discussion and requested AOPFN review the updates prior to sending to legal counsels. AOPFN acknowledged.										√

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November 16, 2022 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer proposed the agenda for the November 17, 2022 working group meeting. CNL had previously suggested the NSDF EAFMP as the topic for the meeting but changed to accommodate AOPFN's request. AOPFN proposed: - Finish reviewing commitment sought; - Discuss the letter sent by Patricia; - CA revision walk through (Can CNL walk AOP through the numbers?); - Discussion on the NPR site tour.										√
November 17, 2022 Working Group meeting	This meeting was between the AOPFN (Project Administrator and Consultants) and CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and Communications Officers). CNL and AOPFN discussed updated to the Contribution Agreement, the Environmental Assessment letter sent by CNL and planned a NPD site tour for the afternoon of December 13th and the winter inventory for December 14, 2022. CNL committed to updating the commitments table. CNL and AOPFN discussed the topics for the December 15, 2022 working group meeting. • Update on the commitments sought; • AMA recommendation/EIS subsection updates.										√
November 22, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator attached CNL's responses to the AOPFN's Alternative Means Assessment Recommendations. CNL also committed to following up within the next week and a half with the updated contribution agreement and the updated commitment table for the NPD Closure Project.									√	√
November 23, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator followed up on the October 31 email related to the Diet and Harvest Report specific to NPD being marked as confidential.					√					
November 23, 2022 Incoming email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer requested that CNL list the AOPFN study report as confidential and send AOPFN any draft text inside of the sections CNL would like to use it in and AOPFN will verify. CNL acknowledged.					√					
November 23, 2022 Incoming email	This email from the AOPFN Project Coordinator to a CNL Senior Communications Officer provided the participant list for the December 13, 2022 NPD tour. CNL acknowledged.										√

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November 29, 2022 Incoming letter	This letter from the AOPFN Consultation Coordinator to CNL's Director of Indigenous Relations was in response to CNL's November 9, 2022 letter that identified an updated draft list of priorities for engagement with AOPFN for the NPD Project. AOPFN outlined tasked in the letter that AOPFN believed should be completed before CNL submits the revised draft EIS. AOPFN requested that CNL provide a timeline for the activated listed. AOPFN also requested that the CA be updated to reflect the activities in the letter.	√	√	√	√	√	√	√	√	√	
November 30, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Project Coordinator requested a list of participants for the AOPFN winter inventory at the NPD site on December 14, 2022.										√
November 30, 2022 Incoming email	This email from the AOPFN Project Coordinator to a CNL Senior Communications Officer canceled the NPD winter site inventory on December 14th and reschedule it for the end of January or early February 2023. CNL acknowledged.										√
November 30, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator attached the revised CNL – AOPFN Contribution Agreement Amendment # 3. CNL requested AOPFN review the CA and confirm and update the final budget before sending to the legal counsels.										√
November/December 2022 Emails	CNL and AOPFN exchanged email to coordinate the December 13 NPD tour.										√
December 06, 2022 Incoming Email	This email from the AOPFN Project Coordinator to a CNL Senior Communications Officer attached feedback on CNL response to AOPFN's AMA recommendations for review. AOPFN focused their comments on where action could be taken by CNL and AECL. AOPFN expressed disappointment about the responses.		√								
December 08, 2022 Outgoing email	This email from CNL Senior Communications Officer to the AOPFN Project Coordinator proposed the agenda for the 2022 December 13 working group meeting. CNL acknowledged.										√
December 12, 2022 Incoming Email	Email correspondence from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer attached the contribution agreement with AOP changes for review. CNL Acknowledged.										√
December 13, 2022 Site Tour	CNL welcomed the AOPFN working group members to tour the NPD facility. The afternoon included a discussion about backfilling the site as requested. The tour was an opportunity for deeper engagement between the working group members.										√
December 15, 2022 Incoming Email	Email correspondence from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer requested to defer the 2022 December 15 agenda item on commitments sought as CNL did not send the list in advance										√

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December 15, 2022 Outgoing	Email correspondence from the Manager of Regulatory Approvals for the NPD Project to the AOPFN Consultation Coordinator agreed to defer the 2022 December 15 agenda item on commitments sought. CNL attached the updated commitments sought list and noted the updates.										√
December 15, 2022 Virtual Meeting	This meeting was between the AOPFN (Project Administrator and Consultants) and CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project and the ERM Stakeholder Relations Manager and Communications Officers). CNL and AOPFN discuss the activities that support EIS submission that AOPFN outlined in the November 29, 2022 letter to CNL. CNL also described how the AMA findings could be presented in the EIS subsection 4.2.4.6 and how the commitments list will be integrated into the EIS. CNL committed to summarizing the actions from the meeting and the path forward after the meeting.		√								√
December 16, 2022 Incoming Email	Email correspondence from the AOPFN Consultation Coordinator to a Communications Officer at CNL provided CNL comments on the path forward CNL sent 2023 December 15.										√
December 16, 2022 Outgoing Email	Email correspondence from the Manager of Regulatory Approvals for the NPD Project to the AOPFN Consultation acknowledged AOPFN 2022 December 16 email and asked AOPFN to confirm if they agreed with the plan (and dates) proposed for continued development of the commitments. AOPFN confirmed										√
December 20, 2022 Outgoing Email	Email correspondence from Communications Officer at CNL to the AOPFN Consultation Coordinator attached CNL's updated responses to the AOPFN comments on the revised draft Environmental Impact Statement (EIS).	√	√	√	√	√	√	√	√	√	
January 04, 2023 Email between CNL and AOPFN (2 emails)	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator informing them of CNL being unable to secure a spot on the panel at the 2023 Waste Management Conference. And inquiring if AOPFN might be available for a Canadian conference in late summer. AOPFN confirmed receipt.										√
January 05, 2023 Emails	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator confirming CNLs review of the REVISED CNL - AOPFN Contribution Agreement Amendment # 3 - 2022 November and it being sent to CNL's legal team for signature and preparation. AOPFN confirmed receipt of the email update.										√
January 09, 2023 Emails	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator confirming the cancellation of the 2023 January Working Group meeting. AOPFN confirmed the cancellation of the 2023 January working group meeting. CNL cancelled the meeting update.										√
January 03, 2023 Emails	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator following up with 2022 December 21 email to confirm receipt. AOPFN confirmed receipt of the email; CNL thanked AOPFN for confirming.										√
January 03, 2023 Outgoing emails	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator concerning potential dates of AOPFNs NPD's winter inventory.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
January 17, 2023 Emails	Email correspondence between a CNL Senior Communications Officer and the AOPFN Consultation Coordinator. AOPFN requested the use of a photo of NPD, and CNL confirmed the use of the photo in their upcoming series of citizen engagement sessions, with a small caption.										√
January 20, 2023 Outgoing Email	This email from a CNL Communications Officer to the AOPFN Consultation Coordinator to inform of the decision to postpone the submission of the NPD Closure Project's draft Environmental Impact Statement (EIS) until 2023 May to allow for additional Indigenous input. CNL proposed the next steps would be to continue working together to ensure the AOPFN's interests and concerns are reflected in the EIS by CNL and AOPFN coordinating a winter inventory date, CNL drafting integrate results of the AOPFN AMA into EIS Section 4.2.4.6, after which AOPFN will review and revise, and by CNL and AOPFN discussing the continued development of the commitments.		√	√							√
January 23, 2023 Incoming Email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer confirming receipt of the revised NPD timeline and following up on the actions regarding the AKLUS.					√				√	√
January 23, 2023 Outgoing Email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator responding to AOPFN's 2023 January 23 email with an update on the AKLUS.										√
January 24, 2023 Emails	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer following up on AOPFN's 2022 December 15 email regarding unanswered questions from the NPD site visit. CNL confirmed a response will be sent no later than 2023 January 30.										√
January 24, 2023 Emails	Emails between CNL and AOPFN to coordinate the NPD Winter Site visit for March 02, 2023, and to reschedule the February working group to February 14, 2023, at 12:30 pm.										√
January 25, 2023 Incoming Email	This email from CNL to AOPFN to confirm 2023 March 02 as the NPD Site Inventory date and NPD site requirements.										√
January 25, 2023 Incoming Email	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer requesting a Word version of the NPD Environmental Impact Statement (EIS) Comment responses to AOPFN; CNL provided AOPFN with the Word version of the document.										√
January 31, 2023 Outgoing Email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator with responses to AOPFNs 2023 December 15 email with AMA questions. The questions were related to the NPD site visit on 2023 December 13.		√								
February 07, 2023 Emails	This email from the AOPFN Consultation Coordinator to a CNL Senior Communications Officer to inquire about the topics for the February 2023 working group agenda; CNL responded with the agenda topics for the February 14, 2023, working group meeting.										√
February 07, 2023 Outgoing Email	This email from CNL to AOPFN with CNL's responses to the AOPFN's implications and recommendations from the AKLUS, Culture and Rights Study, and Diet and Harvest Study, which the AOPFN shared on 2022 August 13, CNL asked AOPFN to confirm that the priority activity for the NPD Closure Project remains to finalize the commitments and moving forward on actions. CNL proposed monitoring being the topic for Working Group Meetings in the future.					√			√		

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
February 07, 2023 Outgoing Email	This email from a CNL Communications Officer to the AOPFN Consultation Coordinator brining attention to the language of proposed commitment #13 (a) that has been slightly altered in CNLs response to the Implications letter, reflect learnings from the Near Surface Disposal Facility (NSDF) Project. Recognizing the ongoing work to resolve AOPFN comments on the NSDF Environmental Assessment Follow-up Monitoring Plan (EAFMP) and the types of monitoring activities that are being contemplated under the Guardian Program through the Long-Term Relationship Agreement (LTRA), CNL is proposing to update the language in Proposed Commitment # 13 (a) to better align with how we expect the two parties will work together to incorporate Algonquin knowledge into the NPD EAFMP.										√
February 14, 2023 Virtual Meeting	This meeting was between the AOPFN (Consultation Coordinator, Project Administrator and Consultant) and CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project, ERM Stakeholder Relations Manager, Communications Officers and Director of NPD & WR-1 Reactor Decommissioning) and AECL. CNL began by reviewing the outstanding action items including the commitments list, Implications letter response, AMA results and inventory visits. CNL was prepared to review the AOPFN comments on the commitments list. Once the reviewed started it was agreed that AOPFN and CNL should meet in-person to review the commitments, proving AOPFN more time to review and comment. CNL suggested a conversation related to interim monitoring (pre Guardian Program). AOPFN did not provide CNL will comments related to interim monitoring.	√	√	√	√	√			√	√	
February 14, 2023 Emails	Emails between a CNL Senior Communications Officer and the AOPFN Consultation Coordinator to plan the March working group meeting in-person for March 21, at 1:00 PM in Pikwàkanagàn First Nation.										√
February 15, 2023 Outgoing Email	This email from a CNL Senior Communications Officer and the AOPFN Consultation Coordinator to confirm receipt of the 2023 January 25 email confirming 2023 March 02, as the date for NPD Site Inventory date.										√
February 16, 2023 Incoming Email	This email from the AOPFN Coordinator to a CNL Communications Officer to confirm the receipt of the 2023 January 25. This email from CNL with the date of the NPD Site Inventory date along with names of the AOPFN team members who will be attending. AOPFN requested PPE and Snowshoes.										√
February 16, 2023 Outgoing Email	This email from a CNL Senior Communications Officer and the AOPFN Coordinator to confirm the ability to provide PPE and snowshoes for the NPD Site Inventory tour.										√
February 16, 2023 Incoming Email	This email from the AOPFN Coordinator to a CNL Senior Communications Officer requesting a list of all proposed 2023 monitoring and ecological data collection activities and timelines for NPD.										√
February 16, 2023 Emails	This email from a CNL Senior Communications Officer and the AOPFN Coordinator with an invitation to the reception during the CNA Conference on 2023 February 23. AOPFN confirmed interest in 3 members attending (including the Chief).										√
February 16, 2023 Outgoing Email	This email from a CNL Senior Communications Officer to the AOPFN Coordinator responding to AOPFN's This email from 2023 February 16 requesting proposed 2023 monitoring and ecological data collection activities and timelines for NPD, noting that the information will be provided by the end of the month.								√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
February 16, 2023 Outgoing Email	This email from a CNL Senior Communications Officer to the AOPFN Consultation Coordinator with the NPD EIS report Section 4.2.4.6. CNL requested AOPFN's final edits by the end of 2023 April.										√
March 02, 2023 Site Inventory	AOPFN knowledge keeper and AOPFN's consultant and CNL representatives (include environmental protection staff, NPD Project staff and ERM Stakeholder Relations) conducted the site inventory. The purpose of these field visits are to support AOPFN in the identification of their cultural and environmental values prior to possibly obtain authorization to proceed by the Canadian Nuclear Safety Commission (CNSC) with the NPD site closure. CNL staff assisted with environmental data collection, supported species identification, and answered questions regarding the NPD closure project and biodiversity monitoring as requested. The day started with a pre inventory meeting to discuss the plan for the day.								√	√	
March 06, 2023 Emails	This email from a CNL Communications Officer to the AOPFN Coordinator with proposed 2023 monitoring and ecological data collection activities. CNL also requested AOPFN send the NPD commitments table to them so that CNL can review it prior to the in-person meeting on 2023 March 21. AOPFN confirmed CNL will receive their comments prior to the 2023 March 21 meeting. CNL confirmed receipt of the email.								√		
March 06, 2023 Emails	This email from the AOPFN Coordinator to a CNL Communications Officer to discuss attendance at the in-person monthly meeting being held on 2023 March 21 in Pikwàkanagàn First Nation.										√
March 08, 2023 Outgoing Email	This email from CNL Communications Officer to the AOPFN Coordinator thanking them for visiting site on 2023 March 02, and providing AOPFN with additional information for those who were not present at the site visit. CNL also invited AOPFN to a knowledge holder's discussion to give them the opportunity to ask questions and learn more about topics of interest to them. AOPFN confirmed receipt of the email.		√								√
March 09, 2023 Incoming Email	This email from the AOPFN Coordinator to CNL Senior Communications Officer asking to post-pond the NPD topic for the 2023 March Monthly meeting, previously arranged for March 21 in-person, be moved to 2023 April.										√
March 09, 2023 Outgoing Email	This email from CNL Senior Communications Officer to the AOPFN Coordinator in response to AOPFN's email on the 2023 March 09 to confirm if a meeting on 2023 March 21 in person with a different topic is still occurring, and to confirm that the 2023 April 20 meeting is to be scheduled as an in-person meeting.										√
March 09, 2023 Outgoing Email	This email from CNL Senior Communications Officer to the AOPFN Coordinator to confirm the status of the 2023 March 21 in-person meeting in Pikwàkanagàn First Nation.										√
March 14, 2023 Outgoing Email	This email from CNL Communications officer to the AOPFN Coordinator with a follow-up to the AOPFN email sent on 2023 February 16; CNL provided AOPFN with the list of proposed 2023 monitoring and ecological data collection activities for the NPD site.										√
March 14, 2023 Outgoing Email	This email from CNL Senior Communications Officer to the AOPFN Consultation Coordinator with CNL's Indigenous Relations Procurement Strategy.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
March 15, 2023 Emails	This email from CNL Senior Communications Officer to the AOPFN Coordinator following up on an email sent on 2023 March 09 to confirm the 2023 March 21 Monthly meeting and location. AOPFN cancelled the March 21, 2023, in-person meeting- no virtual meeting will be held either.										√
March 27, 2023 Emails	This email from CNL Senior Communications Officer to the AOPFN Coordinator to follow up on an email sent on 2023 March 15 to confirm the status of the 2023 April 20 working group meeting, and the topics to be discussed are NPD related. AOPFN confirmed the meeting for April, however, requested a date change to 2023 April 18. CNL Confirmed the date change of the April meeting to 2023 April 18. The topics to be discussed are NPD EIS comment responses and the AMA EIS insert.										√
April 06, 2023 Incoming Email	This email from the AOPFN Coordinator to CNL Senior Communications Officer with draft revisions to the NPD EIS section on AMA for CNL's review. AOPFN also confirmed that they should be able to provide EIS comments the week of 2023 April 10. CNL confirmed receipt of the email.		√								√
April 12, 2023 Emails	This email from the AOPFN Coordinator to CNL Senior Communications Officer with a request to have the 2023 Spring inventory be held on 2023 May 09 and 2023 on May 10. CNL confirmed the receipt of the request and noted they will confirm the dates as soon as possible. CNL Later confirmed the site visit for 2023 May 09 on 2023 April 14.										√
April 14, 2023 Outgoing Email	This email from CNL Senior Communications Officer to the AOPFN Coordinator with copies of declined meeting invites from AOPFN staff- AOPFN confirmed a glitch in the system and that they would be in attendance on 2023 May 09 and 10.										√
April 17, 2023 Incoming Email	This email from the AOPFN Coordinator to CNL Senior Communications Officer with a draft agenda for the 2023 April Monthly working group being held on 2023 April 18th. AOPFN also asked to confirm the status of the CNL/AOP contribution agreement to amendment #3.										√
April 17, 2023 Incoming email	Email correspondence from the AOPFN Coordinator to CNL Senior Communications Officer requesting to be removed from the monthly meeting invite list due to a role change.										√
April 18, 2023 Virtual Meeting	This meeting was between the AOPFN (including the Project Coordinator, Consultation Coordinator and Consultant), CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project, ERM Stakeholder Relations Manager, Communications Officers and Director of NPD & WR-1 Reactor Decommissioning) and AECL. CNL and AOPFN discussed that funding would not be impacted due to the LTRA not being signed yet. CNL noted that it received the AOPFN's AMA edits and committed to accepting the edits and sending a clean version back to AOPFN. AOPFN and CNL created a path forward for the EIS Comment Response table. After CNL response to questions about the monitoring schedule AOPFN committed to indicating areas of interest.		√							√	√
April 19, 2023 Emails	Email correspondence from the AOPFN Project Coordinator to a CNL Communications Officer requesting action items from AOPFN/ CNL meeting. CNL sent AOPFN with action items coming out of the 2023 April 18 working group meeting. CNL also asked if it is appropriate to start planning 2023 inventory days. AOPFN confirmed the desire to start planning site inventory.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
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April 21, 2023 Emails	Email correspondence between CNL Communications Officer and the AOPFN Project Coordinator with a copy of the May Site Inventory participants; CNL confirmed the participants and requested they provide information for site access guest pass.										√
April 25, 2023 Outgoing email	Email correspondence from CNL Senior Communications Officer to the AOPFN Project Coordinator with an open invite for AOPFN consultation staff and AOPFN community members to the Chimney Swift Count Night.										√
April 25, 2023 Emails	Email from the CNL Manager, Stakeholder Relations to AOPFN with a follow-up to the 2023 April 19 email concerning the 2023 April NPD working group to inform AOPFN of CNL's commitment to funding associated with AOPFN's continued engagement in the NPD Environmental Impact Statement (EIS). CNL also provided AOPFN with an update on all remaining actions from the AOPFN/CNL 2023 April Monthly working group meeting.										√
April 25, 2023 Incoming email	Email from AOPFN to a CNL Senior Communications Officer requesting a date change for the AOPFN spring NPD Inventory date. AOPFN requested the inventory day be switched to Tuesday, May 9th.										√
May 03, 2023 Emails	Email correspondence between a CNL Communications Officer and AOPFN with site visit instructions for the AOPFN NSDF/NPD spring inventory visit.										√
May 05, 2023 Emails	Email correspondence between CNL Senior Communications Officer and AOPFN with site visit list of attendees for both the NSDF and NPD site inventories.										√
May 10, 2023 Site Inventory	AOPFN knowledge keepers and AOPFN's consultant and CNL representatives (include environmental protection staff, NPD Project staff and ERM Stakeholder Relations) conducted the site spring inventory. The purpose of these field visits are to support AOPFN in the identification of their cultural and environmental values prior to possibly obtain authorization to proceed by the Canadian Nuclear Safety Commission (CNSC) with the NPD site closure. CNL staff assisted with environmental data collection, supported species identification, and answered questions regarding the NPD closure project and biodiversity monitoring as requested. The day started with a pre inventory meeting to discuss the plan for the day.	√								√	
May 10, 2023 Outgoing email	This email from CNL Senior Communications Officer to AOPFN to provide a copy of the radiation dose chart; CNL also printed some and provided them to AOPFN during the NPD site tour. CNL also informed AOPFN that the CNSC website offers additional information if there is more interest in this topic, and attached a link to the CNSC website.										√
May 10, 2023 Outgoing email	This email from a CNL Communications Officer to AOPFN to provide links to the video and cutaway that were referenced during the NPD Site tour on 2023 May 10. CNL also provided AOPFN with Nuclear 101 created by the Grand Council of Treaty #3.										√
May 12, 2023 Outgoing email	This email from a CNL Senior Communications Officer to AOPFN is to confirm the ability to attend the 2023 May 26 in-person monthly meeting being held in Pikwàkanagàn First Nation, CNL also asked if they can confirm numbers later. CNL asked AOPFN to confirm the agenda topics for the meeting.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

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May 15, 2023 Incoming email	This email from the AOPFN Manager, Consultation to a CNL Senior Communications Officer is in follow-up to the 2023 May 01 email from CNL outlining action items from the 2023 April Monthly Working Group Meeting. AOPFN had no comments on the AOPFN AMA insert for the EIS. AOPFN provided feedback on the EIS commitment table.		√				√			√	
May 16, 2023 Outgoing email	This email from a CNL Communications Officer to AOPFN seeking confirmation that the version of the AMA report attached to AOPFN's email on 2022 April 28 is the version to be included as an appendix in the NPD Revised Draft EIS. CNL also asked AOPFN to confirm that there are no confidentiality issues with including the AMA report as is in the EIS as it will be publicly available.		√								
May 16, 2023 Outgoing email	This email from a CNL Communications Officer to AOPFN is to provide AOPFN with the registration link for the NPD Swift Night Count being held on 2023 May 24 and 2023 May 31.										√
May 16, 2023 Outgoing email	This email from a CNL Communications Officer to AOPFN provided AOPFN with the updated Interests and Concerns Table. Specifically CNL's response to the interest/concern and the status of the concern. These updates align with the progress on engagement we have made together and AOPFN's recent feedback (April 2023). CNL noted they have marked new language with grey shading. CNL also noted that AOPFN will also see new rows (indicated in pale yellow) which were added to capture concerns that were missing or not stand alone in previous versions of the table. As part of the Environmental Assessment process CNL is seeking verification that AOPFN agrees with the updates and that CNL has accurately captured AOPFN's concerns on the project.									√	
May 18, 2023 Outgoing email	This email from CNL Senior Communications Officer to AOPFN is to confirm the number of CNL Staff attending the in-person 2023 May 26 monthly working group meeting being held in community.										√
May 24, 2023 Outgoing email	This email from a CNL Senior Communications Officer to AOPFN is to provide AOPFN with the proposed agenda for the 2023 May 26 in-person working group meeting. AOPFN confirmed receipt of the meeting agenda.										√
May 26, 2023 Meeting	This meeting was between the AOPFN (Project Administrator, Manager of Consultation and Consultants) and CNL (including Manager, ERM Stakeholder Relations, Manager, NPD Regulatory Approvals, Manager ERM Licensing Support, Senior Communications Officer, and Indigenous Engagement Coordinator, held in-person at Golden Lake. This meeting was to discuss the NSDF and NPD commitments tale, the bears Den Memo and to provide updates.						√			√	
May 30, 2023 Outgoing email	This email from CNL Indigenous Engagement Coordinator to AOPFN is to provide AOPFN with an action list from the 2023 May 26 CNL/AOPFN working group meeting.						√			√	√
May 30, 2023 Signing of the LTRA	CNL, AECL, and AOPFN signed the Long Term Relationship Agreement (LTRA).										√
May 30, 2023 Outgoing email	This email from a CNL Communications Officer to AOPFN following up on the email sent on 2023-05-16 concerning the inclusion of the AMA report as it as an appendix in the NPD Revised Draft. AOPFN responded and noted they would respond once the Consultation Manager has returned. CNL confirmed receipt of the email.		√								

Environmental Impact Statement - NPD Closure Project

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June 01, 2023 Incoming email	This email from AOPFN Project Coordinator to CNL Manager, NPD Regulatory Approvals provided CNL with AOPFN's NPD Seasonal Surveys Implications Letter and the 4 associated seasonal survey reports. CNL confirmed receipt.	√								√	√
June 06, 2023 Emails	This email from CNL Communications Officer to AOPFN in response to the seasonal inventory Implications Letter and reports. CNL indicated that In CNL's initial review of the NPD Seasonal Surveys Implications Letter CNL was seeking clarification on language indicating a new commitment sought by AOPFN. AOPFN confirmed once AOPFN receives the updated commitments sought document with additional columns from CNL they would be providing feedback on the table. This feedback will include a couple of additional commitments that we drafted, including #22.						√				√
June 07, 2023 Outgoing email	This email from a CNL Communications Officer to AOPFN is to provide them with a draft list of commitments for the NPD Closure Project. CNL requested that as AOPFN reviews, please provide AOPFN's agreement/position re public facing or not and AOPFN confirmation of commitments that will be covered under the LTRA.						√				√
June 20, 2023 Incoming email	This email is from AOPFN to a CNL Communications Officer provided CNL with Issues and Concerns Table with AOPFN's comments for review. AOPFN also attached a Question feedback document for further discussion as per the April 2023 EIS Comments Response Table. CNL confirmed receipt of the document.									√	
June 27, 2023 Outgoing email	This email from a CNL Communications Officer to AOPFN requesting clarification on when CNL would receive AOPFN's forthcoming "Commitments Sought" update. Referenced in the June 20 I&C Table feedback.						√				√
June 27, 2023 Incoming email	This email from AOPFN to a CNL Communications Officer indicating the "Commitments Sought" update would be shared shortly.										√
June 29, 2023 Incoming email	This email from AOPFN to a CNL Communications Officer proving the Commitments Sought updated document for CNL's review.						√				
June 29, 2023 Outgoing email	This email from a CNL Communications Officer to AOPFN confirming receipt of the Commitments Sought updated document. CNL requested AOPFN provide meeting times to discuss the edits. CNL also asked the AOPFN to confirm version of the AMA report attached in the April 28, 2022 email to CNL is the version to be included as an appendix in the NPD Revised Draft EIS.		√				√				√
June 29, 2023 Incoming email	This email from AOPFN to a CNL Communications Officer confirmed the version of the AMA report to be included as an appendix.		√								
July 04, 2023 Outgoing Email	This email is from CNL Senior Communications Officer to AOPFN communicated some questions related to the NPD Interest and Concerns Table.									√	
July 05, 2023 Telephone Call	Phone call from an AOPFN Project Coordinator to a CNL Communications Officer asking for a timeline for needing responses to the questions.									√	
July 24, 2023 Outgoing Email	This email is from CNL Communications Officer to AOPFN is to provide a status update on the I&C table.									√	

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August 03, 2023 Outgoing Email	This email from CNL Director, Communications and Engagement to the AOPFN Chief is to invite him to the AECL, CNL and Canada's nuclear supply chain leadership for the annual Organization of Canadian Nuclear Industry (OCNI) Suppliers Day Banquet Dinner.										√
August 03, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to AOPFN is to offer AOPFN a complimentary registration to the upcoming Canadian Conference on Waste Management, Decommissioning and Environmental Restoration (NWMDER) to be held August 27 - 31, 2023 in Niagara Falls, ON.										√
August 15, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to AOPFN is to follow-up on the email sent on 2023 August 03, offering AOPFN a complimentary registration to the upcoming Canadian Conference on Waste Management, Decommissioning and Environmental Restoration (NWMDER) to be held August 27 - 31, 2023 in Niagara Falls, ON.										√
August 29, 2023 Outgoing Email	This email from CNL Communications Officer to AOPFN is to inform AOPFN that CNL is interested in meeting with AOPFN to discuss the status of the NPD Closure Project and review the I&C and Commitment tables together. CNL asked that AOPFN provide some date options for next week that would work for AOPFN. Prior to the meeting, CNL noted that they will share the updated I&C Table and the simplified Commitments Table. CNL also noted that they will also provide AOPFN a bilateral response to the Commitments sought. AOPFN confirmed possible dates and CNL sent a meeting invite.						√			√	
August 30, 2023 Outgoing Email	This email from the Manager, NPD Closure Project, to AOPFN is to provide AOPFN the updated Table of Interests and Concerns and a Table of Commitments for the EIS. CNL noted the changes to the I&C Table made from feedback received from AOPFN on June 21. CNL requested a future meeting to include confirming that status is correct and next steps are appropriate. CNL also noted they had utilized the feedback on commitments provided by AOPFN on June 29, using the list in Appendix B as a guide, to develop of Table of Commitments (list) suitable for the EIS.						√			√	
September 06, 2023 Meeting	This meeting between CNL (Including, Manager, NPD Closure Project, Decommissioning and Environmental Specialist, Communications Officer, Indigenous Engagement Coordinator) and AOPFN (including, Project Coordinators, Project Administrators, Communications Specialist and Consultant) is to discuss the AOPFN NPD Interest and Concerns table and Commitments list for the NPD Closure Project. CNL and AOPFN reviewed the language in the I&C Table and mitigation measures. CNL provided a status update on the Commitments list. Following the meeting AOPFN committed to sharing marked up versions of both tables to CNL.						√			√	
September 15, 2023 Incoming Email	This email from AOPFN Project Administrator to CNL Communications Officer is to provide CNL with AOPFNs I&C table with AOPFN's latest comments and track changes. Also, as per the last discussion, AOPFN requested another NPD-focused meeting be scheduled, and provided possible dates for a meeting.						√			√	
September 20, 2023 Incoming Email	This email from the AOPFN Project Coordinator to CNL is to provide a copy of AOPFNs simplified version of the Table of Commitments (list) suitable for the EIS. CNL confirmed receipt.									√	

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Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
September 27, 2023 Incoming Email	This email from the AOPFN Project Coordinator to CNL Communications Officer is to request available dates to discuss NPD Interests and Concerns and Commitments list. CNL confirmed 2023 October 19th from 2:30 pm.									√	
September 29, 2023 Outgoing Email	This email from the CNL Communications Officer to AOPFN Project Coordinator is to propose a draft agenda for the 2023 October 19 AOPFN-CNL NPD-focused meeting. AOPFN confirmed the draft agenda on 2023 October 03.									√	√
October 13, 2023 Emails	These email between the CNL Communications Officer and AOPFN Project Coordinator is to inform AOPFN that CNL will be sending the updated I&C table and commitments the following day. CNL also looked to add some time next week to work together on the wording of the EIS commitment list. AOPFN confirmed the delay in the updated I&C and confirmed the draft agenda. AOPFN looked for an update on the table and CNL sent it over. AOPFN confirmed receipt on 2023 October 16.									√	
October 17, 2023 Incoming Email	This email from AOPFN to CNL Communications Officer is to inform CNL that upon receipt of NPD Issues and Concern documents on October 16, it has been determined that appropriate time is not available for a proper evaluation. AOPFN requested to postpone the upcoming meeting on October 19th to ensure adequate reviews from the AOPFN team. CNL proposed alternative dates.									√	√
October 19, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to AOPFN is to propose converting the NSDF weekly meeting on 2023 November 2 to the NPD Closure Project discussion (I&C and Commitment Tables). CNL noted that CNL will be providing updated NPD Issues and Concern documents by 2023 October 20 for review. APOFN confirmed the meeting subject change.						√			√	
October 26, 2023 Outgoing Email	This email from CNL Communications Officer to AOPFN shared the updated Commitments table. CNL noted the updates made to align with the NSDF Project March 29, 2021 letter specifically Attachment B.						√				
November 02, 2023 Incoming Email	This email from AOPFN to a CNL Communications Officer provided the updated Interest and Concerns List.									√	
November 02, 2023 Meeting	This meeting between CNL (including the CNL Director NPD Closure Project, Director, Communications and Engagement, Environmental and Decommissioning Specialist, and Indigenous Engagement Coordinator) and AOPFN (Including, Project Coordinators, Project Administrator, Communications Specialist, and Consultant) was to discuss the I&C and EIS Commitments tables. CNL and AOPFN reviewed the comments provided by AOPFN on November 02. During the discussion on the commitments AOPFN provided guidance to CNL on how to revise the public facing list for the EIS. CNL and AOPFN also discussed a project specific agreement and the purpose it would serve.						√			√	
November 07, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to AOPFN is to provide the actions captured at the 2023 November 02 AOPFN-CNL NPD Closure Project working group meeting (Interests and Concerns and Commitments List).										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
December 14, 2023 Outgoing Email	This email from CNL Communications Officer to AOPFN Project Administrator is to provide the updated Summary of AOPFN Key Interests and Concerns and the Commitments working table along with forward facing list for the EIS. Both documents have been updated with edits suggested by AOPFN in writing and at the November 2, 2023, meeting. The I&C table has track changes showing only the most recent edits. CNL noted that unless AOPFN has any significant concerns about the changes to the I&C table, these are now ready for the EIS submission. CNL would appreciate confirmation from AOPFN by 2024 January 26.						√			√	√
January 25, 2024 Incoming Email	This email from AOPFN Project Coordinator to CNL Communications Officer informed CNL that AOPFN is not going to provide further comments on the public facing I&C and Commitments Tables at this time. AOPFN noted sharing thoughts and recommended edits, and while there may be sections that we don't agree on, AOPFN won't be holding you up from filing the EIS but do want it noted that the submission should not be labelled as approved by or otherwise endorsed by AOPFN. AOPFN reserves the right to further comment during the FPIRT process.						√			√	
January 29, 2024 Outgoing Email	This email from CNL to AOPFN Project Coordinator confirmed that AOPFN is not providing further comments on the updated Key Interests and Concerns and the Commitments Tables and provided an update on the outstanding responses.						√			√	
February 08, 2024 Telephone Call	This telephone call between CNL Communications Officer and AOPFN Project Coordinator is to discuss the outstanding responses to the 2023 EIS questions which CNL did not provide on the agreed date. CNL noted planning to provide the responses by the end of the month, and as a reminder we have committed to providing the responses prior to submitting the revised draft EIS.										√
February 08, 2024 Outgoing Email	This email from a CNL Communications Officer to AOPFN Project Coordinator is to apologize for not provided the outstanding responses to the 2023 questions by the date indicted in a previous email. CNL noted the extra time is being used to ensure the responses are in alignment with all the work being done at the working group level and with AECL. CNL is planning to provide the responses by the end of the month, and as a reminder CNL have committed to providing the responses prior to submitting the revised draft EIS. AOPFN Project Coordinator confirmed receipt of the update from CNL.										√

AOPFN - Mapping of Key Interests and Concerns

Table C-5 presents a mapping of how the key interests and concerns relate to detailed feedback and input from the AOPFN, up to March 2024.

Table C-5 has 3 columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, why it is important to the Indigenous Nation, community or organization, and connects it to a project aspect or an Aboriginal or treaty right wherever possible. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 presents details of the key interest or concern that the Indigenous Nation, community or organization has identified formally in writing and/or verbally to CNL.

Table C-5 Mapping of AOPFN Key Interests and Concerns

Topic	Key Interests and Concerns	Specific feedback provided by the AOPFN on this interest/concern (Validated)
1. Accidents and Malfunctions	(a) Concerns about potential effects of malfunctions and accidents (e.g., due to natural hazards) and concern about overall deterioration of the disposal facility over time. It is important to the AOPFN that there are no health or environmental impacts from the facility, in the long term because of the project's proximity to the Kichi-Sìbì, which has great importance to AOPFN culture, heritage and ways of life. As well, the AOPFN is concerned that contamination leads to further alienation and loss of access to traditional land use. This is a project-specific concern.	In July 2020, the AOPFN submitted formal comments on the 2020 EIS. AOPFN raised concerns about potential accidents and malfunctions. In addition, participants at the Algonquin Advisory Committee (AAC) meeting in 2021 July also expressed significant concerns about what-if scenarios related to both accidents and malfunctions caused by effects of the environment on the project and from other sources. In their letter dated August 13, 2021 that outlined the implications of the AOPFN studies for the NPD Closure Project, AOPFN highlighted member concerns over the potential for contaminants leaking into waterways. Further the Aug 13th letter indicated concerns about the integrity of the site in the event of natural disasters, such as earthquakes, and impacts of climate change, including changing precipitation patterns and alterations to the bank of the Kichi-Sìbì that may expose the grouted monolith to increased erosion. Similarly, concerns were expressed over the cracking, breaking or general deterioration of the concrete barriers over time. In April 2023, AOPFN also identified that CNL should be required to provide substantive evidence that it has contingency plans in place in case the facility fails to contain the radioactive materials adequately, including a scenario where the materials need to be removed. Further, AOPFN is concerned because the placement of the grout and cap will make it more difficult to access the facility in the future, and therefore any such remedial action may be difficult to activate. AOPFN highlights that proximity is only one factor in assessing the potential risks to health. While workers will be geographically closer and have potentially longer exposure periods to both radiological and non-radiological contaminants, workers will also have access to protective equipment, emergency procedures, and early warning of accidents and malfunctions. AOPFN is seeking meaningful participation in compliance monitoring and emergency response planning as part of any AOPFN-specific risk communication program.
2. Alternatives	(a) Technical suitability of the In-Situ Disposal concept AOPFN is seeking for the NPD site to be decommissioned in a manner that is safe, acceptable and preferable to Algonquin peoples, when considering environmental, rights, and other values. This is a project-specific concern.	AOPFN is concerned that ISD is not a preferred alternative means to decommission the NPD site, technically or from an Algonquin perspective. AOPFN is concerned about the reversibility of the ISD technique, consistency of ISD with international best practice and that the hazard will outlive the design life of the closure strategy and contamination will be dispersed. In July 2020, AOPFN submitted formal comments on the 2020 EIS. Several were related to the in-situ disposal concept, including: • The reversibility of the in-situ disposal technique and mitigation strategies; • Consistency of in-situ disposal with International best practice; • The design life of the disposal facility in relation to the hazard duration of the waste; The effectiveness of retrofitting the current NPD facility as opposed to constructing a purpose built facility. In April 2023, AOPFN reiterated its concern that the hazard will outlive the design life of the closure strategy and contamination will be dispersed. While the severity of any associated impacts may be low from a technical perspective, some form of contamination risk and the associated psycho-social impact will persist. AOPFN is also concerned that CNL considers material within the facility to be 'existing wastes' given that the decommissioning work has not yet occurred.
	(b) Process for Assessment of Alternatives It is important to the AOPFN that the process of the assessment of alternatives is accepted by and includes AOPFN. This is a project-specific concern.	AOPFN highlights that joint assessment of alternatives is considered best practice and are commonly implemented for projects that are of high concern to Indigenous peoples. AOPFN has indicated that the alternative means assessment (AMA) should be following the more rigorous IAA 2019 legislation. In July 2020, the AOPFN submitted formal comments on the 2020 EIS. Several were related to the alternatives assessment process and the in-situ disposal concept, including: • The principle of willing host and the precedent for future disposal facilities. • The need for a detailed quantitative assessment of each alternative against the ALARA principle. • A lack of consultation on the design alternatives assessment methodology. • No participation of AOPFN in the alternatives assessment.

Topic	Key Interests and Concerns	Specific feedback provided by the AOPFN on this interest/concern (Validated)
		• No opportunity for AOPFN to engage on the criteria and weightings used in the assessment and concerns about specific criteria weightings. • The need for a robust environmental effects assessment for each alternative. • A lack of evidence supporting significant incremental risks related to off-site disposal. • An AOPFN request for a multi-party reconsideration of alternatives. In their letter dated August 13, 2021, which outlined the implications of the AOPFN studies for the NPD Closure Project, AOPFN reiterated their concern with the way in which CNL undertook the AMA for the project and highlighted that the Diet and Harvest Study found a clear majority of AOPFN respondents prefer the full removal option. In April 2023, AOPFN reiterated its concerns related to CNL's process for assessment of alternatives including that the willing host principle has not been followed for this permanent radioactive waste disposal facility. AOPFN remains concerned that doses from ISD are not ALARA, that a quantitative comparison of dose risks from all technically and economically feasible alternatives has not been provided, that ISD would defer risks to future generations, that ISD would create an unnecessary permanent radioactive waste disposal facility in AOPFN territory, that ISD has heightened long-term impacts on AOPFN traditional land and resource use, culture, and health and well-being compared to other alternatives, that the risks of a contaminant plume impacting on the Ottawa River are not justified, that ISD is not amenable to easy contingency adaptive management in case the technology does not contain the radiological risk, that ISD is not considered a preferred means of decommissioning a reactor versus a geological repository, and that occupational risks have been weighted too heavily in CNL's assessment. AOPFN has also indicated a continued desire for a multi-party forum for selection and evaluation of alternatives.
2. Alternatives	(c) Integration of AOPFN AMA results into CNL's overall assessment of alternatives It is important to AOPFN that CNL meaningfully consider the results of the AOPFN Alternative Means Assessment. Further, AOPFN expected CNL to reconsider its original alternatives assessment and directly integrate the AOPFN results. This is a project-specific concern.	It is important to AOPFN that CNL meaningfully consider the results of the AOPFN AMA. Further, AOPFN expected CNL to reconsider its original alternatives assessment and directly integrate the AOPFN results. In a meeting on September 27, 2021, AOPFN representatives reiterated concerns that AOPFN members feel like their perspectives on preferred alternative means had not been integrated into CNL's EIS. AOPFN is appreciative that CNL funded AOPFN's AMA however remain concerned that CNL has not meaningfully considered AOPFN's AMA or conducted a reconsideration of CNL's original AMA as a result of AOPFN's AMA. AOPFN expressed disappointment that AOPFN material was only recognized and not integrated into CNL's decision-making process.
	(d) Emphasis on financial costs in determining preferred alternative means. AOPFN is concerned that CNL may be incentivized to choose the single fastest and cheapest decommissioning option (ISD) versus the two "removal" options. This is both a CNL-wide and a project-specific concern.	AOPFN is concerned that CNL prefers the option that has the lowest potential risks of short-term (i.e., plan implementation) safety, security or environmental incidents, at the expense of that option transferring longer-term risks to the immediate receiving environment. In July 2020, AOPFN submitted formal comments on the 2020 EIS including questions related to the contractual relationships between CNEA, AECL and CNL. In December 2020, AOPFN expressed concern that CNL was financially incentivized to find the fastest and cheapest ways to decommission NPD. In April 2023, AOPFN reiterated its concerns that the fastest, cheapest option has been selected.
3. Archaeology and Cultural Heritage	(a) Involvement in culture and heritage matters at the NPD site It is important for the AOPFN to be involved in any future archaeological activities at the site, to ensure that artefacts with cultural value and significance are identified and protected as archaeological sites and artifacts have deep cultural value and significance for the Algonquins. This is both a CNL-wide and project-specific concern.	The AOPFN AKLUS highlights the potential for deposited artefacts in the area of the NPD property related to pre-contact transportation corridors. As these archaeological sites and artefacts have deep cultural value and significance, AOPFN requires further involvement in culture and heritage matters at the NPD site. In addition, the AKLUS and the Culture and Rights Studies discuss the significant cultural and historical importance of the Kichi-Sìbì, and the AOPFN's concerns about impacts to current and future values and use of the Kichi-Sìbì. Protection of the Kichi-Sìbì is discussed in row #16 (a) below.

Topic	Key Interests and Concerns	Specific feedback provided by the AOPFN on this interest/concern (Validated)
4. Baseline Characterization	(a) Characterization of aquatic and terrestrial biota baseline It is important to AOPFN that the baseline environmental conditions around the site of the NPD Closure Project including aquatic and terrestrial biota are well understood and are protected in order to adequately assess potential impacts to AOPFN rights and traditional land and resource uses. This is a project-specific concern.	AOPFN has identified concerns in particular with the absence of an Algonquin Knowledge baseline for the NPD site and its surroundings, due to an absence of prior engagement by CNL and AECL of AOPFN in Algonquin Knowledge studies in and around this 400-hectare site. In July 2020, AOPFN submitted formal comments on the 2020 EIS. Several were related to baseline characterization: • A lack of data for benthic invertebrates abundance/diversity and no studies of fish tissues. • A reliance on background information and not on targeted field studies when defining the baseline for the terrestrial environment. • Species presence, abundance and potential nesting areas for migratory birds.
	(b) Use of a current, damaged baseline as the starting point for the assessment AOPFN has raised consistent concerns about the temporal comparison chosen by CNL for the NPD decommissioning assessment, which is to compare the future against today, rather than against a pre-NPD site condition (i.e., the early 1960s). This is not a project-specific interest; however it has implications for the EA process and methods used in this project-specific assessment.	AOPFN has argued that any decommissioning project needs to be tied to the ability to reach an agreed upon desired future state, not against an already damaged current state. In July 2020, AOPFN submitted formal comments on the 2020 EIS. Several comments were related to EA methodology and process. In their letter dated August 13, 2021, which outlined the implications of the AOPFN studies for the NPD Closure Project, one of the concerns reiterated by AOPFN was the lack of consideration of effects against a pre-NPD baseline. AOPFN reiterated to CNL in its feedback from April 2023 that it disagrees with the use of the current – damaged, baseline in CNL's assessment.
	(c) Technical suitability of the site. AOPFN is concerned that the site was not designed to be a permanent radioactive waste disposal facility. This is a project-specific concern.	AOPFN wants to ensure that AOPFN lands and the Kichi-Sìbì are protected and to reduce the radiological burden placed on AOPFN by Canada in the future. In July 2020, AOPFN submitted formal comments on the 2020 EIS. AOPFN expressed concern that CNL had not completed a siting study that demonstrated the site is technically superior and publicly acceptable. In April 2023, AOPFN repeated their concern that CNL had not performed a comprehensive exercise to determine the suitability of the site.
5. Engagement	(a) Interest in establishing a Long-Term Relationship Agreement (LTRA) It is important that a mechanism be in place for AOPFN to express its community members' needs and concerns with respect to CNL activities, including those beyond the NPD Closure Project, to CNL and AECL, and to be able to work with CNL and AECL towards understanding and resolution with respect to CNL activities and AECL-owned sites within the Algonquin Settlement Area where AOPFN members harvest food, medicines, and other natural materials. This is a CNL-wide interest.	In July 2020, AOPFN submitted formal comments on the 2020 EIS. In these comments, the AOPFN expressed interest in developing a LTRA with CNL. In April 2023, AOPFN clarified that there are only some mechanisms from the proposed LTRA which are applicable to NPD (i.e., the Guardian Program and Risk Communication Program). AOPFN has indicated that further collaborative assessment and negotiation of a Project-Specific Agreement will be required for NPD as part of a consent seeking process between the parties, at the end of which AOPFN may or may not provide its free, prior and informed consent to the proposed in-situ project at NPD.

Topic	Key Interests and Concerns	Specific feedback provided by the AOPFN on this interest/concern (Validated)
5. Engagement	(b) Interest in more direct and collaborative engagement on the NPD Closure Project It is important to the AOPFN that engagement involve two-way communication and active collaboration through all phases of the project as there are potential impact to current and future AOPFN members' rights and ability to practice traditional activities on the land / water. This is a project-specific interest.	AOPFN was not engaged collaboratively during the early stages of the EA e.g., the AMA and has identified their desire to be involved in all phases of the EA. Key areas for collaboration include: • Integration of the Traditional Use Study into project planning, design, mitigation and accommodation both during and post-EIS. • Development of mitigations that will be considered in assessments for valued components today – so AOPFN is involved in all phases of the EA and project life-cycle. • co-development and co-approval for development and implementation of the EA follow-up and monitoring program for the project, including adaptive management objectives, indicators, thresholds, and responses for terrestrial wildlife, fish and fish habitat, traditional land and resource use, and water quality at minimum. • co-development and co-management of end-state land use planning for the entire AECL site at NPD. In July 2020, AOPFN submitted formal comments on the 2020 EIS. In these comments AOPFN requested a work plan for direct EA engagement. AOPFN highlighted the need for more collaborative engagement and two-way dialogue.
6. EA Process and Methodology	(a) Concern about the methodology for conducting the effects assessment and determination of significance It is important to the AOPFN that events with the potential for an adverse effects on the environment and/or AOPFN rights are carried through the assessment process as far as is reasonable as the project may have impact to current and future AOPFN members' rights and ability to practice traditional activities on the land / water. This is a project-specific concern.	AOPFN is concerned that CNL's assessment does not integrate into its effects characterization any of the impact pathways identified by AOPFN that results in both direct and indirect effects on Traditional Land and Resource Use: quality and accessibility of the land, consideration against a pre-NPD baseline, Project-related activities would exacerbate the issue of alienation and further limitation of members' access to the area, perpetuating the difficulty of exercising their Aboriginal rights, long-term continuation of an avoidable location-specific effect in the form of fencing off and not allowing the NPD site to return to a natural condition, and the permanent cementing in place of radioactive materials very close to the Kichi-Sìbì the radioactive materials that cause fear, stigma, alienation and concerns about the quality of country foods and medicines, and whether they are harvestable. In July 2020, AOPFN submitted formal comments on the 2020 EIS. Several were related to EA methodology and process. In their letter dated August 13, 2021, which outlined the implications of the AOPFN studies for the NPD Closure Project, AOPFN reiterated their concerns related to EA methodology and process. The following items were highlighted related to EA methodology and process: • Concerns with the methodology to determine significance of adverse residual effects; • Concerns related to the determination of effects (impacts) and on the adequacy of evaluation of cumulative effects. • Concerns about how the quality and accessibility of land were considered in the effects assessment; this is discussed in row #17(b) below. • Consideration of effects against a pre-NPD baseline. The findings of the three AOPFN studies suggest there are residual adverse effects potential across a larger number of VCs, including Indigenous land and resource use, and the EIS has not been updated to properly reflect AOPFN's understandings of impacts on AOPFN members from the project. AOPFN reiterated to CNL in its feedback from April 2023 that it disagrees with the use of the current – damaged, baseline in CNL's assessment.
	(b) Concern about the methodology of the cumulative effects assessment It is important to AOPFN that the project assessment is properly informed by cumulative effects assessment in order to protect AOPFN values and rights. This is both a project-specific and CNL-wide concern.	AOPFN is concerned that despite AOPFN finding adverse effects there has been inadequate consideration of trend-over-time impacts on VCs found at and around the NPD site (adoption of a damaged current baseline), no cumulative effects assessment on AOPFN culture, traditional land and resource use, or health and well-being. AOPFN has provided evidence through four studies of risks in the Project Case to longer-term continuation of alienation and loss of use effects on traditional land users as a result of converting the NPD site to a permanent radioactive waste disposal facility. In July 2020, AOPFN submitted formal comments on the 2020 EIS. Several were related the adequacy of evaluation of cumulative effects.

Topic	Key Interests and Concerns	Specific feedback provided by the AOPFN on this interest/concern (Validated)
6. EA Process and Methodology	(c) Relevant legislation AOPFN expressed concern on continued use of *CEAA, 2012* rather than the more recent *Impact Assessment Act*. It is important to AOPFN that the NPD Closure Project Environmental Assessment (EA) is carried out using up-to-date legislation that includes best practice decision-making through a collaborative process. This is not a project-specific interest; however it has implications for the EA process and methods used in this project-specific assessment.	The impacts that AOPFN has identified are impacts within the federal jurisdiction under *IAA* (2019) and is disappointed that CNL, AECL and CNSC are continuing this assessment under the less rigorous expectations of CEAA 2012. In April 2023, AOPFN reiterated its disappointment that CNL, AECL, and CNSC, have chosen to continue the NPD Closure Project EA under the less rigorous expectations of *CEAA* (2012).
	(d) AOPFN participation in the assessment AOPFN is seeking good impact assessment practice that include Indigenous groups as part of the assessment early and throughout the process. This is not a project-specific interest; however it has implications for the EA process and methods used in this project-specific assessment.	The traditional users themselves, through the four AOPFN studies, have concluded that the proposed project will have impact on traditional use. AOPFN is concerned that the inputs from Indigenous Land users themselves has not been integrated into the actual effects characterization and significance determination process. AOPFN – and AOPFN's evidence in the traditional land use and occupancy study, the Diet and Harvest Study, and AOPFN's AMA, and culture and rights study, all of which have been made available to CNL, do not support CNL's conclusion that "the project will not interfere with traditional activities. AOPFN has and will continue to provide evidence that CNLs estimation of no adverse impacts on TLRU in the Project Case are incorrect, not supported by the traditional users themselves, In April 2023, AOPFN highlighted that their involvement in the assessment has been from the outside looking in and that AOPFN perspectives have had little to no influence on CNL's assessment findings. Further AOPFN highlights that there is an important distinction between putting an Indigenous group's perspective into a portion of the EIS and actually involving that Indigenous group in the assessment process.
7. End State, Site Restoration and Future Use of the Land	(a) Collaborative end land use planning It is important to AOPFN that it receives reassurance that the land around the facility will be renaturalized over time, so that AOPFN community members can reconnect with the site and be able to practice traditional land use activities. This is both a CNL-wide and project-specific concern.	AOPFN is a governance and stewardship entity with a right to be directly and deeply involved in collaborative end state planning. AOPFN is seeking an active, decision making, co-management role in the end state planning for NPD including early involvement in the development of the plan (not simply an opportunity to provide feedback on the plan after CNL has already drafted). AOPFN is also concerned that restoration of these ecosystems strive to bring back conditions similar to a pre-disturbance baseline (or intact reference baseline) and that more detailed restoration plans be included in the EIS. In July 2020, AOPFN submitted formal comments on the 2020 EIS. Several were related to end land use and restoration such as: • A request from AOPFN for commitment from CNL and AECL on collaborative end land use planning; • A lack of detail in the EIS to determine the cultural and ecological effectiveness of the lands following completion of the project; • A request for clarification on terminology ("renaturalization"). In their letter dated August 13, 2021, which outlined the implications of the AOPFN studies for the NPD Closure Project, AOPFN reiterated their request for collaboration on end-land use planning for the NPD site. In April 2023, AOPFN repeated its desire for collaborative end-land use planning for the full NPD site and indicated their preference to see the restoration activities further developed in the EIS before final submission. AOPFN's requested commitments would require CNL and AECL to fund and collaborate with AOPFN to undertake end-land use planning for the larger AECL-controlled NPD site, including plans for compensation if end-land use goals that have been agreed to are not met. CNL and AECL have not yet adequately demonstrated that they are ready to meet this requirement.

Topic	Key Interests and Concerns	Specific feedback provided by the AOPFN on this interest/concern (Validated)
7. End State, Site Restoration and Future Use of the Land	(b) Preparation of on-site landfills for the post-closure period Closure plans for the on-site landfills are important to AOPFN because it wants to ensure that the environment around the site of the NPD Closure Project is protected as these landfills were located on the NPD site within unceded Algonquin traditional territory where AOPFN members harvest food, medicines, and other natural materials. This is a project-specific interest.	In July 2020, AOPFN submitted formal comments on the 2020 EIS. AOPFN requested additional details on how the landfills onsite will be prepared for the post-closure period.
	(c) Project timeframe AOPFN is concerned that the site will require an indefinite period (>100 years) of institutional care. This is both a CNL-wide and project-specific interest.	AOPFN is concerned that the site will require an indefinite period (>100 years) of institutional care to monitor and maintain the infrastructure necessary to prevent potential impacts including continuation of active controls. AOPFN is also concerned that long-term funding for these institutional controls is uncertain. AOPFN is concerned that the NPD site and surrounding lands are safe for traditional land and resource use activities in the future. In July 2020, AOPFN submitted formal comments on the 2020 EIS. One comment requested details on the length of Institutional Control period and the Crown's commitment of long-term funds
	(d) Long-term liability of the site beyond decommissioning. It is important to AOPFN that the end state of the NPD site is safe for future land users and that a guarantee and long-term funding is in place for Institutional Controls for as long as necessary. This is a project--specific concern.	AOPFN is concerned that the Institutional Controls period will need to be significantly longer than 100 years. Further AOPFN is concerned that contingency plans in case the facility fails to contain the radioactive materials adequately, including a scenario where the materials need to be removed are not sufficiently developed. For both of these aspects AOPFN does not have confidence that government funding will continue or be in place. It is important to AOPFN that radioactive risks will not be passed on as a burden to future generations and it is important to AOPFN that radioactive materials are not abandoned and forgotten in Algonquin territory. It is important to AOPFN that they have safe and trusted access and use of the NPD site and its surroundings for present and future generations. AOPFN prefers an alternative that allows the land to heal the quickest from harms i.e., a removal option that does not perpetuate the current state of contamination. In a future with in-situ disposal, the underground conditions will be unnatural, and on the surface, portions of the site will be unnaturally fenced off, covered with a concrete cap and unable to return to a forested condition. AOPFN is concerned that project-related activities would exacerbate the issue of alienation and further limit members' access to the area. In April 2023, CNL heard that AOPFN remains concerned about a guarantee for funding of Institutional Controls and the lack of clarity on the length of the Institutional Controls period.
8. Environmental Effects and Mitigation Measures	(a) Invasive species management AOPFN is unclear how invasive species will be managed at the NPD site if introduced by vectors other than heavy equipment (e.g., by smaller vehicles, hand-held equipment, or people). This is a project-specific concern.	It is unclear what measures will be implemented to manage invasive species, should they be accidentally introduced or already present at the site. In July 2020, AOPFN submitted formal comments on the 2020 EIS seeking additional information on how invasive species will be managed. In December 2020 and April 2023 AOPFN continued to seek clarity on what measures would be implemented to manage invasive species if they are accidently introduced or already present at the NPD site.
9. Free Prior and Informed Consent (FPIC)	(a) Principle of consent It is important to AOPFN that the right to give consent to be a willing host be respected as the NPD site and facility is in unceded AOPFN traditional territory. This is both a CNL-wide and project-specific concern.	AOPFN is concerned that it did not consent to the original NPD construction and operation and that now, potentially without their consent, are expected to host the radioactivity in perpetuity. AOPFN has noted that the United Nations Declaration on the Rights of Indigenous Peoples, section 29.2, is not being adhered to by CNL and AECL in relation to the NPD Project. AOPFN has identified in writing, including in a letter shared in 2022 March, that it expects CNL and AECL to respect AOPFN's right to be a Willing Host for any transition of this site from a nuclear reactor site to a permanent hazardous waste disposal facility, and to respect AOPFN's right to Free, Prior and Informed Consent (FPIC) to any such proposal, as per the United Nations Declaration on the Rights of Indigenous Peoples. In April 2023, AOPFN highlighted that it did not consent to the NPD construction/operation and that now, without consent, AOPFN is expected to host the radioactive waste in perpetuity. AOPFN continued to highlight its position that FPIC is mandatory in relation to hazardous waste disposal facilities which this project has proposed the NPD facility become.

Topic	Key Interests and Concerns	Specific feedback provided by the AOPFN on this interest/concern (Validated)
10. Impacts on Rights	(a) Concerns about completeness of assessment of impacts on rights It is important to the AOPFN that all potential effects of concern have been assessed, including the potential alienation of AOPFN members from land use due to distrust in the safety of the land and water as this may impact AOPFN members ability to practice traditional activities on the land. This is a project-specific concern.	AOPFN has raised concerns that the implications of the findings of AOPFN's Culture and Rights Study, along with the Algonquin Knowledge and Land Use Study, the Diet and Harvest Study, and the AMA, which point to measurable adverse effects from the proposed In-Situ Decommissioning on AOPFN rights and related valued components, have not been adequately integrated into the EIS' effects characterization and significance estimation process. In particular, AOPFN has stated on multiple occasions and through the AMA process, that In-Situ Decommissioning is the least preferable decommissioning option from a rights protection perspective, given the area would not see the radiological hazard fully removed and as such the area cannot return to a natural and trusted condition in a reasonable time frame. In July 2020, AOPFN submitted formal comments on the 2020 EIS. One comment raised concern about potential Impacts on Rights and a desire for adoption of the new requirements as per the *IAA* (2019). In their letter in August 2021 that outlined the implications of the AOPFN studies for the NPD Closure Project, AOPFN's position was that measurable impacts on long-term ability to harvest in the NPD area will result from the project as proposed. Additionally, the August 2021 letter repeated AOPFN's concern that CNL has underestimated the project's impacts on traditional land and resource use, as well as culture and heritage resources, and impacts on AOPFN rights. In April 2023, identified the need for recognition of truth. The legacy of the NPD facility and larger surrounding site, including ongoing effects, are a fact that must be considered during the assessment and consultation phase for this proposed Project. AOPFN's position remains that there are measurable impacts on the rights of AOPFN to practice traditional activities around the NPD site. Psychosocial effects are discussed further in row 11 (b) below.
11. Indigenous Health	(a) Indigenous health assessment, receptors and diet AOPFN is concerned that health is primarily focused on biophysical health rather than full scope Indigenous determinants of health. This is a project-specific concern.	The assessment of Indigenous health should look beyond radiation dose thresholds and include consideration of the more difficult to measure, but equally important, perceptual and real impacts on AOPFN determinants of health including education status, economic status, and diet, among other factors. Diet is of critical importance given the likelihood that negative perceptions of the safety of the Project may diminish AOPFN member's consumption of traditional foods. In July 2020, AOPFN submitted formal comments on the 2020 EIS. Several identified concerns with the health assessment and requested a dietary study involving AOPFN. The concerns are: • Changes in diet from perceived contamination and effects on overall health. • The definition of the Indigenous receptor and alignment of that profile with the harvest and diet practices of the local population. • A request to update the spatial boundaries for the Indigenous Health assessment. AOPFN has highlighted that the Diet and Harvest Study implications do not end at modelling of the human health risks and factors related to Indigenous determinants of health have not been demonstrably integrated into the EIS materials that assess Indigenous health.
	(b) Psychosocial effects AOPFN is concerned that in relation to human health, CNL has adopted a relatively narrow perspective on human health that is focused on biophysical impacts to human health, with little or no emphasis on other factors that influence Indigenous population health. This is a both a CNL-wide and project-specific concern.	This is particularly concerning to AOPFN because of the fear, stigma, and alienation felt by AOPFN members associated with the nuclear industry in general. The impacts resulting from the perception of environmental effects must be recognized. These include but are not limited to continued – now potentially permanent - fear and stigma associated with the radiological legacy at the site, and communal health and wellness issues associated with the inability to connect to the site and protect and heal it which is characterized by AOPFN as both a right and a responsibility. Pooled together, these concerns are often labeled as psychosocial impacts, and they are major contributors to poor health and wellness outcomes among Indigenous peoples. AOPFN has raised consistent concerns that CNL is not considering psychosocial impacts as legitimate impacts. AOPFN disagrees with CNL's assessment that there are no effects from the NPD Closure Project. AOPFN continues to have concerns about the safety of the NPD site and the potential impacts on the rights of AOPFN to practice traditional activities around the NPD site. AOPFN has highlighted in its feedback in April 2023 that CNL does not consider perceived risk, fear, stigma and their combined impacts on traditional use and rights practices as a legitimate impact pathway in this assessment. AOPFN is concerned that CNL is making this assessment/characterization instead of allowing AOPFN to decide whether it will be impacted. AOPFN is interested in better characterization of the factors that have led to alienation and loss of land use, and better understanding of the implications of psychosocial impacts on AOPFN socio-cultural health and well-being. AOPFN has indicated that this will be an important issue for focus on a move forward basis.
12. Long-term Safety	(a) Concern about overall deterioration of the disposal facility over time. The AOPFN identified the long-term site integrity as important because of the site's location within unceded Algonquin traditional territory and the potential of the project / site to impact people living or fishing nearby (exercising rights to fish), as well as wildlife, vegetation, and all elements of the natural environment at and in the vicinity of the Project. This is a project-specific concern.	AOPFN has raised concerns about whether future safety will be properly monitored, given the life of some of the contaminants exceeds the predicted Institutional Control period for the facility in the Project Case. Within the AKLUS report, participants identified concern about long-term site integrity and monitoring. The Culture and Rights Study also identified concern about site integrity and the need for monitoring based on Algonquin principles. In their letter dated August 13, 2021, which outlined the implications of the AOPFN studies for the NPD Closure Project, AOPFN highlighted member concerns over the potential for contaminants leaking into waterways. Further the Aug 13th letter indicated concerns about the integrity of the site in the long-term resulting from cracking, breaking or general deterioration of the concrete barriers over time.

Topic	Key Interests and Concerns	Specific feedback provided by the AOPFN on this interest/concern (Validated)
13. Monitoring	(a) AOPFN involvement in monitoring Involvement in monitoring is important to the AOPFN to ensure the Kichi-Sìbì is taken care of as it has great importance to AOPFN culture, heritage and ways of life. This is both a CNL-wide and project-specific interest.	It is important to AOPFN that it has a co-development and co-approval role in the development and implementation of the EA follow-up and monitoring program for the project, including adaptive management objectives, indicators, thresholds, and responses for terrestrial wildlife, fish and fish habitat, traditional land and resource use, and water quality at minimum. AOPFN is concerned that follow-up monitoring lacks a health component that would evaluate aspects of TLRU, culture and Indigenous health/well-being. AOPFN is seeking meaningful participation in compliance monitoring and emergency response planning as part of any AOPFN-specific risk communication program. AOPFN's position is that an independent Indigenous Guardian-style program is critical in relation to the NPD site and its surroundings. This will allow for Indigenous Knowledge to be integrated into project monitoring for the first time, restore AOPFN stewardship responsibilities in keeping with Canada's commitment to reconciliation and UNDRIP, increase AOPFN capacity to understand and monitor changes to the environment our members rely upon, and is an important link into a required Indigenous-driven risk communication strategy for the Project. In July 2020, AOPFN submitted formal comments on the 2020 EIS. Several indicated AOPFNs desire for involvement in monitoring. In their letter dated August 2021 that outlined the implications of the AOPFN studies for the NPD Closure Project, AOPFN reiterated their expectation of a meaningful AOPFN role in site (and surroundings) monitoring for the life of the project, and support for the collection of both technical and Indigenous Knowledge monitoring data. To facilitate this meaningful role, AOPFN is seeking support for the Neya Wabun Guardian Program to be applied in relation to monitoring the NPD site. Specifically, the Culture and Rights Study requested long-term monitoring of the site, including a site inventory by AOPFN members to know what resources are within the fenced site location (the entirety of the AECL-owned property, not just the NPD reactor location within it), and the current conditions of those resources.
14. National Policy	(a) Canadian strategy for waste management is lacking AOPFN is concerned that the Government of Canada does not yet have a modern nuclear waste management policy in place and that a lack of coordinated planning in past to develop permanent facilities has resulted in a proposed facility in AOPFN territory that it has not consented to, and which is contrary to IAEA guidance and the principle of consolidation of waste into the smallest feasible number of permanent waste disposal facilities. This is not a project-specific concern; however it has implications on this project.	In April 2023, AOPFN highlighted that Canada lacked a coordinated strategy to develop permanent disposal facilities. As an outcome of this failing by Canada, not only did AOPFN not consent to the NPD construction/operation, they are now, without their consent, expected to host the radioactivity in perpetuity.
	(b) Canadian strategy for waste management is not timely AOPFN's view is that Canada failed to act in a timely manner to implement an acceptable permanent waste management alternative. This is not a project-specific concern; however it has implications on this project.	AOPFN is concerned that it did not consent to the NPD construction/operation and that now, without consent, AOPFN is expected to host the radioactive waste in perpetuity. In April 2023, AOPFN highlighted that Canada failed to act in a timely manner to implement an acceptable permanent waste management alternative.
15. Protection of Flora and Fauna	(a) Habitat (including Species at Risk) and road mortality impacts As stewards of lands and waters, it is important to the AOPFN that the environment, wildlife, and plants, including Species at Risk and their habitat areas, are taken care of now and for future generations. This is a project-specific concern.	In July 2020, AOPFN submitted formal comments on the 2020 EIS. One comment sought additional information about potential road mortality impacts for important VCs such as Blanding's turtles and milk snake. Within the AKLUS report, participants identified the following concerns related to species at risk: • Species at risk including lake sturgeon, eel, and bald eagles, including habitat concerns; • Concerns about loss of habitat.

Topic	Key Interests and Concerns	Specific feedback provided by the AOPFN on this interest/concern (Validated)
16. Protection of the Ottawa River	(a) The Ottawa River, and shoreline and riparian ecosystems AOPFN is concerned that the disturbed riparian habitat was excluded from CNL's Ecological Land Classification on the basis that it was considered an anthropogenic site. This is both a CNL-wide and project-specific concern.	AOPFN is concerned that the Project will contribute impacts to riparian ecosystems as a result of decommissioning activities, batch plant operation, traffic on adjacent roadways, dust, and ongoing legacy effects as a result of liabilities remaining after decommissioning that are likely to influence groundwater and adjacent riparian areas. The restoration of these ecosystems should strive to bring back conditions similar to a pre-disturbance baseline (or intact reference baseline). In July 2020, AOPFN submitted formal comments on the 2020 EIS. One comment expressed concern about the impacts to the riparian ecosystem as a result of decommissioning activities and the liability remaining after decommissioning. Within the AKLUS report, participants identified concerns related to the Kichi-Síbí, fish, fish habitat and bioaccumulation. A letter from the AOPFN, received in August 2021 highlighted concern about the proximity of the proposed project to the Kichi-Sìbì, considering its importance to AOPFN culture, heritage and ways of life. In April 2023, AOPFN identified the need for restoration activities to re-establish a more natural riparian habitat in the NPD Project- affected area.
17. Socio-Economic	(a) The absence of primary socio-economic baseline data for AOPFN The AOPFN have indicated that having primary socio-economic baseline data is important to the AOPFN because Indigenous Nations, communities and organizations often conceptualize socio-economic wellbeing in ways that cannot be adequately captured with census data. And, potential effects to Indigenous socio-economic conditions cannot be adequately assessed without this baseline. This is a project-specific concern.	AOPFN is concerned that the Indigenous socio-economic assessment is extremely narrow, focusing primarily on nuisance effects from Project activities and traffic safety. This assessment does not contain an appropriate social component, which may include (but not be limited to) considerations such as social relations, family, intergenerational relations, food security, sharing relationships, and psychosocial factors, as well as standard socio-economic considerations such as (but not limited to) education and training, employment and income, job readiness, housing, and community services. In addition, AOPFN commercial activities (e.g. guiding and outfitting) should be assessed. The socio-economic effects assessment should consider direct, indirect, induced, and cumulative socio-economic impacts. In addition, appropriate mitigation and monitoring measures should be adopted. In July 2020, AOPFN submitted formal comments on the 2020 EIS. AOPFN raised concerns on the narrow spectrum of socio-economic issues discussed in the EIS.
18. Technical	(a) Emissions and Discharges It is important to AOPFN that emissions to the environment are properly assessed and are mitigated and monitored as appropriate to ensure that the rights and interests of AOPFN members are upheld in relation to the environment (i.e., hunting, trapping, gathering, fishing and cultural ceremonies). This is a project-specific concern.	In July 2020, AOPFN submitted formal comments on the 2020 EIS. Several were technical such as: • Plans for dust mitigation. • Effluent discharges to the aquatic environment.
19. Traditional Land and Resource Use and Cultural Impacts	(a) Algonquin traditional knowledge should be collected and incorporated into the EIS. It is important to AOPFN that community-specific knowledge be obtained and used to properly characterize current conditions and develop scenarios that accurately represent potential future uses of the site to enable future AOPFN members to practice traditional activities in the region. This is a project-specific concern.	In July 2020, AOPFN submitted formal comments on the 2020 EIS. Two of these comments focused on the incorporation of AKLUS information into the EIS. AOPFN also requested capacity for disaggregation of AOO AKLUS results.

Topic	Key Interests and Concerns	Specific feedback provided by the AOPFN on this interest/concern (Validated)
19. Traditional Land and Resource Use and Cultural Impacts	(b) Impact on ability to practice traditional activities. AOPFN is concerned about continued ability to harvest and consume wildlife and natural materials from the area, including hunting, plant harvesting and fishing. This is a project-specific concern.	AOPFN is concerned that harvesting sites could become compromised in the future, leading to concerns over safety that would impact members' abilities to pass on AOPFN knowledge on harvesting to children. This would in turn affect the ability of future generations to use the area; and that project-related activities would exacerbate the issue of alienation and further limit members' access to the area, and perpetuate the difficulty of exercising their Aboriginal rights. AOPFN disagrees with CNL's conclusion of no impacts on traditional land use. AOPFN's four studies, supported by evidence from traditional land users themselves identify the following existing impact pathways: • Lack of access to the NPD site since 1962; • Diminished quality and quantity of game species in preferred hunting areas; • Lack of confidence in the health of animals, fish, medicines, and waters, and in their safety for human consumption. In July 2020, AOPFN submitted formal comments on the 2020 EIS. One comment included AOPFN perceptions of safety and quality of experience on the land. Through its recent engagement with AOPFN, CNL has also heard interest on the topics of Traditional Use (aesthetics and visual), perceived and sensory effects that may result in alienation from lands and impact on cultural landscapes. Within the AKLUS report, participants identified the following concerns with respect to traditional land and resource use and cultural impacts: • Concerns about impacts to harvesting; • Concerns about the Kichi-Síbí, fish and bioaccumulation; • Concerns about future generations' ability to use the area; • Concerns about the protection of and access to sites of cultural and spiritual significance; • Concerns about loss of access. In their letter dated 2021 August that outlined the implications of the AOPFN studies for the NPD Closure Project, AOPFN's position is that measurable impacts on long-term ability to harvest in the NPD area will result from the proposed project. This letter repeated AOPFN's concern that CNL has underestimated the project's impacts on traditional land and resource use, as well as culture and heritage resources, and impacts on AOPFN rights. The 2021 August letter highlighted: • concern over the potential for leaks from the facility affecting people and wildlife that rely on them; • Perception of contamination, leading to further alienation and loss of access to traditional land use; AOPFN is interested in better characterization of the factors that have led to alienation and loss of land use, and better understanding of the implications of psychosocial impacts on AOPFN socio-cultural health and well-being. In April 2023, AOPFN reiterated its position that CNL's estimation of no adverse impacts on TLRU in the Project Case are incorrect and not supported by the traditional users themselves.
	(c) Preservation of cultural resources, and mitigation of impacts to cultural resources It is important to the AOPFN that traditional land use and cultural resources are protected and potential effects are mitigated and monitored in a way that recognizes the interdependencies between ecological, socio-economic, community and cultural health. This is a project-specific concern.	AOPFN is concerned that the EIS has only considered the presence of ceremonies and access to physical archaeological resources, neglecting other cultural values of importance to AOPFN such as transmission of traditional knowledge, cultural landscapes as well as trails and travel-ways such as the Ottawa river. Further mitigations for impacts to traditional use are limited to construction timing, dust suppression, and communication/notification. AOPFN is seeking a collaborative process to identify culturally appropriate ways to mitigate potential impacts and concerns of AOPFN and AOPFN Knowledge Keepers. In 2020 July, AOPFN submitted formal comments on the 2020 EIS. Several were related to traditional land and resource use: • Preservation of cultural resources. • Culturally appropriate mitigations. In April 2023, AOPFN identified that commitments to collaborative development of mitigation measures and monitoring activities remain too vague. Further AOPFN is looking to a see health follow-up monitoring activities that integrate aspects of TLRU, culture and Indigenous health and well-being.

Topic	Key Interests and Concerns	Specific feedback provided by the AOPFN on this interest/concern (Validated)
19. Traditional Land and Resource Use and Cultural Impacts	(d) Concern about the size of the study areas for the assessment of effects on traditional land use. It is important to the AOPFN that all potential effects on traditional land use are considered by identifying study areas that encompass not just biophysical and physical effects, but also changes to the environment that would affect the values and sense of safety of AOPFN members. This is a project-specific concern.	AOPFN is concerned that CNL has not adopted the larger Local and Regional Study Areas used by AOPFN in their studies. This highlights the continued lack of understanding of just how large the impact zone on Traditional Land and Resource Use is around the NPD site. AOPFN has flagged that the study areas selected for traditional use VCs by CNL in the EIS differ from the study areas used by AOPFN in the AKLUS. AOPFN highlighted in its text within Section 9.9 of the EIS that CNL has chosen to ignore the larger Local Study Area and Regional Study Area used by AOPFN peoples in three studies, thus rejecting AOPFN Algonquin Knowledge. The result is Local Study Areas and Regional Study Areas that are 25 times smaller than those chosen by the AOPFN Algonquin knowledge holders themselves. This contributes to the continued lack of understanding of just how large the impact zone on Traditional Land and Resource Use is around the NPD site, which remains an open question in this EA.
	(e) Participation of knowledge holders in the assessment of effects to TLRU. AOPFN is concerned about the lack of integration of AOPFN knowledge and AOPFN members into the assessment of effects on traditional land and resource use, culture, and Indigenous health and well being This is not a project-specific interest; however it has implications for the EA process and methods used in this project-specific assessment.	AOPFN holds that it is a principle of meaningful assessment of effects on Indigenous land use, culture, and health and well-being that not only must Indigenous inputs be provided into the process, but the Indigenous Knowledge holders, with their unique expertise as the actual land users and culture holders, must be involved in effects characterization and significance estimation. In their April 2023 comments to CNL, AOPFN highlighted that the traditional users themselves, through the four AOPFN studies, have concluded that the proposed project will have impact on traditional use. AOPFN is concerned that the inputs from Indigenous land users themselves has not been integrated into the actual effects characterization and significance determination process. AOPFN has and will continue to provide evidence that CNLs estimation of no adverse impacts on TLRU in the Project Case are incorrect, not supported by the traditional users themselves.
20. Valued Components	(a) Inclusion of VCs identified by AOPFN AOPFN is concerned that the specific species they have identified are sometimes assessed using a representative species. Further, AOPFN is concerned that the final decisions on what VCs to include was made by CNL, and was not verified as appropriate by AOPFN, which suggests that Algonquin Knowledge is still not treated as of equivalent value to western science in CNL's EA. This is a project-specific concern.	The decision to use a receptor species and the appropriateness of that species was not informed by Algonquin Knowledge. For example AOPFN is concerned that the many fish species are evaluated using only two generic categories – pelagic and benthic and that vegetation is represented by a single VC – terrestrial vegetation. AOPFN also suggests additional work to understand the values, distribution, abundance, and risks to impacts of specific aquatic and terrestrial vegetation is required. In their letter dated August 2021 that outlined the implications of the AOPFN studies for the NPD Closure Project, AOPFN expressed their concern that several VCs identified by AOPFN Knowledge Keepers in the AKLUS were not covered in the draft EIS: • Culturally important plants (including cattails and muskrat root/sweet flag); • Furbearers of cultural importance (including Amik (Beaver), Pashkwajàsh (Coyote), Odjìg (Fisher), Wàbisheshi (Marten), Nigig (Otter), Wàbòz (Rabbit), Esiban (Raccoon), Wàgosh (Fox), Adjidimò (Squirrel),and Shingosi (Weasel)); • Mónz and Mónz Habitat; • Wawáshkeshi Habitat; • Partridge; • AOPFN preferred harvesting sites; • AOPFN preferred fishing sites; • Kichi-Sìbì as a cultural landscape. • AOPFN member cultural continuity and way of life. Further, late in 2021 AOPFN provided text directly for the EIS that highlighted several concerns about the comprehensiveness and representativeness of some of the VCs chosen by CNL for this EA.

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

AOPFN (AOPFN) – Summary of Interests and Concerns

Table C-6 below summarizes the key interests and concerns that the AOPFN have raised up to March 2024 on the NPD Closure Project, through comments submitted on the 2020 EIS to the CNSC and CNL, subsequent filings of material by AOPFN to CNL or through direct discussion and engagement between AOPFN and CNL.

Table C-6 has five columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, and why it is important to the Indigenous Nation, community or organization. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 summarizes CNL's response or conclusions as well as CNL's efforts to address this key interest or concern.
- Column 4 identifies where in the EIS the key interest or concern is addressed, and whether any changes were made to the EIS in response to the interest/concern. If these changes resulted in a different outcome in the EIS, this is also discussed.
- Column 5 summarizes the "Status" of the key interest or concern and the anticipated Next Steps towards achieving resolution of the key interest or concern. Not all concerns can be quickly or easily resolved, as some concerns go beyond the scope of the EA process, or there may divergent perspectives on certain interests or concerns. Note: this column does not, unless specifically confirmed by the Indigenous Nation, community or organization, mean that they have verified that the interest or concern has been dealt with to their satisfaction.

Table C-6 AOPFN Interests and Concerns

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
1. Accidents and Malfunctions	(a) Concerns about potential effects of malfunctions and accidents (e.g., due to natural hazards) It is important to the AOPFN that there are no health or environmental impacts from the facility, in the long term because of the project's proximity to the Kichi-Sìbì, which has great importance to AOPFN culture, heritage and ways of life. As well, the AOPFN is concerned that contamination leads to further alienation and loss of access to traditional land use. This is a project-specific concern.	CNL has responded in writing to AOPFN comments on accidents and malfunctions citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020, and two meetings to discuss responses were held in 2020. CNL updated its dispositions to AOPFN comments on the EIS and responded to AOPFN in December 2022. AOPFN provided additional feedback to CNL in April 2023. CNL delivered a presentation to the Algonquin Advisory Committee (AAC) in 2021 September on how the project considers what-if scenarios, including accidents, leaks, or malfunctions. CNL Response: CNL's Emergency Procedure for the NPD site includes actions for specific staff roles in the event of a wide range of emergency conditions including fires, floods, hazardous spills, loss of power, earthquakes, and tornados. This procedure was developed and is updated in accordance with CNL's company-wide Emergency Preparedness Program, which has been accepted by the CNSC and meets the requirements of REGDOC 2.10.1 Nuclear Emergency Preparedness and Response. It will remain in place and be updated as required throughout the Decommissioning Execution and Institutional Controls phases of this project. Per the plan, as soon as it is safe to do so following an emergency event, CNL staff will evaluate site and facility conditions and arrange for any necessary repairs to be made. Further, CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above-ground natural hazards and extreme temperature change through all project phases (Decommissioning Execution, Institutional Controls and Post-Institutional Controls) and has concluded that these events will have no undue effects on people or the environment around the site.	Where is this topic discussed in the EIS? **Section 8.12** of the EIS discusses the natural disasters to which NPD may be exposed. **Section 9.14** of the EIS discusses the potential effects on the project of climate change, forest fires, floods, earthquakes, severe weather such as tornados, lightning strikes, ice storms, and changes to the Ottawa River. Additional details and a range of scenarios that encompass the potential impacts from extreme weather and natural hazards are examined in the Decommissioning Safety Assessment (DecomSA) TSD and the PostSA TSD. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Further alignment on this concern is unlikely. CNL's technical assessment shows that accidents and natural hazards which could affect the facility will not result in undue effects on people and the environment around the site. CNL understands that this concern is outstanding from AOPFN's perspective based on AOPFN feedback in April 2023. A contributing factor to this outstanding concern is AOPFN's concern that the proposed closure of the facility (grout, cap etc.) will make it very difficult to access the facility in the future to intervene with remedial action if the facility does not perform as expected. Next steps: CNL and AOPFN have agreed to the following commitments: AOPFN-3: CNL is committed to collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN community members and application of the AOPFN Risk Communication Program at the NPD Site. AOPFN-5: CNL is committed to develop with AOPFN a meaningful role for AOPFN in the monitoring for the NPD Closure Project in addition to AOPFN participation in current environmental/compliance monitoring.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		CNL models several scenarios in its Postclosure Safety Assessment (PostSA) technical supporting document (TSD) which take into account how accidents and natural hazards could affect the facility. These scenarios are called disruptive events. One such case models severe erosion (flood) while another models extreme degradation of the facility (the concrete structure and the grout). In both of these cases the predicted doses to receptors are still well below the dose criterion of 0.25 mSv/yr; 0.009 mSv/yr and 0.0009 mSv/yr, respectively. To verify that the engineered barriers as a whole are performing as expected/designed, CNL will monitor groundwater. Groundwater wells will be located between the NPD facility and the Ottawa River in order to monitor groundwater quality after it interacts with the facility and before it reaches the Ottawa River.		
2. Alternatives	(a) Technical suitability of the In-Situ Disposal concept AOPFN is seeking for the NPD site to be decommissioned in a manner that is safe, acceptable and preferable to Algonquin Peoples, when considering environmental, rights, and other values. AOPFN is concerned that ISD is not a preferred alternative means to decommission the NPD site, technically or from an Algonquin perspective. AOPFN is concerned about the reversibility of the ISD technique, consistency of ISD with international best practice and that the hazard will outlive the design life of the closure strategy and contamination will be dispersed. This is a project-specific concern.	CNL has responded in writing to AOPFN comments on the in-situ disposal concept citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020. CNL updated its dispositions to AOPFN comments on the EIS and responded to AOPFN in December 2022. AOPFN provided additional feedback to CNL in April 2023. At the November 2020 meeting with the AAC, CNL provided an overview of the in-situ disposal concept. CNL presented to the AAC on how it conducted the alternative means assessment (AMA) and why in-situ disposal is the preferred approach in October 2021. AOPFN recommended to CNL in 2021 September that further revisions be made to the EIS section on Alternative Means, including a meaningful effort to integrate AOPFN perspectives from the three studies and through the AAC on in-situ disposal compared to other alternative means. CNL funded an AOPFN AMA and a report was completed in April 2022. The report includes AOPFN community perspectives and concerns about the alternatives to decommission the site. The report also identifies full removal as AOPFN's preferred decommissioning strategy. CNL Response: CNL agrees that protection of future land users is an important concern and has addressed this subject. CNL has assessed the suitability of in-situ disposal for the NPD site, and the EIS shows that such a disposal is safe for human health and the environment in the short term and long term. The NPD reactor has a low radionuclide inventory. Tritium is the major radionuclide and will decay to low levels during the Institutional Control period (~100 years). The proposed waste disposal facility barriers have a design life consistent with that timeframe. The longer-lived Intermediate Level Waste (ILW) consists of small quantities of low energy beta emitters. The beta emitters have low radiotoxicity. The main barrier to containing the radioactivity on long timescales is that 83% of the initial inventory (mostly activation products) is embedded within steels and zircaloy which corrode very slowly, particularly in an alkaline environment. The metals used in the	Where is this topic discussed in the EIS? The in-situ disposal approach is described in **Section 3.2** of the EIS. Alternative means are discussed in the **AMA TSD** (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS. What changes have been made (and where)? CNL has included within the EIS a sub-section **Section 4.2 (**Alternative Means), written by the AOPFN, that provides a summary of the results of the AOPFN AMA. The AOPFN AMA has also been included as an appendix to the EIS (Appendix D). The 2020 EIS reviewed by AOPFN already included the following improvements: • CNL incorporated additional information from the AMA TSD in the EIS (**Section 4.2**) to provide greater clarity on how the alternative means was completed and what the results mean. • CNL enhanced the assessment of alternatives in the AMA TSD; for example, the projected radiological dose and industrial safety risk to workers for each alternative means was presented. Though all alternatives can be performed safely, there is an increased risk to workers from industrial hazards and radiological dose for the removal alternative means compared to in-situ disposal.	Status: Further alignment on this concern not possible CNL's technical assessment shows that the in-situ design is appropriate for the hazardous timeframe of the contaminants and is consistent with national and international standards. CNL understands that this concern is outstanding from the AOPFN's perspective based on AOPFN feedback in April 2023. AOPFN's position is that full removal is the preferred option. AOPFN is concerned that the hazard will outlive the design life of the strategy and that contamination will be dispersed over time, possibly after Institutional Controls have been removed, thus exposing future generations to this risk. AOPFN is also concerned that ISD would defer risks to future generations, that ISD would create an unnecessary permanent radioactive waste disposal facility in AOPFN territory, that ISD is not amenable to easy contingency adaptive management in case the technology does not contain the radiological risk and that ISD is not considered a preferred means of decommissioning a reactor versus a geological repository, AOPFN acknowledges that, from a technical perspective, the severity of the impacts may be low, some form of contamination risk and the associated psycho-social impact will persist. Next steps: AOPFN and CNL disagree on the preferred option to decommission the NPD site. Through continued engagement at the Working Group and with the AAC CNL hopes that the parties are able to find common ground on this topic.

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		reactor vault are corrosion-resistant alloys, with stainless steel taking approximately 30,000 years to fully corrode and zircaloy up to 300,000 years to fully corrode. The low corrosion rates allow the radioactivity to decay before it is released into the reactor vault. Once in the reactor vault the radioactive contaminants sorb onto the grout which further delays its diffusion out of the facility. Based on its consideration of national and international standards and guidelines, CNL continues to believe that the NPD facility has characteristics that support in-situ disposal.		CNL and AOPFN have agreed to the following commitment: AOPFN-5: CNL is committed to develop with AOPFN a meaningful role for AOPFN in the monitoring for the NPD Closure Project in addition to AOPFN participation in current environmental/compliance monitoring. This commitment has the potential to build confidence and trust in the in-situ disposal concept.
2. Alternatives	(b) Process for Assessment of Alternatives It is important to the AOPFN that the process of the assessment of alternatives is accepted by and includes AOPFN. AOPFN highlights that joint assessment of alternatives is considered best practice and are commonly implemented for projects that are of high concern to Indigenous Peoples. AOPFN has indicated that the alternative means assessment should be following the more rigorous IAA 2019 legislation. This is a project-specific concern.	CNL has responded in writing to AOPFN comments on alternatives citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020. CNL updated its dispositions to AOPFN comments on the EIS and responded to AOPFN in December 2022. AOPFN provided additional feedback to CNL in April 2023. As per direction from the CNSC and the transitional provisions of the Impact Assessment Act, CNL is continuing its EA for the NPD Closure Project under *CEAA* (2012). Letter to CNL - Changes to Federal Legislation. CNL recognizes that what AOPFN is requesting is consistent with the new provisions and commitments under the *Impact Assessment Act* (*IAA*) but is beyond the scope of *CEAA* (2012) and this EA, and therefore is not required to be considered. The final NPD EIS will meet the requirements of *CEAA* (2012) but will also incorporate good practices consistent with the *IAA*. CNL held a workshop with the AAC in October 2021 that explained how CNL conducted the AMA and why in-situ disposal is the preferred approach. This was also an opportunity for AAC members to ask questions about the alternatives assessment and voice concerns directly with the project team. To address AOPFN's concerns about participation in the study design and assessment, CNL funded an AOPFN AMA and a report was completed in April 2022. The report includes AOPFN community perspectives and concerns about the alternatives to decommission the site. The report also identifies full removal as AOPFN's preferred decommissioning strategy. CNL Response: When conducting the AMA, CNL followed the regulatory framework laid out in the Canadian Environmental Assessment Agency (CEAA) Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2015) for the evaluation of alternatives. The level of analysis conducted for each alternative is consistent with these requirements. The waste at NPD has been there for over 55 years. CNL is reducing the waste liability by converting the waste into a form that provides safe, permanent waste disposal. However, in order to ensure that AOPFN's perspective on this subject has been recorded, CNL has added a sub-	Where is this topic discussed in the EIS? The in-situ disposal approach is described in **Section 3.2** of the EIS. Alternative means are discussed in the **Alternative Means Assessment TSD** (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS. What changes have been made (and where)? CNL has included within the EIS a sub-section to **Section 4.2 (**Alternative Means), written by AOPFN, that provides AOPFN perspectives on in- situ disposal compared to other alternative means developed thus far, based on study findings and community perspectives. The AOPFN AMA has also been included as an appendix to the EIS (Appendix D). The 2020 EIS reviewed by AOPFN already included the following improvements: • CNL incorporated additional information from the AMA TSD in the EIS (**Section 4.2**) to provide greater clarity on how the alternative means was completed and what the results mean. • CNL enhanced the assessment of alternatives in the AMA TSD; for example, the projected radiological dose and industrial safety risk to workers for each alternative means was presented. This assessment has shown that in-situ disposal is safer than the removal alternative means. The results and conclusions of the AOPFN AMA have been integrated into the EIS to demonstrate the inclusion of valuable input into the EA process. However, the results of the AOPFN AMA do not replace or supersede CNL's conclusions.	Status: Further alignment on this concern not possible CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012) and concludes that ISD is the preferred means to execute the NPD Closure Project. CNL understands that this concern is outstanding from the AOPFN's perspective based on AOPFN feedback in April 2023. AOPFN has identified that the willing host principle has not been followed for this permanent radioactive waste disposal facility. Further AOPFN remains concerned that doses from ISD are not ALARA, that a quantitative comparison of dose risks from all technically and economically feasible alternatives has not been provided, that ISD would defer risks to future generations, that ISD has heightened long-term impacts on AOPFN traditional land and resource use, culture, and health and well-being compared to other alternatives, that the risks of a contaminant plume impacting on the Ottawa River are not justified and that occupational risks have been weighted too heavily is CNL's assessment. AOPFN has also indicated a desire for a multi-party forum for selection and evaluation of alternatives. Next steps: AOPFN and CNL disagree on the process for assessing alternatives and on the preferred option to decommission the NPD site. Through continued engagement at the Working Group and with the AAC CNL hopes that the parties are able to find common ground on this topic.

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		section to the EIS Alternative Means section (Section 4.2) written by the AOPFN. CNL has provided support for the AOPFN to conduct its own AMA and through this assessment, CNL has been able to better understand AOPFN's views on the proposed NPD disposal facility.		
2. Alternatives	(c) Integration of AOPFN AMA results into CNL's overall assessment of alternatives It is important to AOPFN that CNL meaningfully consider the results of the AOPFN Alternative Means Assessment. Further, AOPFN expected CNL to reconsider its original alternatives assessment and directly integrate the AOPFN results. This is a project-specific concern.	CNL has responded in writing to AOPFN comments on alternatives citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020. CNL updated its dispositions to AOPFN comments on the EIS and responded to AOPFN in December 2022. AOPFN provided additional feedback to CNL in April 2023. CNL held a workshop with the AAC in October 2021 that explained how CNL conducted the AMA and why in-situ disposal is the preferred approach. This was also an opportunity for AAC members to ask questions about the alternatives assessment and voice concerns directly with the project team. CNL funded an AOPFN AMA and a report was completed in April 2022. The report includes AOPFN community perspectives and concerns about the alternatives to decommission the site. The report also identifies full removal as AOPFN's preferred decommissioning strategy. <u>CNL Response:</u> When conducting the AMA, CNL followed the regulatory framework laid out in the Canadian Environmental Assessment Agency (CEAA) Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2015) for the evaluation of alternatives. The level of analysis conducted for each alternative is consistent with these requirements.	<u>Where is this topic discussed in the EIS?</u> Alternative means are discussed in the **Alternative Means Assessment TSD** (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS. <u>What changes have been made (and where)?</u> CNL has included within the EIS a sub-section to **Section 4.2 (**Alternative Means), written by AOPFN, that provides AOPFN perspectives on in- situ compared to other alternative means developed thus far, based on study findings and community perspectives. The AOPFN AMA has also been included as an appendix to the EIS (Appendix D). The results and conclusions of the AOPFN AMA have been integrated into the EIS to demonstrate the inclusion of valuable input into the EA process. However, the results of the AOPFN AMA do not replace or supersede CNL's conclusions.	<u>Status:</u> Further alignment on this concern not possible. CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012). CNL understands that this concern is outstanding from the AOPFN's perspective based on AOPFN feedback in April 2023. AOPFN appreciated CNL's support to complete the AMA however they remain disappointed that CNL has not meaningfully considered the results or reconsidered its own assessment. AOPFN has stated that CNL's AMA fundamentally ignores AOPFN inputs, which include a finding that ISD is clearly the least preferred option when considering AOPFN values, criteria, and weighting. <u>Next steps:</u> AOPFN and CNL disagree on the preferred option to decommission the NPD site. Through continued engagement at the Working Group and with the AAC CNL hopes that the parties are able to find common ground on this topic. CNL and AOPFN have agreed to the following commitment: AOPFN-5: CNL is committed to develop with AOPFN a meaningful role for AOPFN in the monitoring for the NPD Closure Project in addition to AOPFN participation in current environmental/compliance monitoring. This commitment has the potential to build confidence and trust in the in-situ disposal concept.
2. Alternatives	(d) Emphasis on financial costs in determining preferred alternative means. AOPFN is concerned that CNL may be incentivized to choose the single fastest and cheapest decommissioning option. AOPFN is concerned that CNL prefers the option that has the lowest potential risks of short-term (i.e., plan implementation) safety, security or	CNL has responded in writing to AOPFN comments on alternatives. AOPFN provided feedback on these dispositions in December 2020. CNL updated its dispositions to AOPFN comments on the EIS and responded to AOPFN in December 2022. AOPFN provided additional feedback to CNL in April 2023. <u>CNL Response:</u> The NPD Closure Project is managed under a specific target-cost agreement. CNEA earns a fee based on its cost performance against a target cost over the entire project. The contract includes provisions for fee	<u>Where is this topic discussed in the EIS?</u> The in-situ disposal approach is described in **Section 3.2** of the EIS. Alternative means are discussed in the **Alternative Means Assessment TSD** (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS.	<u>Status:</u> Further alignment on this concern is unlikely. CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012), and concludes that ISD is the preferred means to execute the NPD Closure Project based on a number of factors, one of which was are options within the financial guarantee committed by NRCan. CNL understands that this concern is outstanding from AOPFN's perspective based on AOPFN feedback in

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	environmental incidents, at the expense of that option transferring longer-term risks to the immediate receiving environment. AOPFN is significantly concerned that this implies that Canada and its agents are not willing to pay the financial price necessary to comply with the best practices of willing host, DGR and not willing to pay the financial price to comply with their commitments (e.g., UNDRIP, FPIC, reconciliation), nor AOPFN's preferences, which should be a critical consideration in determining what is an "acceptable design". This is both a CNL-wide and a project-specific concern.	reductions where there are safety, security or environmental incidents. Overall, the contract is set up to incentivize effective performance without compromise to health and safety. AECL provides oversight with a view to obtaining value for Canada under the contract. Moreover, CNL has obligations as a licensee to maintain safe operations, and the CNSC, as the independent federal regulator, oversees safety of CNL's operations and protection of the environment. The specific financial terms between Canada and the CNEA (incentives/penalties) cannot be disclosed as they are confidential. CNL will not be receiving greater compensation for implementing in-situ disposal versus other alternative means. Through its target cost contract, CNL (the contractor) was asked to ensure the strategy selected reduced nuclear liabilities at the NPD site in a timely manner rather than deferring the waste management decision for NPD. CNL's role is to determine the most effective method to safely and securely manage the nuclear liabilities at the NPD site. In alignment with the CEAA Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" under the *CEAA* (2012), an AMA was completed. The purpose of the AMA is to provide a qualitative analysis of the environmental risks (including health) of alternative decommissioning techniques to allow for the selection of a preferred method for carrying out the project. The AMA informed the decision to proceed with in-situ disposal through the EA process. The use of a robust AMA process demonstrates that the NPD Closure Project is not solely motivated by cost savings or profit. In CNL's AMA, all options proposed were shown to meet the financial guarantee from NRCan for the nuclear liability at NPD, after which point there was no further consideration/weighting of the cost in the assessment. While cost was one factor in CNL's assessment of alternatives, it was not the decision-making factor in the AMA for NPD.	What changes have been made (and where)? CNL has included within the EIS a sub-section to **Section 4.2 (**Alternative Means), written by the AOPFN, that provides the results of the AOPFN AMA. The AOPFN AMA has also been included as an appendix to the EIS (Appendix D).	April 2023. AOPFN remains concerned that ISD would defer risks to future generations, that ISD has heightened long-term impacts on AOPFN traditional land and resource use, culture, and health and well-being compared to other alternatives and that the risks of a contaminant plume impacting on the Ottawa River are not justified. Next steps: AOPFN and CNL disagree on the preferred option to decommission the NPD site. Through continued engagement at the Working Group and with the AAC CNL hopes that the parties are able to find common ground on this topic. CNL and AOPFN have agreed to the following commitment: AOPFN-5: CNL is committed to develop with AOPFN a meaningful role for AOPFN in the monitoring for the NPD Closure Project in addition to AOPFN participation in current environmental/compliance monitoring. This commitment has the potential to build confidence and trust in the in-situ disposal concept.
3. Archaeology and Cultural Heritage	(a) Involvement in culture and heritage matters at the NPD site It is important for the AOPFN to be involved in any future archaeological activities at the site, to ensure that artefacts with cultural value and significance are identified and protected as archaeological sites and artefacts have deep cultural value and significance for the Algonquins. This is both a CNL-wide and project-specific concern.	CNL has responded in writing to the AOPFN's specific comments on the EIS and recommendations from the AKLUS. CNL and the AOPFN have worked together to establish a project-specific Contribution Agreement that includes capacity, schedule, studies and engagement activities. In addition, CNL, AECL and the AOPFN finalized a Long-Term Relationship Agreement (LTRA) in June 2023 that includes, as matters of mutual interest, cultural protection, promotion, education, recognition and reconciliation and AOPFN's role in archaeological programs. Note: The LTRA does not provide AOPFN's consent for the proposed ISD decommissioning plan for NPD. CNL Response: CNL's archaeology consultant determined that there was no archeological potential for the Site Study Area (where project activities will take place), because that area has already been completely disturbed during site construction. However, in response to concerns expressed by Indigenous Nations, communities and organizations, CNL did conduct a Stage 1 archaeological assessment of the remainder of the NPD site. CNL shared	Where is this topic discussed in the EIS? Indigenous cultural resources and ceremonies, including the presence of Algonquin Cultural Sites and features, are discussed in in **Section 8.9.3 of** the EIS. The EIS references the AOPFN AKLUS report. **Section 8.11.4** of the EIS summarizes the **Archaeology TSD,** including the findings of the Stage 1 archaeological assessment. The EIS does not predict any adverse residual effects from the project on the Indigenous socio-economic environment (**Section 9.10.1.6**) or on traditional land and resource use (**Section 9.9.3.3**), including access to cultural sites. No changes to these sections were required.	Status: Resolution is in progress. CNL understands that this concern is partially resolved from AOPFN's perspective. Continued engagement may result in additional commitments which will enhance confidence and trust in CNL's assessment. Involvement of the AOPFN in culture and heritage matters is not expected to affect the outcome of CNL's assessment. Next steps: CNL and AOPFN have agreed to the following commitments: AOPFN-2: CNL will support a Cultural Protection and Commemoration Plan in relation to the NPD site and CNL commits to involve AOPFN in any future archaeological programs at or around the NPD site.

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		the results of this assessment with the AOPFN and provided a summary and overview presentation on the archaeological work conducted on the site. No further archaeological work is planned for NPD.	**Section 9.9.3.2** of the EIS, includes the proposed mitigation measures that will be employed if undocumented archaeological resources are discovered during the project. What changes have been made (and where)? CNL updated several sections of the EIS, in response to AOPFN comments and to include information from the AOPFN AKLUS Report (**Sections 6.2, 6.3, 8.9, 9.9**). In particular, CNL expanded its description of cultural aspects in **Section 8.9** of the EIS. CNL has added more information on the engagement activities to date between CNL and the AOPFN in **Section 6.2.4.3** of the EIS.	AOPFN-15: CNL is committed to work jointly with AOPFN to develop a NPD site specific chance find procedure and TLRU discovery plan.
4. Baseline Characterization	(a) Characterization of aquatic and terrestrial biota baseline It is important to AOPFN that the baseline environmental conditions around the site of the NPD Closure Project including aquatic and terrestrial biota are well understood and are protected in order to adequately assess potential impacts to AOPFN rights and traditional land and resource uses. AOPFN has identified concerns in particular with the absence of an Algonquin Knowledge baseline for the NPD site and its surroundings, due to an absence of prior engagement by CNL and AECL of AOPFN in Algonquin Knowledge studies in and around this 400 hectare site. This is a project-specific concern.	In response to comments from Indigenous Nations, communities and organizations, CNL completed sediment and benthic invertebrate sampling and fish habitat surveys to establish the baseline for follow-up monitoring. CNL has responded in writing to AOPFN comments on baseline characterization citing relevant section of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in 2020 December, and two meetings to discuss responses were held in 2020. CNL also shared the baseline survey data for migratory birds in November 2020. CNL is continuing its water bird species identification and nest survey that began in 2021 and will share the results with AOPFN. Through the contribution agreement, AOPFN and CNL have worked together to conduct site-wide Algonquin Knowledge Inventories at the NPD site in 2022 and 2023. CNL has committed to include Algonquin Knowledge, collected independently by Indigenous guardians, in all future ecological data collection programs at the NPD site. CNL Response: To supplement baseline data, a study of sediment, benthic invertebrates and fish habitat features was undertaken upstream, adjacent to and downstream of the NPD site in 2020, and the report was provided to the AOPFN. The study determined that the Ottawa River benthic invertebrate community near the NPD site is healthy and typical of what is observed in many large, soft-bottomed, relatively deep river systems. This study can be repeated when decommissioning is complete, to verify if the project has had an impact. CNL is planning to regularly monitor the Ottawa River water quality before the project begins. CNL is willing to discuss fish tissue sampling with the AOPFN and review past studies of fish tissue in the NPD area.	Where is this topic discussed in the EIS? **Appendix B** and **Section 8.6** of the EIS indicate which species have been observed on the NPD site. What changes have been made (and where)? The benthos and fish habitat survey is important baseline data for the follow-up monitoring program. The results of this study which are now summarized in **Section 8.4** do not alter the aquatic environment baseline for the project.	Status: Resolution in Progress CNL understands that this concern is partially resolved from AOPFN's perspective as the parties completed four one-day field studies at the NPD site. AOPFN is seeking a site-wide and more comprehensive Algonquin knowledge inventory. Next Steps: CNL and the AOPFN are continuing engagement through the framework of the contribution agreement. Using the findings and recommendations from AOPFN's initial four days of investigations and a more comprehensive and site-wide inventory, as committed below, CNL looks forward to working with AOPFN to ensure that mitigations are in place to protect terrestrial and aquatic biota that are important to AOPFN. CNL and AOPFN have agreed to the following commitments: AOPFN-5: CNL is committed to support the AOPFN with NPD Closure Project and NPD site specific Guardian monitoring activities, incorporating traditional knowledge and AOPFN valued components. Until the Guardian Program is stood up, CNL can support AOPFN participation/observation in our current environmental monitoring activities. CNL welcomes recommendations for other monitoring/mitigation activities that should be integrated into our existing program to ensure that environmental and cultural components of value to AOPFN are protected.

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		CNL has undertaken several site-specific surveys for the terrestrial environment, such as surveys of songbirds, bats and chimney swifts. Species detected as part of baseline biodiversity surveys within a 200m area beyond the perimeter of the project footprint have been included as Valued Components for the NPD Closure Project, and mitigation measures, including buffers, have been developed for protection.		AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary. AOPFN-13: CNL is committed to engaging with the AOPFN in the NPD Closure Project Environmental Assessment Follow-up Monitoring Program (EAFMP) development. CNL recognizes that our plans would benefit from incorporation of Indigenous knowledge and welcomes AOPFN comments on the plans. AOPFN-15: CNL is committed to work jointly with AOPFN to develop a NPD site specific chance find procedure, TLRU discovery plan, Eagle Feather Protocol and cultural protection plan. AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected.
4. Baseline Characterization	(b) Use of a current, damaged baseline as the starting point for the assessment. AOPFN has raised consistent concerns about the temporal comparison chosen by CNL for the NPD decommissioning assessment, which is to compare the future against today, rather than against a pre-NPD site condition (i.e., the early 1960s). AOPFN has argued that any decommissioning project needs to be tied to the ability to reach an agreed upon desired future state, not against an already damaged current state. This is not a project-specific interest; however it has implications for the EA process and methods used in this project-specific assessment.	<u>CNL Response:</u> CNL acknowledges that AOPFN disagrees with the use of the current baseline in its assessment of impacts on Traditional Land and Resource Use. In its assessment, CNL has determined that there are no adverse impacts on Traditional Land and Resource Use resulting from the NPD Closure Project. Indigenous Nations, communities and organizations often prefer a different approach, consider different factors, and evaluate against a different baseline than CNL and, subsequently, the findings of the Indigenous Nations, communities and organizations, and CNL, differ. The methodology for assessing the significance of residual effects used in the EIS for the NPD Closure Project is an established methodology which used the criteria in CNSC REGDOC 2.9.1 (2020), Environmental Protection: Environmental Principles, Assessments and Protection Measures. The baseline used in the EIS reflects current-day conditions, in accordance with *CEAA* (2012) requirements. CNL maintains the view that past disturbances, i.e., those that occurred during the pre-construction of the NPD facility, are not in scope. CNL notes that the proposed NPD Closure Project will improve the long-term environmental conditions and safety of the NPD site and surroundings, which will be confirmed by Indigenous-led monitoring programs.	<u>Where is this topic discussed in the EIS?</u> The EIS does not predict any adverse residual effects on traditional land and resource use (as described in **Sections 8.9** and **9.9**). CNL invited the AOPFN to share their perspective within the EIS (**Sections 9.9.6** and **Section 11.1**). <u>What changes have been made (and where)?</u> EIS changes as a result of this comment: - **Table 6.3-1(b)** AOPFN Concerns recorded alongside CNL's conclusions (third column of this table) - Text throughout **Section 6.2.4.3.3** was updated based on specific mark-ups provided by AOPFN - A dedicated section added (**Section 9.9.6** – AOPFN Perspective on Effects to Traditional Land and Resource Use) this includes AOPFN concerns with CNL's assessment approach and details AOPFN findings in relation to traditional land and resource use	<u>Status:</u> Further alignment on this concern is unlikely. CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012). CNL has performed baseline characterization to ensure that the site conditions support the proposed facility. CNL understands that this concern is outstanding from AOPFN's perspective based on feedback in April 2023, that AOPFN disagree with the use of a damaged current baseline in the assessment. <u>Next steps:</u> AOPFN and CNL disagree on the baseline for the effects assessment. Through continued engagement at the Working Group CNL hopes that the parties are able to find common ground on this topic. CNL and AOPFN have agreed to the following commitment: AOPFN-5: CNL is committed to support the AOPFN with NPD Closure Project and NPD site specific Guardian monitoring activities, incorporating traditional

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			- A dedicated section added (**Section 11.1.1** – AOPFN Perspective on Assessment Findings) highlighting the AOPFN's desire for the assessment to use pre-NPD construction as the baseline for comparison and for fear, stigma and alienation to be recognized as valid impact pathways.	knowledge and AOPFN valued components. Until the Guardian Program is stood up, CNL can support AOPFN participation/observation in our current environmental monitoring activities. CNL welcomes recommendations for other monitoring/mitigation activities that should be integrated into our existing program to ensure that environmental and cultural components of value to AOPFN are protected. AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary.
4. Baseline Characterization	(c) Technical suitability of the site AOPFN is concerned that the site was not designed to be a permanent radioactive waste disposal facility. AOPFN wants to ensure that AOPFN lands and the Kichi-Sìbì (Ottawa River) are protected and to reduce the radiological burden placed on AOPFN by Canada in the future. This is a project-specific concern.	CNL has responded in writing to AOPFN concerns that the NPD facility was not originally designed to be a permanent waste disposal facility. AOPFN provided feedback on these dispositions in December 2020. CNL updated its dispositions to AOPFN comments on the EIS and responded to AOPFN in December 2022. AOPFN provided additional feedback to CNL in April 2023. CNL Response: CNL does not intend to conduct a siting study for the waste that is currently at the NPD site. Such siting studies are done for new waste disposal facilities. The waste at NPD has been there for over 55 years. CNL has however completed geoscientific characterization work to understand the local geology and hydrogeology. The Geoscientific Characterization Report was used to revise the Geosynthesis for the site, Local and Regional Study Areas. The site investigation work found that the general site conditions are 5-10 m of overburden comprised of fluvial sands and gravels and silt to cobble till underlain by a granitic gneiss bedrock. Through CNL's site investigation work the properties of the overburden and bedrock are well understood such that CNL can evaluate the possible movement of contaminants in the geosphere. The site information is used in various models (i.e., Groundwater Modelling, Resaturation Modelling). The results of the models feed into CNL's PostSA TSD, enabling CNL to assess potential effects to valued components (VC). The geosphere is one of multiple barriers identified in CNL's Safety Case that helps to contain and isolate the waste within the NPD facility.	Where is this topic discussed in the EIS? **Section 8.5** of the EIS presents information on geological and hydrogeological conditions around the NPD site and study areas. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Further alignment on this concern is unlikely. CNL has performed characterization to ensure that the site conditions support the proposed facility. CNL's assessment has shown that the proposed facility will safely contain and isolate wastes using multiple barriers, one of which is the bedrock surrounding the facility. CNL understands that this concern is outstanding from the AOPFN's perspective based on AOPFN feedback in April 2023. AOPFN remains concerned that CNL has not performed a comprehensive exercise to determine the suitability of the site and that without their consent, AOPFN is expected to host the radioactivity in perpetuity. Next steps: Through continued engagement at the Working Group CNL hopes that the parties are able to find common ground on this topic. CNL is also committed to begin discussions with AOPFN on a project-specific agreement for NPD. AOPFN and CNL have agreed to the following commitments: AOPFN-1: CNL is committed to providing the funding to continue the Working Group and AOPFN Advisory Committee (AAC) for 10 years.

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5. Engagement	(a) Interest in establishing a Long-Term Relationship Agreement (LTRA) It is important that a mechanism be in place for AOPFN to express its community members' needs and concerns with respect to CNL activities, including those beyond the NPD Closure Project, to CNL and AECL, and to be able to work with CNL and AECL towards understanding and resolution with respect to CNL activities and AECL-owned sites within unceded AOPFN traditional territory where AOPFN members harvest food, medicines, and other natural materials. This is a CNL-wide interest.	CNL has responded in writing to AOPFN comments on requesting the establishment of an LTRA. Since 2020, CNL has undertaken extensive engagement with AOPFN, implemented a Memorandum of Understanding (MOU) and carried out engagement activities and LTRA discussions with the AOPFN in the form that AOPFN has requested. In 2021, AECL, CNL, and AOPFN signed a tripartite MOU. The parties have agreed to work together on items of mutual interest related to CNL operations and projects. LTRA topics of consideration include: • communication and engagement, • environmental baseline data collection, • risk communication, • a role in site level and project planning activities for major projects, • cultural protection, promotion, education, recognition and reconciliation, • economic development opportunities, • cumulative effects assessment, and • environmental stewardship and monitoring. CNL, AECL and the AOPFN finalized an LTRA in June 2023 that includes, as matters of mutual interest, (1) Engagement and communications on items of note related to ongoing operations and activities, as well as changes in scope to existing major projects, at CRL and NPD and (2) an AOPFN role in site level and project planning activities for major projects, including as part of their life-cycle (where practicable). (3) logistical support for the development of an AOPFN guardian program to enable stewardship and monitoring at and in the vicinity of the CNL-operated sites; (4) risk communication re: the health of country foods, medicines and waters at, and in the vicinity of, CNL-operated sites in the territory that AOPFN asserts is its unceded traditional territory and (5) opportunities for meaningful engagement to recognize, characterize and as necessary accommodate for potential historic harms The LTRA does not provide AOPFN's consent for the proposed ISD decommissioning plan for NPD. AOPFN has identified that there are only some mechanisms from the proposed LTRA which are applicable to NPD (i.e., the Guardian Program and Risk Communication Program, characterization of historic harms). AOPFN has indicated that further collaborative assessment and negotiation of a project-specific agreement will be required for NPD as part of a consent seeking process between the parties, at the end of which AOPFN may or may not provide its free, prior and informed consent to the proposed in-situ project at NPD. CNL Response: CNL heard AOPFN's request to establish an LTRA and signed a MOU in 2020 to support the development, in addition to the project-specific Contribution Agreement. CNL, AECL and the AOPFN finalized an LTRA in June 2023 to facilitate a response to this concern.	Where is this topic discussed in the EIS? **Section 6.2.4.3** of the EIS summarizes CNL engagement with the AOPFN to date and presents information on the collaborative work by CNL and to develop a project-specific contribution agreement and an LTRA. What changes have been made (and where)? CNL has updated **Section 6.2.4.3** of the EIS to include the recent engagement-related activities and to describe progress in the relationship between the AOPFN and CNL, including development of the LTRA.	Status: Resolved Next steps: Make progress on agreed commitments. Begin discussions on a project-specific agreement for NPD.

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5. Engagement	(b) Interest in more direct and collaborative engagement on the NPD Closure Project It is important to the AOPFN that engagement involve two-way communication and active collaboration through all phases of the project as there are potential impacts to current and future AOPFN members' rights and ability to practice traditional activities on the land / water. AOPFN was not engaged collaboratively during the early stages of the EA e.g., the AMA and has identified their desire to be involved in all phases of the EA. Key areas for collaboration include: • Integration of the Traditional Use Study into project planning, design, mitigation and accommodation both during and post-EIS. • Development of mitigations that will be considered in assessments for valued components <u>today</u> – so AOPFN is involved in all phases of the EA and project lifecycle. • co-development and co-approval for development and implementation of the EA follow-up and monitoring program for the project, including adaptive management objectives, indicators, thresholds, and responses for terrestrial wildlife, fish and fish habitat, traditional land and resource use, and water quality at minimum. • co-development and co-management of end-state land use planning for the entire AECL site at NPD, This is a project-specific interest.	CNL has responded in writing to AOPFN comments on direct and collaborative engagement on the NPD Closure Project. A project contribution agreement was established in 2020 and has been updated to accommodate the evolving relationship and engagement activities between CNL and AOPFN and the addition of new scope. Working Group meetings are held on a monthly basis to understand each other's concerns and move forward to address them together. CNL has committed to continued funding for the Working Group and AOPFN Algonquin Advisory Committee (AAC) until closure is achieved for the NPD Closure Project. Through the contribution agreement, AOPFN and CNL have worked together to conduct site-wide Algonquin Knowledge Seasonal Inventories at the NPD site in 2022 and 2023. AOPFN members generously shared their time and interest in biodiversity, and in turn CNL was able to share information on the nuclear industry and environmental monitoring. The time spent together in the field has proven to be very valuable to improve the relationship <u>CNL Response:</u> CNL is committed to collaborative, two-way engagement with the AOPFN on the NPD Closure Project. CNL has much to learn and hopes to build trust and seek guidance from AOPFN. CNL heard AOPFN's request for direct and collaborative engagement. In response to this request, CNL and the AOPFN have worked together to establish a Contribution Agreement that includes capacity, schedule, studies and engagement activities for the NPD Closure Project. Through this Contribution Agreement, CNL has funded four technical studies related to the project. A number of other meaningful engagement activities, as requested by AOPFN, are also identified, funded and planned for the next two years.	<u>Where is this topic discussed in the EIS?</u> **Section 6.2.4.3** of the EIS summarizes CNL engagement with the AOPFN to date and presents information on CNL and AOPFN's work towards developing a project-specific Contribution Agreement and a LTRA. <u>What changes have been made (and where)?</u> CNL has updated **Section 6.2.4.3.1** of the EIS to include the recent engagement-related activities and relationship progress between the AOPFN and CNL.	<u>Status:</u> Resolution is in progress. CNL understands that this concern is well on its way to resolution from AOPFN's perspective. CNL has taken meaningful interim measures to improve its engagement with AOPFN. CNL understands that the AOPFN is seeking for this funding to extend well into the Institutional Control period and given that the NPD is not consented to through the LTRA, that a project specific agreement must be sought for the NPD that would fuel future engagement, should the decommissioning project proceed. <u>Next steps:</u> CNL and AOPFN have agreed to the following commitments: AOPFN-1: CNL is committed to providing the funding to continue the Working Group and AOPFN Advisory Committee (AAC) for 10 years. AOPFN-5: CNL is committed to develop with AOPFN a meaningful role for AOPFN in the monitoring for the NPD Closure Project in addition to AOPFN participation in current environmental/compliance monitoring. AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary. AOPFN-13: CNL is committed to engaging with the AOPFN in the NPD Closure Project Environmental Assessment Follow-up Monitoring Program (EAFMP) development. CNL recognizes that our plans would benefit from incorporation of Indigenous knowledge and welcomes AOPFN comments on the plans. AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
6. EA Process and Methodology	(a) Concern about the methodology for conducting the effects assessment and determination of significance It is important to the AOPFN that events with the potential for an adverse effect on the environment and/or AOPFN rights are carried through the assessment process as far as is reasonable as the project may have impact to current and future AOPFN members' rights and ability to practice traditional activities on the land / water. AOPFN is concerned that CNL's assessment does not integrate into its effects characterization any of the impact pathways identified by AOPFN that results in both direct and indirect effects on Traditional Land and Resource Use: quality and accessibility of the land, consideration against a pre-NPD baseline, Project-related activities would exacerbation of alienation and further limitation of members' access to the area, perpetuating the difficulty of exercising their Aboriginal rights, long-term continuation of an avoidable location-specific effect in the form of fencing off and not allowing the NPD site to return to a natural condition, and the permanent cementing in place of radioactive materials very close to the Kichi-Sìbì the radioactive materials that cause fear, stigma, alienation and concerns about the quality of country foods and medicines, and whether they are harvestable. This is a project-specific concern.	CNL has responded in writing to AOPFN comments on EA methodology and significance of adverse residual effects citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020, and two meetings to discuss responses were held in 2020. CNL has offered to present all environmental effects of the project to AOPFN and to explain the process and thresholds for determining the significance of adverse residual effects. CNL is continuing its efforts to address these concerns by: (i) Involving the Indigenous Nations, communities and organizations, including AOPFN, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near the CNL-operated properties and build confidence that the decommissioning strategy and mitigation measures are effective (ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern (**Section 9.9.5** of the EIS). <u>CNL Response:</u> CNL has acknowledged that AOPFN and CNL have differing perspectives on impacts to traditional land and resource use Valued Components (VC)**.** The methodology used in the EIS for assessing the significance of residual effects for the NPD Closure Project is an established methodology that was used in the EA for the Darlington New Nuclear Project, which currently has an approved License to Prepare Site. The criteria for the evaluation of significance are from the CNSC REGDOC 2.9.1(2020), Environmental Protection: Environmental Principles, Assessments and Protection Measures. The baseline used in the EIS reflects current-day conditions, in accordance with *CEAA* (2012) requirements. CNL notes that the proposed NPD Closure Project will improve the long-term environmental conditions and safety of the NPD site and surroundings, which will be confirmed by Indigenous-led monitoring programs. The participation of AOPFN in monitoring work for the NPD Closure Project ensures consideration of Indigenous knowledge, collaboration, mutual respect, ongoing participation and relationship building for the future. • CNL is willing to conduct a workshop with AOPFN to review all environmental effects of the project and present the methodology for determining significance of adverse residual effects.	<u>Where is this topic discussed in the EIS?</u> **Section 9.1.2** of the EIS explains the methodology used for determining the significance of residual effects. It also presents the criteria used to evaluate significance, which are from CNSC REGDOC 2.9.1 (2020), Environmental Protection: Environmental Principles, Assessments and Protection Measures. **Section 11** of the EIS, Conclusion on Significance, discusses the assessment findings. <u>What changes have been made (and where)?</u> CNL has provided AOPFN an opportunity to directly integrate the following into the EIS: a summary of its differing perspective on impacts on traditional land and resource use (**Section 9.9**) and on overall assessment findings (**Section 11.1**).	Status: Further alignment on this concern is unlikely. CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012). CNL understands that this concern is outstanding from the AOPFN's perspective based on AOPFN feedback in April 2023. AOPFN remains concerned that the project is evaluated against the current baseline site conditions and does not consider the damage caused by the historic siting and operation of the site. In addition, AOPFN has raised concerns about the fact that CNL has chosen to ignore AOPFN's studies' findings of adverse effects from the proposed decommissioning project on traditional land and resource use, culture, and well-being. <u>Next Steps:</u> AOPFN and CNL disagree on the baseline for the effects assessment. Through continued engagement at the Working Group CNL hopes that the parties are able to find common ground on this topic. CNL wishes to continue discussions with AOPFN to better understand the community's perspective and values and any fears, or concerns associated with the NPD site and traditional use near the site. CNL and AOPFN have agreed to the following commitment: AOPFN-3: CNL is committed to collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN community members and application of the AOPFN Algonquin Food Program at the NPD Site. AOPFN-5: CNL is committed to develop with AOPFN a meaningful role for AOPFN in the monitoring for the NPD Closure Project in addition to AOPFN participation in current environmental/compliance monitoring. AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary. AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include

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				within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected. These commitments have the potential to build confidence and trust in the in-situ disposal concept and may help to alleviate fear, stigma, alienation and concerns about the quality of country foods and medicines.
6. EA Process and Methodology	(b) Concern about the methodology of the cumulative effects assessment It is important to AOPFN that the project assessment is properly informed by cumulative effects assessment in order to protect AOPFN values and rights. AOPFN is concerned that despite AOPFN finding adverse effects there has been inadequate consideration of trend-over-time impacts on VCs found at and around the NPD site (adoption of a damaged current baseline), no cumulative effects assessment on AOPFN culture, traditional land and resource use, or health and well-being. This is both a project-specific and CNL-wide concern.	CNL responded to this concern by summarizing the cumulative effects assessment methodology applied in the EIS, which is consistent with *CEAA* (2012). CNL also provided additional background information in its responses. CNL, AECL and the AOPFN have established an LTRA that can support the parties work together to alleviate this concern. <u>CNL Response:</u> CNL is in agreement with AOPFN's comment that a cumulative effects assessment is required only where adverse residual effects have been identified, a position consistent with *CEAA* (2012). For all VCs in all environmental components, it was determined that no adverse residual effects are expected to occur from the NPD Closure Project: the proposed mitigation measures are expected to eliminate, reduce or control possible effects, resulting in no or negligible effects. According to *CEAA* (2012), cumulative effects assessment is not required for negligible potential effects. Therefore, conducting a cumulative effects assessment would be beyond the scope of *CEAA* (2012) scope and this EA.	<u>Where is this topic discussed in the EIS?</u> **Section 9.13** of the EIS provides the process for evaluating cumulative effects and the assessment of cumulative effects for the NPD Closure Project. <u>What changes have been made (and where)?</u> CNL has provided AOPFN an opportunity to directly integrate a summary of its differing perspective on impacts on traditional land and resource use (**Section 9.9.6**) and overall assessment findings (**Section 11.1),** into the EIS.	<u>Status:</u> Efforts at resolution in progress; further alignment is possible but uncertain. CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012). CNL understands that this concern is outstanding from AOPFN's perspective based on AOPFN feedback in April 2023. AOPFN remains concerned that their involvement in the assessment has been from the outside looking in, that AOPFN and Algonquin Knowledge holders had no role in the effects characterization or significance estimation process, and that AOPFN perspectives have had little to no influence on CNL's assessment findings. AOPFN has indicated that changes to the effects characterization to include cumulative effects assessments for additional VCs is required. <u>Next Steps:</u> AOPFN and CNL disagree on the assessment methodology for cumulative effects and on the assessment of impacts to TLRU. Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic. CNL and AOPFN have agreed to the following commitment: AOPFN-3: CNL is committed to collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN community members and application of the AOPFN Algonquin Food Program at the NPD Site. AOPFN-5: CNL is committed to develop with AOPFN a meaningful role for AOPFN in the monitoring for the NPD Closure Project in addition to AOPFN participation in current environmental/compliance monitoring.

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				AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary. AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected.
6. EA Process and Methodology	(c) Relevant legislation AOPFN expressed concern on continued use of *CEAA, 2012* rather than the more recent *Impact Assessment Act*. It is important to AOPFN that the NPD Closure Project Environmental Assessment is carried out using up-to-date legislation that includes best practice decision-making through a collaborative process. The impacts that AOPFN has identified are impacts within the federal jurisdiction under IAA 2019 and is disappointed the CNL, AECL and CNSC are continuing this assessment under the less rigorous expectations of CEAA 2012. This is not a project-specific interest; however it has implications for the EA process and methods used in this project-specific assessment.	CNL Response This interest is generally beyond the scope of the project. As per direction from the CNSC and the transitional provisions of the *Impact Assessment Act*, CNL is continuing its EA for the NPD Closure Project under *CEAA* (2012). Letter to CNL - Changes to Federal Legislation. CNL recognizes that what AOPFN is requesting is consistent with the new provisions and commitments under the *Impact Assessment Act* (*IAA*) but is beyond the scope of *CEAA* (2012) and this EA, and therefore is not required to be considered. The final NPD EIS will meet the requirements of *CEAA* (2012) but will also incorporate good practices consistent with the *IAA*.	Where is this topic discussed in the EIS? **Section 3.5** of the EIS discusses the regulatory framework of the project. What changes have been made (and where)? CNL added text to **Section 3.5** of the EIS, providing clarification on this issue. A reference was added to a letter received from the CNSC, which indicates that the NPD Closure Project will continue under *CEAA* (2012).	Status: Further alignment on this concern not possible CNL will continue the NPD Closure Project EA under *CEAA* (2012). CNL will endeavour to work towards meeting the more rigorous expectations of *IAA* where possible. CNL understands that this concern is outstanding from the AOPFN's perspective based on AOPFN feedback in April 2023. AOPFN remains concerned that CNL has chosen to disregard the new *IAA* (2019) legislation, instead opting for the less rigorous expectations of *CEAA* (2012). Next steps: Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic. AOPFN and CNL have agreed to the following commitments: AOPFN-1: CNL is committed to providing the funding to continue the Working Group and AOPFN Advisory Committee (AAC) for 10 years. AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected.

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6. EA Process and Methodology	(d) AOPFN participation in the assessment AOPFN is seeking good impact assessment practice that include Indigenous groups as part of the assessment early and throughout the process. The traditional users themselves, through the four AOPFN studies, have concluded that the proposed project will have impact on traditional use. AOPFN is concerned that the inputs from Indigenous Land users themselves has not been integrated into the actual effects characterization and significance determination process. This is not a project-specific interest; however it has implications for the EA process and methods used in this project-specific assessment.	<u>CNL Response:</u> See responses above regarding impact assessment practices. CNL has included a summary of AOPFN traditional knowledge and land use, incorporated the valued species identified by AOPFN, and recorded main concerns about the project in the EIS.	<u>Where is this topic discussed in the EIS?</u> AOPFN input appears in **Section 4.2, Section 6.3, Section 8.9, Section 9.9,** and **Section 11.1** of the EIS. <u>What changes have been made (and where)?</u> CNL has provided AOPFN an opportunity to directly integrate a summary of its differing perspectives in **Section 4.2, Section 6.3, Section 8.9, Section 9.9,** and **Section 11.1.**	<u>Status:</u> Further alignment on this concern unlikely CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012). CNL understands that this concern is outstanding from the AOPFN's perspective based on AOPFN feedback in April 2023. AOPFN remains concerned that their involvement in the assessment has been from the outside looking in, that AOPFN and Algonquin Knowledge holders had no role in the effects characterization or significance estimation process, and that AOPFN perspectives have had little to no influence on CNL's assessment findings. AOPFN has indicated that this approach seriously undermines the quality and likely accuracy of the CNL impact assessment. <u>Next steps:</u> AOPFN and CNL disagree on the assessment methodology and on the assessment of impacts to TLRU. Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic. CNL and AOPFN have agreed to the following commitment: AOPFN-3: CNL is committed to collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN community members and application of the AOPFN Algonquin Food Program at the NPD Site. AOPFN-5: CNL is committed to develop with AOPFN a meaningful role for AOPFN in the monitoring for the NPD Closure Project in addition to AOPFN participation in current environmental/compliance monitoring. AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary. AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected.

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7. End State, Site Restoration and Future Use of the Land	(a) Collaborative end land use planning It is important to AOPFN that it receives reassurance that the land around the facility will be renaturalized over time, so that AOPFN community members can reconnect with the site and be able to practice traditional land use activities. AOPFN is a governance and stewardship entity with a right to be directly and deeply involved in collaborative end state planning. AOPFN is seeking an active, decision making, co-management role in the end state planning for NPD including early involvement in the development of the plan (not simply an opportunity to provide feedback on the plan after CNL has already drafted). AOPFN is also concerned that restoration of these ecosystems strive to bring back conditions similar to a pre-disturbance baseline (or intact reference baseline) and that more detailed restoration plans be included in the EIS. This is both a CNL-wide and project-specific concern.	CNL has responded in writing to AOPFN comments on collaborative end land use planning citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020, and two meetings to discuss responses were held in 2020. CNL has committed to sharing the draft restoration plan with AOPFN once it is developed. CNL Response CNL acknowledges the AOPFN's request for collaboration on end-use planning and has a similar vision for the future use of the land. CNL has used the terms renaturalize/renaturalization to mean: return to natural. As the majority of the site is forested, disturbed areas outside the final licensed area will be left to return to natural via natural succession. Renaturalization will have a positive impact on terrestrial biodiversity because vegetation will provide habitat for nests and dens, cover for animals as they roam, and will promote movement of animals by increasing connectivity (reducing habitat fragmentation). Future land use is a discussion topic that requires the participation of AECL as the owner of the NPD site, in consultation with Indigenous Nations, communities, and organizations, the public, as well as industry and government. As the licensee, CNL is committed to engagement and consultation with AOPFN on future end state and land use. The potential land options will not be fully determined until the NPD Closure Project EA and license amendment process proceeds further. In the meantime, CNL is preparing a plan for site restoration after decommissioning is complete, which CNL is committed to sharing with the AOPFN.	Where is this topic discussed in the EIS? General plans for restoration and end state are described in **Section 4.3.1.9** of the EIS. What changes have been made (and where)? CNL has provided AOPFN an opportunity to directly integrate a summary of its differing perspective on renaturalization into the EIS (**Section 9.9.6.1**).	Status: Resolution is in progress. CNL understands that this concern is outstanding from AOPFN's perspective, pending the establishment of end-state planning commitments that reflect AOPFN's expectation for collaborative governance and stewardship for the whole NPD site. Next Steps: CNL recognizes that AOPFN remains concerned that CNL is developing a draft restoration plan before engaging AOPFN on this topic. CNL will engage with AOPFN through targeted discussions to seek input prior to and during restoration plan development. The restoration and end state plan draft will be shared with AOPFN to verify that input has been adequately recorded, and/or justification given for why information could not be included. AOPFN and CNL have agreed to the following commitment: AOPFN-21: CNL is committed to seeking input from the AOPFN on the proposed ISD project end state, including AOPFN input on lands restoration of the disturbed areas. Tri-party discussion including AECL/CNL/AOPFN will be required for site-wide end state planning.
	(b) Preparation of on-site landfills for the post-closure period Closure plans for the on-site landfills are important to AOPFN because it wants to ensure that the environment around the site of the NPD Closure Project is protected as these landfills were located on the NPD site within unceded AOPFN traditional territory where AOPFN members harvest food, medicines, and other natural materials. This is a project-specific interest.	CNL Response CNL has responded in writing to AOPFN comments related to the on-site landfills citing relevant section of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020, and indicated that CNL's response was adequate.	Where is this topic discussed in the EIS? The former landfills are introduced in **Section 3.3.1** of the EIS (Structures at the NPD Site). General plans for restoration and end state are described in **Section 4.3.1.9** of the EIS. **Section 8.5** describes the geology and baseline characterization near the former landfills. Landfill monitoring activities are discussed in **Section 12** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolved.

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7. End State, Site Restoration and Future Use of the Land	(c) Project timeframe AOPFN is concerned that the site will require an indefinite period (>100 years) of institutional care to monitor and maintain the infrastructure necessary to prevent potential impacts including continuation of active controls. AOPFN is also concerned that long-term funding for these Institutional Controls is uncertain. AOPFN is concerned that the NPD site and surrounding lands are safe for traditional land and resource use activities in the future. This is both a CNL-wide and project-specific interest.	CNL has responded in writing to AOPFN comments on the project timeframe. AOPFN provided feedback on these dispositions in December 2020, and two meetings to discuss responses were held in 2020. CNL Response CNL acknowledges AOPFN's concerns about the long-term safety of the NPD site and the potential impacts on the rights of the AOPFN and other Indigenous Nations, communities and organizations to practice traditional activities around the NPD site. Ongoing monitoring and maintenance of the site will occur during the Institutional Controls period, which will last a minimum of 100 years and will be extended as long as is necessary to ensure protection of people and the environment. The PostSA TSD demonstrates that the impact beyond the Institutional Controls period on the public, Indigenous peoples and the environment is negligible under all scenarios. CNL notes that the final end state is the only time when changes to access will occur; the final end state of the NPD site will be an improvement from current conditions. To instill confidence in the EIS findings and the effectiveness of the follow-up monitoring, CNL will involve the AOPFN and other Indigenous Nations, communities and organizations in the monitoring program, which aims to confirm the predictions of the EIS.	Where is this topic discussed in the EIS? General plans for restoration and end state are described in **Section 4.3.1.9** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Efforts at resolution in progress; further alignment is possible but uncertain. CNL understands that this concern is outstanding from AOPFN's perspective due to a lack of confidence in long-term funding commitments. Next Steps: Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic. AOPFN and CNL have agreed to the following commitment: AOPFN-1: CNL is committed to providing the funding to continue the Working Group and AOPFN Advisory Committee (AAC) for 10 years.
	(d) Long-term liability of the site beyond decommissioning. It is important to AOPFN that the end state of the NPD site is safe for future land users and that a guarantee and long-term funding is in place for Institutional Controls for as long as necessary. AOPFN is concerned that the Institutional Control period will need to be significantly longer than 100 years. Further AOPFN is concerned that contingency plans in case the facility fails to contain the radioactive materials adequately, including a scenario where the materials need to be removed are not sufficiently developed. For both of these aspects AOPFN does not have confidence that government funding will continue or be in place. It is important to AOPFN that radioactive risks will not be passed on as a burden to future generations and it is important to AOPFN that radioactive materials are not	CNL heard AOPFN's concern about long-term liability of the site and addressed it in its responses to AOPFN comments. CNL has developed monitoring programs that extend into the Institutional Controls period, to ensure that the public, Indigenous and the environment are protected. CNL Response: CNL acknowledges that, as the licensee, it is responsible for ongoing monitoring and maintenance of the site during the Institutional Controls period. The financial guarantee for Atomic Energy of Canada Limited's (AECL's) sites, including Nuclear Power Demonstration (NPD), has been provided by the Government of Canada. AECL has committed to enforcing land-use restrictions (Institutional Controls) on the NPD site – into the future, for as long as possible during the post-closure phase of the NPD. At the appropriate time CNL or its successor will apply to the CNSC for a Licence to Abandon – cease active Institutional Controls - following the requirements of applicable laws in effect at such time. The PostSA TSD demonstrates that the impact on the public, Indigenous and the environment is negligible, under all scenarios, beyond the Institutional Controls period.	Where is this topic discussed in the EIS? This topic will be discussed as part of the LTRA with the participation of AECL as the owner of the NPD site. However, the long-term liability of the site extends beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project. Therefore, it is not discussed in the EIS. What changes have been made (and where)? No changes were made in the EIS related to long-term liability.	Status: Efforts at resolution in progress; further alignment is possible but uncertain. It is noted that this topic extends beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project. CNL understands that this concern remains unresolved from AOPFN's perspective based on feedback in April 2023. AOPFN is concerned about the lack of clarity on the likely length of the Institutional Control period and the commitment for long-term funding. Next Steps: Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic. CNL wishes to continue discussions with AOPFN to better understand the community's perspective and values and any fears, or concerns associated with the NPD site and traditional use near the site.

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	abandoned and forgotten in Algonquin territory. It is important to AOPFN that they have safe and trusted access and use of the NPD site and its surroundings for present and future generations. AOPFN prefers an alternative that allows the land to heal the quickest from harms i.e., a removal option that does not perpetuate the current state of contamination. In a future with in-situ disposal, the underground conditions will be unnatural, and on the surface, portions of the site will be unnaturally fenced off, covered with a concrete cap and unable to return to a forested condition. AOPFN is concerned that project-related activities would exacerbate the issue of alienation and further limit members' access to the area. This is a project--specific concern.			CNL and AOPFN have agreed to the following commitment: AOPFN-3: CNL is committed to collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN community members and application of the AOPFN Algonquin Food Program at the NPD Site. AOPFN-5: CNL is committed to develop with AOPFN a meaningful role for AOPFN in the monitoring for the NPD Closure Project in addition to AOPFN participation in current environmental/compliance monitoring. AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary. AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected. These commitments have the potential to build confidence and trust in the in-situ disposal concept and the long-term safety of the NPD site.
8. Environmental Effects and Mitigation Measures	(a) Invasive species management AOPFN is unclear how invasive species will be managed at the NPD site if introduced by vectors other than heavy equipment (e.g., by smaller vehicles, hand-held equipment, or people). It is also unclear what measures will be implemented to manage invasive species, should they be accidentally introduced or already present at the site. This is a project-specific concern.	<u>CNL's Response:</u> In response to the AOPFN's follow-up question on how invasive species (non-native plants, animals, aquatic life and micro-organisms that, when introduced outside of their natural environment, out-compete native species) will be managed at the NPD site, the CNL standard Management of Land, Habitat and Wildlife (900-509200-STD-006) will be followed. CNL recognizes that when invasive species become established in a new habitat, they can disrupt the existing balance of the ecosystem. In some cases, the new species takes over, causing radical and irreversible changes to its new environment. Aquatic invasive species are managed through prohibitions on import, transport, possession and/or release of aquatic invasive species as per the Aquatic Invasive Species Regulations. Activities conducted on different water bodies shall take into consideration the potential to spread aquatic invasive species. In order to prevent the spread of invasive species or noxious weeds on-to the NPD Closure Project site, heavy equipment entering the site will be	<u>Where is this topic discussed in the EIS?</u> General plans for restoration and end state are described in **Section 4.3.1.9** of the EIS **Section 9.6.3.2** and **Table 10.3-1** within the EIS describes the proposed mitigation measures for invasive species. <u>What changes have been made (and where)?</u> No changes to these sections of the EIS have been made since the AOPFN review.	<u>Status:</u> Resolution is in progress. CNL will engage with AOPFN to seek input prior to and during restoration plan development. CNL understands that this concern is outstanding from AOPFN's perspective, pending the establishment of end state planning commitments for the NPD site. AOPFN has requested to be involved at a decision-making level in both immediate-term restoration planning and end-state planning for the entire NPD site. AOPFN's general position is that restoration plans should be included in the EIS after discussions with AOPFN. <u>Next Steps:</u> CNL will engage with AOPFN through targeted discussions to seek input prior to and during

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		inspected to ensure they are free of dirt clogs coming from outside of the site. This will prevent the spread via seeds. Other methods used by CNL to manage and prevent the spread of invasive species include: • Washing and disinfecting equipment used to conduct work in a waterbody before leaving or returning to a CNL site (e.g., sampling equipment, boats, motors, and trailers) • Washing equipment used on land before leaving or returning to a CNL site Other methods used by CNL to minimize and manage the risks of invasive species spread and protect our Canadian ecosystems can be found through the Canadian Food Inspection Agency (CFIA) as per the *Plant Protection Act*. CNL is open to working collaboratively with the AOPFN to develop proposed mitigation measures to eliminate, reduce or control possible effects from invasive species. CNL looks forward to seeking input and feedback from Indigenous Peoples, such as the AOPFN, on specific restoration activities for the NPD site.		restoration plan development. The restoration and end state plan draft will be shared with AOPFN to verify that input has been adequately recorded, and/or justification given for why information could not be included. AOPFN and CNL have agreed to the following commitments: AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected. AOPFN-21: CNL is committed to seeking input from the AOPFN on the proposed ISD project end state, including AOPFN input on lands restoration of the disturbed areas.
9. Free Prior and Informed Consent (FPIC)	(a) Principle of consent It is important to AOPFN that the right to give consent to be a willing host be respected as the NPD site and facility is in unceded AOPFN traditional territory. AOPFN is concerned that it did not consent to the original NPD construction and operation and that now, potentially without their consent, are expected to host the radioactivity in perpetuity. AOPFN has noted that the United Nations Declaration on the Rights of Indigenous Peoples, section 29.2, is not being adhered to by CNL and AECL in relation to the NPD Project. This is both a CNL-wide and project-specific concern.	CNL, AECL and the AOPFN finalized an LTRA in June 2023 that includes, as matters of mutual interest, (1) Engagement and communications on items of note related to ongoing operations and activities, as well as changes in scope to existing major projects, at CRL and NPD, (2) an AOPFN role in site level and project planning activities for major projects, including as part of their life-cycle (where practicable) and (3) opportunities for meaningful engagement to recognize, characterize and as necessary accommodate for potential historic harms. The LTRA does not provide AOPFN's consent for the proposed ISD decommissioning plan for NPD. AOPFN has identified that there are only some mechanisms from the proposed LTRA which are applicable to NPD (i.e., the Guardian Program and Risk Communication Program). AOPFN has indicated that further collaborative assessment and negotiation of a project-specific agreement will be required for NPD as part of a consent seeking process between the parties, at the end of which AOPFN may or may not provide its free, prior and informed consent to the proposed in-situ project at NPD. CNL and AECL have met with the AOPFN council and shared correspondence related to this issue. In correspondence CNL and AECL have stated: "AECL and CNL are fully aligned with the Government of Canada on the principle of FPIC and committed to advancing Canada's policy and objectives in this regard." CNL responded to each of the AOPFN Principles and Requirements related to Nuclear Sector Projects as outlined in Appendix 3 of the August 2021 Implications Letter to indicate how the proposed NPD Closure Project can satisfy or meet the intent of these principles/requirements, including through project commitments as appropriate. CNL Response:	Where is this topic discussed in the EIS? **Section 4.2.4.7.3** of the EIS. What changes have been made (and where)? CNL has included a summary prepared by AOPFN describing the importance of Indigenous consent for the NPD disposal facility per UNDRIP within **Section 4.2.4.7.3** of the EIS.	Status: Further alignment on this concern is unlikely. CNL remains committed to on-going discussions on this topic. CNL understands that this concern is outstanding from AOPFN's perspective as consent has not been given for this permanent hazardous waste disposal facility. As of 2023 April, CNL has not committed to respect AOPFN's consent decision in relation to the NPD Project decommissioning. Next Steps: CNL and the AOPFN continue engagement through the framework of the contribution agreement working to satisfy or meet the intent of AOPFN nuclear sector principles/requirements, including through project commitments as appropriate. Begin discussions on a project-specific agreement for NPD.

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		It is understood by AOPFN that an Indigenous Nation, community or organizations' consent is required for the creation of a permanent hazardous waste disposal facility in its traditional territory, per Section 29.2 of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). CNL is committed to work towards consensus and consent, with an understanding that UNDRIP does not necessitate a veto in decision-making. CNL is committed to ensuring meaningful participation of Indigenous peoples in decisions that affect their nations, communities and territories. This is a key topic for future discussions between AOPFN, AECL and CNL.		
10. Impacts on Rights	(a) Concerns about completeness of assessment of impacts on rights It is important to the AOPFN that all potential effects of concern have been assessed, including the potential alienation of AOPFN members from land use due to distrust in the safety of the land and water as this may impact AOPFN members ability to practice traditional activities on the land. AOPFN has raised concerns that the implications of the findings of AOPFN's Culture and Rights Study, along with the Algonquin Knowledge and Land Use Study, the Diet and Harvest Study, and the Alternative Means Assessment, which point to measurable adverse effects from the proposed In-Situ Decommissioning on AOPFN rights and related valued components, have not been adequately integrated into the EIS' effects characterization and significance estimation process. In particular, AOPFN has stated on multiple occasions and through the Alternative Means Assessment process, that in-situ decommissioning is the least preferable decommissioning option from a rights protection perspective, given the area would not see the radiological hazard fully removed and as such the area cannot return to a natural and trusted condition in a reasonable time frame. This is a project-specific concern.	CNL shared that perception of an effect could not be considered a primary pathway under the *CEAA* (2012) because it is not tied to a biophysical effect to the environment. CNL has responded in writing to AOPFN comments related to assessment of impacts on rights citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020, and two meetings to discuss responses were held in 2020. CNL has also contributed funds for AOPFN to undertake a Culture and Rights Study, which were completed in August 2021. CNL seeks to develop a mutual understanding of the perceived effects of NPD Closure Project activities on the environment and any potential negative impacts on Aboriginal and/or treaty rights. This includes, but is not limited to, rights to trap, hunt, fish, gather, or harvest as well as the continuation and uninterrupted access to cultural and spiritual activities on the lands and waters. CNL is continuing its efforts to address this concern by committing to: (i) Involving the Indigenous Nations, communities and organizations, including AOPFN, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near the CNL managed properties and build confidence that the decommissioning strategy and mitigation measures are effective (ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern (**Section 9.9.5** of the EIS). CNL, AECL and the AOPFN finalized an LTRA in June 2023 that includes, as matters of mutual interest, (1) logistical support for the development of an AOPFN guardian program to enable stewardship and monitoring at and in the vicinity of the CNL operated sites and (2) risk communication re: the health of country foods, medicines and waters at, and in the vicinity of, CNL operated sites in the territory that AOPFN asserts unceded traditional	Where is this topic discussed in the EIS? The EIS notes in **Table 6.2-2** that the NPD site is located within the vicinity of known traditional territory. The EIS does not predict any adverse residual effects to traditional land and resource use (**Section 9.9.3.5**). What changes have been made (and where)? CNL has provided AOPFN an opportunity to directly integrate a summary of its differing perspective on impacts on traditional land and resource use (**Section 9.9.6.1**) and overall assessment findings (**Section 11.1),** into the EIS.	Status: Further alignment on this concern unlikely. CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012). CNL stands by its conclusion that the project will not interfere with traditional activities or have a negative impact on the biological resources on which they are dependent. CNL acknowledges that the findings of the ongoing AOPFN-CNSC rights impact assessment may require additional engagement and a mutually agreed upon resolution of any found impacts on rights. CNL understands that this concern is outstanding from AOPFN's perspective as the EIS findings in relation to traditional land and resource use (which are closely related to impacts on rights) do not correlate to those from AOPFN's studies, and the related concerns that: a. AOPFN was not directly involved in the effects characterization or significance estimation process, and b. CNL has not provided evidence that its consultants working on effects characterization or significance estimation for traditional land and resource use, Indigenous culture, and Indigenous health and well-being, have expertise on these topics. Next steps: AOPFN and CNL disagree on the assessment methodology, the assessment of impacts to TLRU and on the preferred decommissioning alternative. Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic. CNL and AOPFN have agreed to the following commitments: AOPFN-3: CNL is committed to collaborative development of risk-informed communication

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		territory and (3) opportunities for meaningful engagement to recognize, characterize and as necessary accommodate for potential historic harms. Note: the LTRA does not provide AOPFN's consent for the proposed ISD decommissioning plan for NPD. <u>CNL Response:</u> CNL acknowledges AOPFN's concerns about assessment of impacts to rights and traditional land and resource use, driven by concerns about contamination of and distrust in the safety of the land and water. CNL is open to increased engagement, education and participatory involvement in monitoring activities at its sites to address these concerns. Through the contribution agreement with AOPFN, CNL provided funding for a Culture and Rights Study. CNL has provided evidence in the EIS to support the conduct of a rights impact assessment between the CNSC and AOPFN. The proposed NPD Closure Project has the potential to help reduce concerns of alienation and/or fears. The proposed project involves a long-term solution to ensure the waste that currently resides at the NPD site is effectively contained and isolated from the environment, ensuring public safety. This solution has the potential to result in additional lands being freed up for traditional harvest or other uses by Indigenous peoples or the public. CNL stands by its conclusion that the project will not interfere with traditional activities or have a negative impact on the biological resources on which they are dependent. Ultimately, the decision of impacts to rights rests with the CNSC. If the CNSC finds any potential impacts to AOPFN's Indigenous and/or treaty rights, CNL remains committed to understanding these rights and working collaboratively to ensure that they are appropriately mitigated to the greatest extent possible.		materials for the NPD Closure Project for AOPFN community members and application of the AOPFN Algonquin Food Program and Risk Communication Program at the NPD Site. AOPFN-5: CNL is committed to support the AOPFN with NPD Closure Project and NPD site specific Guardian monitoring activities, incorporating traditional knowledge and AOPFN valued components. Until the Guardian Program is stood up, CNL can support AOPFN participation/observation in our current environmental monitoring activities. CNL welcomes recommendations for other monitoring/mitigation activities that should be integrated into our existing program to ensure that environmental and cultural components of value to AOPFN are protected. AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected.
11. Indigenous Health	(a) Indigenous health assessment, receptors and diet AOPFN is concerned that health is primarily focused on biophysical health rather than full scope Indigenous determinants of health. The assessment of Indigenous health should look beyond radiation dose thresholds and include consideration of the more difficult to measure, but equally important, perceptual and real impacts on AOPFN determinants of health including education status, economic status, and diet, among other factors. Diet is of critical importance given the likelihood that negative perceptions of the safety of the Project may diminish AOPFN member's consumption of traditional foods.	CNL shared that perception of an effect could not be considered a primary pathway under the *CEAA* (2012) because it is not tied to a biophysical effect to the environment. CNL has responded in writing to AOPFN comments related to Indigenous health, receptors and diet citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020, and two meetings to discuss responses were held in 2020. CNL is continuing its efforts to address these concerns by committing to: (i) Involving the Indigenous Nations, communities and organizations, including AOPFN, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near the CNL managed properties and build confidence that the decommissioning strategy and mitigation measures are effective.	<u>Where is this topic discussed in the EIS?</u> The EIS presents the PostSA results for the Indigenous receptor group in **Section 9.10.2.** <u>What changes have been made (and where)?</u> CNL's has updated its PostSA. This update includes an Indigenous receptor whose characteristics have been based on the results of the AOPFN Harvest and Diet Study. Two additional medicinal pathways have been added in addition to ingestion (inhalation and skin application). The human health assessment in the PostSA also includes an even more conservative scenario where an Indigenous receptor where characteristics match a pre-European contact lifestyle. The results of the PostSA have been integrated into the EIS.	<u>Status:</u> Efforts at resolution in progress; further alignment is possible but uncertain. CNL's technical assessment shows that there are no predicted impacts to Indigenous biophysical health resulting from the NPD Closure Project. CNL understands that this concern is outstanding from AOPFN's perspective because to date, CNL has not revised its assessment of Indigenous health in relation to the NPD Closure Project to adopt a more holistic evaluation of health. <u>Next Steps:</u> CNL is committed to working with AOPFN to incorporate Harvest and Diet Study results as they relate to Indigenous health and overall community wellness in a subsequent revision of the IER.

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	This is a project-specific concern.	(ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern (**Section 9.9.5** of the EIS). CNL, AECL and the AOPFN finalized an LTRA in June 2023 that includes, as matters of mutual interest, (1) logistical support for the development of an AOPFN guardian program to enable stewardship and monitoring at and in the vicinity of the CNL operated sites (2) risk communication re: the health of country foods, medicines and waters at, and in the vicinity of, CNL operated sites in the territory that AOPFN asserts is its unceded traditional territory(3) logistical support for the development of an AOPFN guardian program to enable stewardship and monitoring at and in the vicinity of CNL operated sites; (4) risk communication re: the health of country foods, medicines and waters at, and in the vicinity of, CNL operated sites in the territory that AOPFN asserts is its unceded traditional territory and (5) opportunities for meaningful engagement to recognize, characterize and as necessary accommodate for potential historic harms. The LTRA does not provide AOPFN's consent for the proposed ISD decommissioning plan for NPD. AOPFN has identified that there are only some mechanisms from the proposed LTRA which are applicable to NPD (i.e., the Guardian Program and Risk Communication Program, characterization of historic harms). AOPFN has indicated that further collaborative assessment and negotiation of a Project-Specific Agreement will be required for NPD as part of a consent seeking process between the parties. <u>CNL Response:</u> CNL acknowledges AOPFN's concerns about perceived contamination and health effects from the NPD site. CNL has added an Indigenous receptor group to the PostSA TSD. In the third iteration of the PostSA TSD issued in March 2020, CNL included a Potential Exposure Group consisting of a family of self-sufficient Indigenous receptors in the NPD area. The exposure profile in the postclosure period was developed based on a traditional Indigenous lifestyle pre-European contact (SENES 2014). This lifestyle results in a more cautious dose estimate than that based on current-day lifestyle, where some food is store-bought. The predicted peak dose to an Indigenous receptor (from the 3rd iteration PostSA) is 0.0004 mSv/yr, which is 500 times less than the dose criterion. The analysis demonstrates that the impact on the public, Indigenous peoples and the environment is negligible under all scenarios. To instill confidence in the EIS findings and the effectiveness of the follow-up monitoring, CNL will involve the AOPFN and other Indigenous Nations, communities and organizations in the monitoring program, which aims to confirm the predictions of the EIS.	CNL has also provided AOPFN an opportunity to directly integrate a summary of its differing perspective on overall assessment findings into the EIS (**Section 11.1)**.	Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic. CNL wishes to continue discussions with AOPFN to better understand the community's perspective and values and any fears, or concerns associated with the NPD site and traditional use near the site. CNL and AOPFN have agreed to the following commitments: AOPFN-3: CNL is committed to collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN community members and application of the AOPFN Algonquin Food and Risk Communication Programs at the NPD Site. AOPFN-5: CNL is committed to develop with AOPFN a meaningful role for AOPFN in the monitoring for the NPD Closure Project in addition to AOPFN participation in current environmental/compliance monitoring.

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		CNL acknowledges that each Indigenous Nation, community and organization and, each individual study may establish different study area boundaries. CNL respects that AOPFN's evaluation identifies potential effects. CNL maintains that human health has been conservatively assessed for Indigenous Nations, communities and organizations within the EIS. CNL acknowledges that AOPFN disagrees on the basis that there are other determinants of health important to AOPFN including the avoidance of consuming traditional foods.		
11. Indigenous Health	(b) Psychosocial effects AOPFN is concerned that in relation to human health, CNL has adopted a relatively narrow perspective on human health that is focused on biophysical impacts to human health, with little or no emphasis on other factors that influence Indigenous population health. This is particularly concerning to AOPFN because of the fear, stigma, and alienation felt by AOPFN members associated with the nuclear industry in general, The impacts resulting from the perception of environmental effects must be recognized. These include but are not limited to continued – now potentially permanent - fear and stigma associated with the radiological legacy at the site, and communal health and wellness issues associated with the inability to connect to the site and protect and heal it which is characterized by AOPFN as both a right and a responsibility. Pooled together, these concerns are often labeled as psychosocial impacts, and they are major contributors to poor health and wellness outcomes among Indigenous peoples. AOPFN has raised consistent concerns that CNL is not considering psychosocial impacts as legitimate impacts. This is a both a CNL-wide and project-specific concern.	CNL shared that perception of an effect could not be considered a primary pathway under the *CEAA* (2012) because it is not tied to a biophysical effect to the environment. CNL recognizes AOPFN's interest in better characterization of the factors that have led to alienation and loss of land use, and better understanding of the implications of psychosocial impacts on AOPFN socio-cultural health and well-being. CNL seeks to develop a mutual understanding of the perceived effects of the NPD Closure Project activities on the environment and any potential negative impacts on Aboriginal and/or treaty rights. CNL remains committed to finding alternative ways to address AOPFN's concern. CNL is attempting to address these concerns by committing to: (i) Involving the Indigenous Nations, communities and organizations, including AOPFN, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near the CNL managed properties and build confidence that the decommissioning strategy and mitigation measures are effective (ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern (**Section 9.9.5** of the EIS). CNL Response: CNL acknowledges AOPFN's concerns about the safety of the NPD site and the potential impacts on the rights of the AOPFN and other Indigenous Nations, communities and organizations to practice traditional activities around the NPD site. CNL has assessed potential effects related to dust and noise nuisance, loss of connection, safety of harvesting and consuming local foods, and changes to access and identified no significant adverse effects. To instill confidence in the EIS findings and the effectiveness of the follow-up monitoring, CNL will involve the AOPFN and other Indigenous Nations, communities and organizations in the monitoring program, which aims to confirm the predictions of the EIS.	Where is this topic discussed in the EIS? The EIS discusses concerns about potential loss of connection to land and water (e.g., feeling of discomfort or concern), and loss of land and water use in **Section 9.9.5**. What changes have been made (and where)? CNL added discussion of loss of connection to and use of lands and water to **Section 6.3** (interests and concerns related to VCs) and in new **Sections 9.3.1.1, 9.6.1.1, and 9.9.1.1** within the EIS**.** CNL has provided AOPFN an opportunity to directly integrate a summary of its differing perspective on impacts on traditional land and resource use (**Section 9.9.6.1**) and overall assessment findings (**Section 11.1),** into the EIS.	Status: Further alignment on this concern unlikely. It is CNL's position that this topic extends beyond the scope of *CEAA* (2012) and this EA. CNL recognizes that AOPFN's position is that the EIS does not adequately consider Indigenous health and wellness impacts beyond biophysical parameters, and that AOPFN's studies find adverse effects on other key Indigenous determinants of health in the Project Case. Next Steps: Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic. CNL wishes to continue discussions with AOPFN to better understand the community's perspective and values and any fears, or concerns associated with the NPD site and traditional use near the site. CNL and AOPFN have agreed to the following commitment: AOPFN-3: CNL is committed to collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN community members and application of the AOPFN Algonquin Food Program at the NPD Site. AOPFN-5: CNL is committed to develop with AOPFN a meaningful role for AOPFN in the monitoring for the NPD Closure Project in addition to AOPFN participation in current environmental/compliance monitoring. AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected.

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12. Long-term Safety	(a) Concern about overall deterioration of the disposal facility over time. The AOPFN identified the long-term site integrity as important because of the site's location within unceded Algonquin traditional territory and the potential of the project / site to impact people living or fishing nearby (exercising rights to fish), as well as wildlife, vegetation, and all elements of the natural environment at and in the vicinity of the Project. AOPFN has also raised concerns about whether future safety will be properly monitored, given the life of some of the contaminants exceeds the predicted Institutional Control period for the facility in the Project Case. This is a project-specific concern.	CNL is attempting to address these concerns by committing to: (iii) Involving the Indigenous Nations, communities and organizations, including AOPFN, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near the CNL managed properties and build confidence that the decommissioning strategy and mitigation measures are effective. (iv) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern (**Section 9.9.5** of the EIS). CNL, AECL and the AOPFN finalized an LTRA in June 2023 that includes, as matters of mutual interest, (1) logistical support for the development of an AOPFN guardian program to enable stewardship and monitoring at and in the vicinity of the CNL operated sites and (2) risk communication re: the health of country foods, medicines and waters at, and in the vicinity of, the CNL operated sites in the territory that AOPFN asserts is its unceded traditional territory. Note: the LTRA does not provide AOPFN's consent for the proposed ISD decommissioning plan for NPD. CNL Response: CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above-ground natural hazards and extreme temperature change on the integrity of the grouted facility and concluded that these events will have no undue short-term or long-term effects on people or the environment around the site. CNL will conduct monitoring for as long as necessary to verify the results of the assessment in the EIS.	Where is this topic discussed in the EIS? **Section 8.12** of the EIS discusses the relevant natural disasters to which NPD may be exposed. **Section 9.14** of the EIS discusses the potential effects on the project of climate change, forest fires, floods, earthquakes, severe weather such as tornados, lightning strikes, ice storms, and changes to the Ottawa River. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Efforts at resolution in progress; further alignment is possible but uncertain. CNL's technical assessment predicts no long-term environmental effects resulting from the NPD Closure Project. CNL understands that this concern is outstanding from AOPFN's perspective as the duration of the hazard exceeds the length of the Institutional Control period. Next Steps: CNL will plan workshops to gather feedback on the draft follow-up monitoring plans. CNL and AOPFN have agreed to the following commitments: AOPFN-3: CNL is committed to collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN community members and application of the AOPFN Algonquin Food Program and Risk Communication Program at the NPD Site. AOPFN-5: CNL is committed to support the AOPFN with NPD Closure Project and NPD site specific Guardian monitoring activities, incorporating traditional knowledge and AOPFN valued components. Until the Guardian Program is stood up, CNL can support AOPFN participation/observation in our current environmental monitoring activities. CNL welcomes recommendations for other monitoring/mitigation activities that should be integrated into our existing program to ensure that environmental and cultural components of value to AOPFN are protected.
13. Monitoring	(a) AOPFN involvement in monitoring Involvement in monitoring is important to the AOPFN to ensure the Kichi-Sìbì is taken care of as it has great importance to AOPFN culture, heritage and ways of life. It is important to AOPFN that it has a co-development and co-approval role in the development and implementation of the EA follow-up and monitoring program for the project, including adaptive management objectives, indicators, thresholds, and responses for terrestrial wildlife, fish and fish	CNL has responded in writing to AOPFN comments requesting involvement in monitoring citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020, and two meetings to discuss responses were held in 2020. CNL committed to share the draft follow-up monitoring plans with AOPFN for comment and did so in November 2020. CNL is continuing its efforts to address these concerns by involving the Indigenous Nations, communities and organizations, including AOPFN, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help build confidence that the decommissioning strategy and mitigation measures are effective. CNL, AECL and the AOPFN finalized an LTRA in June 2023 that includes, as a matter of mutual interest logistical support for the development of an	Where is this topic discussed in the EIS? CNL has indicated that it is willing to involve the AOPFN in its monitoring programs (**Section 6.2.4.2.3**). The follow-up monitoring program is described at a high level in **Section 12** of the EIS, details of which derive from the development of the effluent, environment and groundwater draft follow-up monitoring plans. What changes have been made (and where)? No change to the EIS has been made since the AOPFN review.	Status: Resolution is in progress CNL understands that this concern is outstanding from AOPFN's perspective until such time as there is a dedicated long-term. Indigenous-led, Indigenous Knowledge driven component integrated into the site monitoring at NPD. AOPFN's position remains that an independent Indigenous Guardian-style program is critical in relation to the NPD site and its surroundings. This will allow for Indigenous Knowledge to be integrated into project monitoring for the first time, restore AOPFN stewardship responsibilities in keeping with Canada's

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	habitat, traditional land and resource use, and water quality at minimum. AOPFN is concerned that follow-up monitoring lacks a health component that would evaluate aspects of TLRU, culture and Indigenous health/well-being. AOPFN is seeking meaningful participation in compliance monitoring and emergency response planning as part of any AOPFN-specific risk communication program. This is both a CNL-wide and project-specific interest.	AOPFN guardian program to enable stewardship and monitoring at and in the vicinity of the CNL operated sites. Note: the LTRA does not provide AOPFN's consent for the proposed ISD decommissioning plan for NPD. CNL Response: CNL is committed to involving the AOPFN in its monitoring programs. The participation of AOPFN in monitoring work for the NPD Closure Project ensures consideration of Indigenous knowledge, collaboration, mutual respect, ongoing participation and relationship building for the future.		commitment to reconciliation and UNDRIP, increase AOPFN capacity to understand and monitor changes to the environment our members rely upon, and is an important link into a required Indigenous-driven risk communication strategy for the project. Next Steps: CNL will plan workshops to gather feedback on the draft follow-up monitoring plans and here feedback from the AOPFN site-wide inventory to ensure that monitoring and mitigations are in place for AOPFN values of importance. CNL and AOPFN have agreed to the following commitments: AOPFN-5: CNL is committed to support the AOPFN with NPD Closure Project and NPD site specific Guardian monitoring activities, incorporating traditional knowledge and AOPFN valued components. Until the Guardian Program is stood up, CNL can support AOPFN participation/observation in our current environmental monitoring activities. CNL welcomes recommendations for other monitoring/mitigation activities that should be integrated into our existing program to ensure that environmental and cultural components of value to AOPFN are protected. AOPFN-13: CNL is committed to engaging with the AOPFN in the NPD Closure Project Environmental Assessment Follow-up Monitoring Program (EAFMP) development. CNL recognizes that our plans would benefit from incorporation of Indigenous knowledge and welcomes AOPFN comments on the plans.
14. National Policy	(a) Canadian strategy for waste management is lacking AOPFN is concerned that the Government of Canada does not yet have a modern nuclear waste management policy in place and that a lack of coordinated planning in past to develop permanent facilities has resulted in a proposed facility in AOPFN territory that it has not consented to, and which is contrary to IAEA guidance and the principle of consolidation of waste into the smallest feasible number of permanent waste disposal facilities.	CNL Response: This interest is generally beyond the scope of the project. The proposal to create a disposal facility on the NPD reactor site through in-situ decommissioning has been chosen as a safe and immediate decommissioning option for the NPD reactor with respect to the environment, workers and the public. It is important to highlight that this closure will reduce historic nuclear liabilities for Canada and, at the same time, reduce the footprint of the NPD site.	Where is this topic discussed in the EIS? **Section 3.5** of the EIS summarizes the regulatory framework for the NPD Closure Project. What changes have been made (and where)? This concern is recorded in **Section 6.2.4.3**.	Status: From CNL's perspective, this concern is out of scope of the NPD Closure Project. CNL understands that AOPFN is concerned about why in the Project Case this waste is not proposed to be consolidated with other sources of waste, and why the intermediate-level waste is not being removed and stored for the purpose of ultimate deep geological disposal, as per AOPFN's understanding of nuclear waste management and disposal principles. Next Steps: Through continued engagement at the Working Group, CNL hopes that the parties are able to find

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	This is not a project-specific concern; however it has implications on this project.			common ground on this topic, even though it is out of scope for the project. AOPFN and CNL have agreed to the following commitments: AOPFN-1: CNL is committed to providing the funding to continue the Working Group and AOPFN Advisory Committee (AAC) for 10 years.
14. National Policy	(b) Canadian strategy for waste management is not timely AOPFN's view is that Canada failed to act in a timely manner to implement an acceptable permanent waste management alternative. AOPFN is concerned that it did not consent to the NPD construction/operation and that now, without consent, AOPFN is expected to host the radioactive waste in perpetuity. This is not a project-specific concern; however it has implications on this project.	<u>CNL's Response:</u> Approaches for the management of radioactive waste have evolved over time, and strategies must be adjusted based on best available solutions and international best practices. It should be noted that the availability of a disposal facility for ILW is not the only factor that is taken into account when considering options for the decommissioning of the NPD reactor. The AMA considers the alternatives for technical feasibility (proven technology and compliance with regulatory requirements), financial feasibility and effects on the people and the environment. The current version of the Alternative Means report (prepared for March 2020) does include that a disposal facility will be available for ILW within the 100-year Institutional Control Period. There are activities underway to identify options for the disposal of intermediate-level radioactive waste, including characterization work that has already led to a better understanding of the exact volumes. AECL also asked CNL to evaluate the various options based on an analysis not only of the technical possibilities, but also of their costs in order to lead to a decision that is in the best interest of Canada. CNL, as the licensee, is committed to protecting the environment and reducing risk. Completing the decommissioning of the NPD site is part of that commitment. The proposal to create a disposal facility on the NPD reactor site, using a method called in-situ decommissioning has been chosen as a safe and immediate decommissioning option for the NPD reactor with respect to the environment, workers and the public. It is important to highlight that this closure will reduce historic nuclear liabilities for Canada and, at the same time, reduce the footprint of the site. The fundamental objective of the in-situ decommissioning strategy is to contain and isolate contaminants in the NPD facility for a sufficiently long time to ensure that post closure doses and concentrations are safe for people and the environment. A long-term safety analysis completed by CNL shows that the proposed decommissioned facility can achieve this result. In-situ decommissioning is a proven technology. It has been in successful use for over six decades in the United States. CNL has completed a Review of In-Situ Disposal and has summarized in a report (Aikens, 2019). At the present time, there are no suitable repositories in Canada for the disposal of radioactive waste generated during the decommissioning of nuclear reactors. Therefore, the only alternatives are to continue with SWS or to remove the Facility and store it within an existing waste storage facility or build a new waste storage facility. Of these two options, only SWS is	<u>Where is this topic discussed in the EIS?</u> AOPFN's view is that Canada failed to act in a timely manner to implement an acceptable permanent waste management alternative extends beyond the scope of *CEAA* (2012) and the NPD Closure Project. Therefore, it is not discussed in the EIS. <u>What changes have been made (and where)?</u> This concern is recorded in Section **6.2.4.3**.	<u>Status:</u> This concern extends beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project. CNL understands that this concern remains unresolved from AOPFN's perspective based on feedback in April 2023. <u>Next Steps:</u> Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic.

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		currently practical as there is not a waste storage facility of sufficient capacity to accept this volume of waste. To transfer this waste to an existing waste storage facility would require capital construction of a new facility with a resultant increase of national liability and waste facility surveillance costs. The relatively small size of the NPD Facility means that it can be effectively grouted in place at a significantly lower cost than the construction of a new disposal facility. In the case of NPD, the characteristics of the Facility and its location mean that in-situ disposal can be considered as a viable option for decommissioning and that in-situ disposal reduces Canada's nuclear liability.		
15. Protection of Flora and Fauna	(a) Habitat (including Species at Risk) and road mortality impacts As stewards of lands and waters, it is important to the AOPFN that the environment, wildlife, and plants, including Species at Risk and their habitat areas, are taken care of now and for future generations. This is a project-specific concern.	CNL has responded in writing to AOPFN comments about habitat and species at risk citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020, and two meetings to discuss responses were held in 2020. CNL committed to share the draft follow-up monitoring plans with AOPFN for comment, and did so in November 2020. CNL is continuing its efforts to address these concerns by involving the Indigenous Nations, communities and organizations, including AOPFN, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help build confidence that the decommissioning strategy and mitigation measures are effective. CNL, AECL and the AOPFN finalized an LTRA in June 2023 that includes, as a matter of mutual interest logistical support for the development of an AOPFN guardian program to enable stewardship and monitoring at and in the vicinity of the CNL managed sites. Note: the LTRA does not provide AOPFN's consent for the proposed ISD decommissioning plan for NPD. CNL Response: As the bald eagle's nest is located approximately 875 m away from the facility where work will be occurring, and the EIS notes that project activities are limited to the vicinity of the facility (Morin and Carr 2015), no impacts are expected to the bald eagle's nest. As shown in the EIS, there are no predicted adverse impacts from the project on the Ottawa River shoreline or on any fish, wildlife or plants (see row 4(a) for more details) The speed limit on roads at the NPD site will be reduced to no more than 20 km/h, and frequent inspection for wildlife presence will be conducted by the environmental personnel in the field. Following Ontario Ministry of Natural Resources and Forestry, Best Management Practices for Mitigating the Effects of Road on Amphibians and Reptiles (https://arc-solutions.org/wp-content/uploads/2017/02/mnrf_herp_road-mitigation_bmp_2016.pdf), CNL will be implementing mitigation measures to influence driver behaviour at the NPD site. If approved, the NPD Closure Project reduces the overall disturbed habitat compared to the present-day conditions, and thus will increase available habitat for vegetation and wildlife.	Where is this topic discussed in the EIS? Mitigation measures related to migratory birds, avian and herpetofauna species at risk and road mortality are discussed in **Section 9.6.3.2** of the EIS. Impacts to the surface water environment (including the Ottawa River) are discussed in **Section 9.3.3** of the EIS, and impacts to aquatic species at risk are discussed in **Section 9.4.3** of the EIS. What changes have been made (and where)? CNL has included additional mitigation measures related to migratory birds and avian and herpetofauna species at risk.	Status: Resolution is in progress CNL understands that this concern is outstanding from AOPFN's perspective until such time as there is a dedicated Indigenous-led, Indigenous Knowledge driven component integrated into the site monitoring at NPD. The participation of AOPFN in monitoring work for the NPD Closure Project ensures consideration of Indigenous knowledge, collaboration, mutual respect, ongoing participation and relationship building for the future. Next Steps: CNL and AOPFN have agreed to the following commitments: AOPFN-5: CNL is committed to support the AOPFN with NPD Closure Project and NPD site specific Guardian monitoring activities, incorporating traditional knowledge and AOPFN valued components. Until the Guardian Program is stood up, CNL can support AOPFN participation/observation in our current environmental monitoring activities. CNL welcomes recommendations for other monitoring/mitigation activities that should be integrated into our existing program to ensure that environmental and cultural components of value to AOPFN are protected. AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary. AOPFN-15: CNL is committed to work jointly with AOPFN to develop a NPD site specific chance find procedure, TLRU discovery plan, Eagle Feather Protocol and cultural protection plan.

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16. Protection of the Ottawa River	(a) The Ottawa River, and shoreline and riparian ecosystems AOPFN is concerned that the disturbed riparian habitat was excluded from CNL's Ecological Land Classification on the basis that it was considered an anthropogenic site. AOPFN is concerned that the Project will contribute impacts to riparian ecosystems as a result of decommissioning activities, batch plant operation, traffic on adjacent roadways, dust, and ongoing legacy effects as a result of liabilities remaining after decommissioning that are likely to influence groundwater and adjacent riparian areas. The restoration of these ecosystems should strive to bring back conditions similar to a pre-disturbance baseline (or intact reference baseline). This is both a CNL-wide and project-specific concern.	CNL has responded in writing to AOPFN comments about the Ottawa River shoreline and riparian ecosystem citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020, and two meetings to discuss responses were held in 2020. CNL committed to share the draft follow-up monitoring plans with AOPFN for comment and did so in November 2020. CNL is continuing its efforts to address these concerns by involving the Indigenous Nations, communities and organizations, including AOPFN, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help build confidence that the decommissioning strategy and mitigation measures are effective. CNL, AECL and the AOPFN finalized an LTRA in June 2023 that includes, as a matter of mutual interest, logistical support for the development of an AOPFN Guardian Program to enable stewardship and monitoring at and in the vicinity of the CNL managed sites. Note: the LTRA does not provide AOPFN's consent for the proposed ISD decommissioning plan for NPD. CNL Response: The EIS estimates no adverse impacts from the project on the Ottawa River shoreline or on any fish, wildlife or plants within the riparian and aquatic ecosystems (see row 4(a) for more details). A small area of the shoreline at the NPD site is maintained in a cleared state, with riprap on the shoreline, to enable access to the dry hydrant near the shoreline (which was installed to draw water from the Ottawa River if needed for fire suppression). The NPD Closure Project decommissioning activities will not impact the currently disturbed riparian area. For this reason, no impact assessment has been conducted for this habitat. Past disturbances, i.e., those that occurred during the construction of the NPD facility, are not in scope. To supplement baseline data, a study of sediment, benthic invertebrates and fish habitat features was undertaken upstream, adjacent to and downstream of the NPD site in 2020, and the report was provided to the AOPFN. The study determined that the Ottawa River benthic invertebrate community near NPD is healthy and typical of what is observed in many large, soft-bottomed, relatively deep river systems. This study can be repeated when decommissioning is complete, to verify if the project has had an impact. CNL is planning to regularly monitor the Ottawa River water quality before the project begins. CNL is willing to discuss fish tissue sampling with the AOPFN and review past studies of fish tissue in the NPD area. Follow-up monitoring for the NPD Closure Project will include monitoring of the Ottawa River to verify that there are no effects.	Where is this topic discussed in the EIS? The EIS does not predict any adverse residual effects on the surface water environment, which encompasses the Ottawa River (**Section 9.3.3.5**). What changes have been made (and where)? **Section 9.3.3.2** of the EIS expands on the mitigation measures for the protection of surface water, including the Kichi-Sibì.	Status: Resolution is in progress. CNL understands that this concern is outstanding from AOPFN's perspective until such time as there is a dedicated Indigenous-led, Indigenous Knowledge driven component integrated into the site monitoring at NPD. AOPFN would also like to see re-establishment of a more natural riparian habitat along the shore near the facility as part of site restoration activities. AOPFN has requested to be involved at a decision-making level in both immediate-term restoration planning and end-state planning for the entire NPD site. Next Steps: CNL and AOPFN have agreed to the following commitments: AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary. AOPFN-21: CNL is committed to seeking input from the AOPFN on the proposed ISD project end state, including AOPFN input on lands restoration of the disturbed areas. Tri-party discussion including AECL/CNL/AOPFN will be required for site-wide end state planning.

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17. Socio-Economic	(a) The absence of primary socio-economic baseline data for AOPFN The AOPFN have indicated that having primary socio-economic baseline data is important to the AOPFN because Indigenous Nations, communities and organizations often conceptualize socio-economic wellbeing in ways that cannot be adequately captured with census data. Potential effects to Indigenous socio-economic conditions cannot be adequately assessed without this baseline. AOPFN is concerned that the Indigenous socio-economic assessment is extremely narrow, focusing primarily on nuisance effects from Project activities and traffic safety. This assessment does not contain an appropriate social component, which may include (but not be limited to) considerations such as social relations, family, intergenerational relations, food security, sharing relationships, and psychosocial factors, as well as standard socio-economic considerations such as (but not limited to) education and training, employment and income, job readiness, housing, and community services. In addition, AOPFN commercial activities (e.g. guiding and outfitting) should be assessed. The socio-economic effects assessment should consider direct, indirect, induced, and cumulative socio-economic impacts. In addition, appropriate mitigation and monitoring measures should be adopted. This is a project-specific concern.	CNL has responded in writing to AOPFN comments on socio-economic baseline data citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020, and two meetings to discuss responses were held in 2020. CNL Response: CNL's socio-economic analysis does focus on secondary census data for AOPFN; however, the recently established AOPFN AAC, formed as part of the contribution agreement, provides an opportunity for primary collection of socio-economic data. CNL would be pleased to participate in a focused discussion with AOPFN on this topic and would welcome any "gray literature" that might be available. Further, CNL acknowledges that Indigenous Nations, communities and organizations may conceptualize socio-economic wellbeing in ways that cannot be adequately captured with census data.	Where is this topic discussed in the EIS? **Section 9.10.1.2** of the EIS describes the interactions of the Indigenous Socio-Economic environment and the project as well as proposed mitigations. The EIS does not predict any adverse residual effects on the Indigenous socioeconomic and health (**Sections 9.10.1.4** and **9.10.2.4**). What changes have been made (and where)? No changes to these sections of the EIS have been made since the AOPFN review.	Status Outstanding CNL understands that this concern is outstanding from AOPFN's perspective as no further engagement on this topic has occurred since AOPFN reviewed the 2020 draft EIS. Next Steps: CNL is committed to working with AOPFN to incorporate material related to Indigenous Socio-economics in a subsequent revision to the IER. AOPFN and CNL have agreed to the following commitment: AOPFN-1: CNL is committed to providing the funding to continue the Working Group and AOPFN Advisory Committee (AAC) for 10 years.
18. Technical	(a) Emissions and Discharges It is important to AOPFN that emissions to the environment are properly assessed and are mitigated and monitored as appropriate to ensure that the rights and interests of AOPFN members are upheld in relation to the environment (i.e., hunting, trapping, gathering, fishing and cultural ceremonies). This is a project-specific concern.	CNL has responded in writing to AOPFN comments on effluent and effluent mitigation measures citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020, and two meetings to discuss responses were held in 2020. CNL Response: The EcoRA evaluates potential impacts to biota, including those in the Kichi-Sìbì, from chemical and radiological releases during all phases of the project. The EcoRA found that no potential exposure-related effects to aquatic biota are expected during the Decommissioning Execution phase.	Where is this topic discussed in the EIS? **Section 9.2.3** of the EIS provides the mitigation measures and monitoring for dust. **Section 9.4.3** of the EIS summarizes the EcoRA findings related to potential impacts to biota, including those in the Kichi-Sìbì, from chemical and radiological releases during all phases of the project.	Status: Resolved Next Steps: AOPFN's review of the draft responses to comments on the EIS indicated that CNL's response on dust was adequate, and that they would need to review the PostSA to assess the adequacy of the response related to effluent discharges to the aquatic environment.

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		The EcoRA also determined that no adverse residual effects to aquatic biota are anticipated during the Institutional Controls or Post-Institutional Controls phases. The EIS describes noise and dust mitigation measures, and monitoring is planned as part of the EA follow-up monitoring.	What changes have been made (and where)? No changes to the EIS have been made in response to this concern.	CNL and the AOPFN are continuing engagement through the framework of the contribution agreement.
19. Traditional Land and Resource Use and Cultural Impacts	(a) Algonquin traditional knowledge should be collected and incorporated into the EIS. It is important to AOPFN that community-specific knowledge be obtained and used to properly characterize current conditions and develop scenarios that accurately represent potential future uses of the site to enable future AOPFN members to practice traditional activities in the region. This is a project-specific concern.	CNL sent two letters asking specific questions of AOPFN to align with the requirements of *CEAA* (2012) Section 5(1)(c). These questions included: • Do you have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects? • Does [AOPFN], or any members, have sites of ceremonial significance in close proximity [of NPD], or more generally, any cultural activities near [the NPD site]? The CNSC and CNL have contributed funds for AOPFN to disaggregate the AOO AKLUS results, which was completed in November 2020. CNL has also contributed funds for AOPFN to undertake a Harvest and Diet Study and Culture and Rights Study, which were completed in August 2021. CNL has responded in writing to AOPFN comments on incorporation of AKLUS information in the EIS citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020, and two meetings to discuss responses were held in 2020. Also, in November 2020, CNL sent by letter to AOPFN the content from the AKLUS that it intended to include in the December 2020 EIS. Revised content was shared again with AOPFN in May 2021. In August 2021, AOPFN shared the Harvest and Diet Study and Culture and Rights Study along with a presentation and letter summarizing the findings and implications of these two studies and the AKLUS. Leading up to the December 2021 EIS submission CNL shared revised Sections of the EIS (Section 8.9 and 9.9) and sought and incorporated AOPFN feedback. CNL Response: CNL agrees that traditional knowledge from the AOPFN and other Indigenous Nations, communities and organizations should be integrated into the EIS. CNL has contributed funding to the preparation of an AOPFN AKLUS, Harvest and Diet Study and Culture and Rights Study and has integrated findings and concerns into the EIS. CNL includes an Indigenous receptor group in its PostSA TSD. CNL has completed an initial comparison of the AOPFN study results with the characteristics of the Indigenous receptor used in the PostSA and found that its assumptions in almost all cases are conservative for the Indigenous receptor profile. The predicted peak dose to an Indigenous receptor is 0.0004 mSv/yr which is 500 times less than the dose criterion. The analysis demonstrates that the impact on Indigenous Peoples and the environment is negligible.	Where is this topic discussed in the EIS? **Section 8.9** of the EIS presents information about traditional land and resource use, including specific information about the AOPFN (**Section 8.9.2.2.3**). **Section 9.9** of the EIS assesses risk to traditional land and resource use VCs, including new VCs (**Sections 6.3 and 9.9** of the EIS). **Section 9.1.1.1** of the EIS presents the future exposure scenarios and groups that are considered in the PostSA TSD. The EIS and supporting studies have assumed that traditional uses do occur adjacent to the NPD site, whether on the Ottawa River or outside the restricted/fenced area. CNL has also assumed that there will be future interest in re-establishing traditional use activities on the NPD site. What changes have been made (and where)? CNL expanded the description of traditional uses and added and evaluated new traditional land and resource use VCs (**Sections 6.3 and 9.9** of the EIS). Content from the AKLUS, Harvest and Diet Study and Culture and Rights Study has been added to the EIS (**Section 8.9)**. The EIS update includes additional detail on the VC-related engagement process (**Section 6.3**) and how Indigenous interests have been incorporated into the VCs selected for the NPD Closure Project. CNL has provided AOPFN an opportunity to directly integrate a summary of its differing perspective on impacts on traditional land and resource use (**Section 9.9.6.1**) and overall assessment findings (**Section 11.1),** into the EIS.	Status: Efforts at resolution in progress; resolution possible but uncertain at this time. CNL understands that this concern is outstanding from AOPFN's perspective as the findings of CNL in the EIS do not correlate with the findings from the three AOPFN-related studies, in relation to impacts on traditional land and resource use, culture, and Indigenous health and well-being. Next steps: CNL and AOPFN have agreed to the following commitments: AOPFN-3: CNL is committed to collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN community members and application of the AOPFN Algonquin Food Program and Risk Communication Program at the NPD Site. AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary. AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
19. Traditional Land and Resource Use and Cultural Impacts	(b) Impact on ability to practice traditional activities. AOPFN is concerned about continued ability to harvest and consume wildlife and natural materials from the area, including hunting, plant harvesting and fishing. AOPFN is concerned that harvesting sites could become compromised in the future, leading to concerns over safety that would impact members' abilities to pass on AOPFN knowledge on harvesting to children. This would in turn affect the ability of future generations to use the area; and that project-related activities would exacerbate the issue of alienation and further limit members' access to the area, and perpetuate the difficulty of exercising their Aboriginal rights. AOPFN disagrees with CNL's conclusion of no impacts on traditional land use. AOPFN's four studies, supported by evidence from traditional land users themselves identify the following existing impact pathways: • Lack of access to the NPD site since 1962; • Diminished quality and quantity of game species in preferred hunting areas; • Lack of confidence in the health of animals, fish, medicines, and waters, and in their safety for human consumption. This is a project-specific concern.	CNL has sent two targeted letters asking specific questions of AOPFN to align with the requirements of *CEAA* (2012) Section 5(1)(c). CNL has responded in writing to AOPFN comments on safety and quality of experience on the land citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in 2020 December, and two meetings to discuss responses were held in 2020. CNL is continuing its efforts to address these concerns by committing to: (i) Involving the Indigenous Nations, communities and organizations, including AOPFN, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near the CNL managed properties and build confidence that the decommissioning strategy and mitigation measures are effective (ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern (**Section 9.9.5** of the EIS). CNL, AECL and the AOPFN finalized an LTRA in June 2023 that includes, as matters of mutual interest, (1) logistical support for the development of an AOPFN guardian program to enable stewardship and monitoring at and in the vicinity of the CNL operated sites and (2) risk communication re: the health of country foods, medicines and waters at, and in the vicinity of, CNL operated sites in the territory that AOPFN asserts is its unceded traditional territory. Note: the LTRA does not provide AOPFN's consent for the proposed ISD decommissioning plan for NPD. CNL seeks to develop a mutual understanding of the perceived effects of the NPD Closure Project activities on the environment and any potential negative impacts on Aboriginal and/or treaty rights. This includes, but is not limited to, rights to trap, hunt, fish, gather, or harvest as well as the continuation and uninterrupted access to cultural and spiritual activities on the lands and waters. CNL Response: CNL acknowledges AOPFN's concerns about the safety of the NPD site and the potential impacts on the rights of the AOPFN and other Indigenous Nations, communities and organizations to practice traditional activities around the NPD site. CNL has assessed potential effects related to dust and noise nuisance, loss of connection, safety of harvesting and consuming local foods, and changes to access and identified no significant adverse effects. To instill confidence in the EIS findings and the effectiveness of the follow-up monitoring, CNL will involve the AOPFN and other Indigenous Nations, communities and organizations in the monitoring program, which aims to confirm the predictions of the EIS.	Where is this topic discussed in the EIS? The EIS discusses concerns about potential loss of connection to land and water (e.g., feeling of discomfort or concern), and loss of land and water use in **Section 9.9.5**. General plans for restoration and end state, including access considerations, are described in **Section 4.3.1.9** of the EIS. What changes have been made (and where)? CNL added discussion of loss of connection to and use of lands and water to **Section 6.3** in the EIS (interests and concerns related to VCs) and in new **Sections 9.3.1.1, 9.6.1.1, and 9.9.1.1** in the EIS**.** CNL has provided AOPFN an opportunity to directly integrate a summary of its differing perspective on impacts on traditional land and resource use (**Section 9.9.6.1**) and overall assessment findings (**Section 11.1),** into the EIS.	Status: Further alignment on this concern not possible CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012). CNL's conclusion is that the project will not interfere with traditional activities or have a negative impact on the biological resources on which they are dependent. CNL understands that this concern is outstanding from AOPFN's perspective based on AOPFN feedback in April 2023. The findings of CNL are not supported by the traditional users themselves and CNL has chosen not to update the results of its effects assessment with this information. Next steps: CNL and the AOPFN are continuing engagement through the framework of the contribution agreement. CNL wishes to continue discussions with AOPFN to better understand the community's perspective and values and any fears, or concerns associated with the NPD site and traditional use near the site. CNL has proposed a workshop with AOPFN focused on effects to traditional land and resource use, and on commitments to mitigate this concern. CNL and AOPFN have agreed to the following commitment: AOPFN-2: CNL will support a Cultural Protection and Commemoration Plan in relation to the NPD site. AOPFN-3: CNL is committed to collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN community members and application of the AOPFN Algonquin Food Program and Risk Communication Program at the NPD Site. AOPFN-5: CNL is committed to support the AOPFN with NPD Closure Project and NPD site specific Guardian monitoring activities, incorporating traditional knowledge and AOPFN valued components. Until the Guardian Program is stood up, CNL can support AOPFN participation/observation in our current environmental monitoring activities. CNL welcomes recommendations for other monitoring/mitigation activities that should be integrated into our existing program to ensure that environmental and cultural components of value to AOPFN are protected.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		CNL notes that the final end state is the only time when changes to access will occur; the final end state of the NPD site will be an improvement from current conditions. The PostSA TSD addresses the potential for concerns about loss of connection to land and water, and about food safety. The PostSA and EIS (and other supporting studies) have demonstrated that, there are no concerns about the accessibility or safety of the NPD site in the long term based on several different future use scenarios, including self-sufficient Indigenous receptors. The proposed activities will result in an enhancement of current conditions at the NPD site and will improve the ability to practice traditional activities in the area surrounding the NPD site. These findings, which will be confirmed by monitoring, may reduce concerns about loss of connection to land and water, and about food safety.		AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary. AOPFN-15: CNL is committed to work jointly with AOPFN to develop a NPD site specific TLRU discovery plan. AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected.
19. Traditional Land and Resource Use and Cultural Impacts	(c) Preservation of cultural resources, and mitigation of impacts to cultural resources It is important to the AOPFN that traditional land use and cultural resources are protected and potential effects are mitigated and monitored in a way that recognizes the interdependencies between ecological, socio-economic, community and cultural health. AOPFN is concerned that the EIS has only considered the presence of ceremonies and access to physical archaeological resources, neglecting other cultural values of importance to AOPFN such as transmission of traditional knowledge, cultural landscapes as well as trails and travel-ways such as the Ottawa river. Further mitigations for impacts to traditional use are limited to construction timing, dust suppression, and communication/notification. AOPFN is seeking a collaborative process to identify culturally appropriate ways to mitigate potential impacts and concerns of AOPFN and AOPFN Knowledge Keepers. This is a project-specific concern.	CNL has responded in writing to AOPFN comments on preservation of cultural resources citing relevant sections of the EIS as part of the comment response. AOPFN provided feedback on these dispositions in December 2020, and two meetings to discuss responses were held in 2020. Also, in November 2020, CNL sent by letter to AOPFN the content from the AKLUS that it intended to include in the December 2020 EIS. Revised content was shared again with AOPFN in May 2021. In August 2021, AOPFN shared the Harvest and Diet Study and Culture and Rights Study along with a presentation and letter summarizing the findings and implications of these two studies and the AKLUS. Leading up to the December 2021 EIS submission CNL shared revised Sections of the EIS (Section 8.9 and 9.9) and sought and incorporated AOPFN feedback. CNL is attempting to further address concerns on this topic through project commitments related to involvement in the monitoring and key protocols and procedures that will be co-developed for the NPD site (see Next Steps). CNL, AECL and the AOPFN finalized an LTRA in June 2023 that includes, as a matter of mutual interest, cultural protection, promotion, education, recognition and reconciliation. The LTRA does not provide AOPFN's consent for the proposed ISD decommissioning plan for NPD. AOPFN has identified that there are only some mechanisms from the proposed LTRA which are applicable to NPD (i.e., the Guardian Program and Risk Communication Program, characterization of historic harms). AOPFN has indicated that project specific commitments in this area are required. <u>CNL Response:</u> CNL has included a summary of AOPFN traditional knowledge and land use, incorporated the valued species identified by AOPFN, and recorded main concerns about the project in the EIS, which also includes new VCs as	<u>Where is this topic discussed in the EIS?</u> • CNL added content from the AKLUS report to the EIS. The EIS update includes additional detail on the VC-related engagement process and how Indigenous interests have been incorporated into the VCs selected for the NPD Closure Project. • Content from the AKLUS, Harvest and Diet Study and Culture and Rights Study has been added to **Sections 8.9 and 9.9** of the EIS**.** • Mitigation measures for Indigenous Land and Resource Use are presented in **Section 9.9.3.2** and for Indigenous Socio-Economic and Health in **Section 9.10.1.3.2**. <u>What changes have been made (and where)?</u> Mitigation measures have been updated in the EIS, and the Cultural Resource Management Procedure has been referenced as a mitigation.	<u>Status:</u> Efforts at resolution in progress; resolution possible but uncertain at this time. CNL understands that this concern is outstanding from AOPFN's perspective as the findings of CNL do not correlate with the findings from the three AOPFN studies, in relation to impacts on traditional land and resource use and culture. AOPFN is also concerned that commitments related to collaborative development of mitigations and monitoring activities remain too vague. <u>Next steps:</u> CNL and the AOPFN are continuing engagement through the framework of the contribution agreement. CNL wishes to continue discussions with AOPFN to better understand the community's perspective and values, as well as any fears or concerns associated with the NPD site and traditional use near the site. CNL proposes a workshop with AOPFN focused on effects to traditional land and resource use and on future commitments to mitigate this concern. CNL and AOPFN have agreed to the following commitment: AOPFN-2: CNL will support a Cultural Protection and Commemoration Plan in relation to the NPD site and CNL commits to involve AOPFN in any future archaeological programs at or around the NPD site. AOPFN-3: CNL is committed to collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN

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		well as updated mitigation measures related to the assessment of traditional land and resource use. CNL would be willing and pleased to work with AOPFN on identifying culturally appropriate mitigation measures to deal with effects associated with the proposed project. CNL invites AOPFN to identify timing and methodology to perform this work.		community members and application of the AOPFN Algonquin Risk Communication Program at the NPD Site. AOPFN-5: CNL is committed to support the AOPFN with NPD Closure Project and NPD site specific Guardian monitoring activities, incorporating traditional knowledge and AOPFN valued components. Until the Guardian Program is stood up, CNL can support AOPFN participation/observation in our current environmental monitoring activities. CNL welcomes recommendations for other monitoring/mitigation activities that should be integrated into our existing program to ensure that environmental and cultural components of value to AOPFN are protected. AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary. AOPFN-15: CNL is committed to work jointly with AOPFN to develop a NPD site specific chance find procedure, TLRU discovery plan, Eagle Feather Protocol and cultural protection plan. AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected.
19. Traditional Land and Resource Use and Cultural Impacts	(d) Concern about the size of the study areas for the assessment of effects on traditional land use. It is important to the AOPFN that all potential effects on traditional land use are considered by identifying study areas that encompass not just biophysical and physical effects, but also changes to the environment that would affect the values and sense of safety of AOPFN members. AOPFN is concerned that CNL has not adopted the larger Local and Regional Study Areas used by AOPFN in their studies. This highlights the continued lack of understanding of just how large the impact	CNL is attempting to address these concerns by committing to: (i) Involving the Indigenous Nations, communities and organizations, including AOPFN, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near the CNL properties and build confidence that the decommissioning strategy and mitigation measures are effective (ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern (**Section 9.9.5** of the EIS).	<u>Where is this topic discussed in the EIS?</u> **Section 8.9.1** of the EIS presents the spatial boundaries selected by CNL to assess potential effects on the Indigenous traditional land and resource use environment. **Section 9.9** of the EIS presents the assessment of effects to traditional land and resource use VCs, including further discussion of the assessment boundaries used (**Section 9.9.2** of the EIS). Note that in its review of these sections, the AOPFN indicated that they continue to disagree with CNL's conclusion that there are no	<u>Status:</u> Further alignment on this concern unlikely. CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012). CNL understands that this concern is outstanding from AOPFN's perspective because CNL has chosen not to adopt the study area boundaries from the AOPFN studies. <u>Next steps:</u> AOPFN and CNL disagree on the assessment area boundaries and on the assessment of impacts to TLRU. Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
	zone on Traditional Land and Resource Use is around the NPD site. This is a project-specific concern.	CNL, AECL and the AOPFN finalized an LTRA in June 2023 that includes, as matters of mutual interest, (1) logistical support for the development of an AOPFN guardian program to enable stewardship and monitoring at and in the vicinity of the CNL operated sites and (2) risk communication re: the health of country foods, medicines and waters at, and in the vicinity of, CNL operated sites in the territory that AOPFN asserts is its unceded traditional territory The LTRA does not provide AOPFN's consent for the proposed ISD decommissioning plan for NPD. AOPFN has identified that there are only some mechanisms from the proposed LTRA which are applicable to NPD (i.e., the Guardian Program and Risk Communication Program, characterization of historic harms). AOPFN has indicated that project specific commitments in this area are required. AOPFN has drafted **Section 9.9.6** of the EIS, identifying remaining concerns AOPFN has with CNL's assessment approach. <u>CNL Response:</u> CNL acknowledges that each Indigenous Nation, community or organization may establish different study area boundaries, and may identify different potential effects of concern. CNL is working with Indigenous Nations, communities and organizations, including AOPFN, to improve risk communications, promote understanding of the EIS results, and involve Indigenous groups in monitoring to build confidence that the land is safe for use (see further discussion below). For the assessment of effects on traditional land and resource use, CNL selected a Local Study Area that extends beyond NPD property boundaries, including Crown land in Ontario and Quebec, and the Ottawa River. If any effects were to be experienced, they would occur in the selected Local Study Area. If required, based on the results of the assessment, the boundaries of the Local Study Area could be extended. In Section 9 of the EIS, the assessment confirmed that there are no measurable effects for any environmental component beyond the Local Study Area. Enlarging the Local Study Area would not change these findings. Similarly, the Regional Study Area boundaries were chosen to include the expected area of possible effects. The assessment, which was conducted per *CEAA* (2012) requirements, found that no measurable effects on traditional land use VCs in the Regional Study Area are expected from the project.	measurable effects to traditional land and resource use. <u>What changes have been made (and where)?</u> No change has been made to the study areas used in the assessment. CNL has provided AOPFN an opportunity to directly integrate a summary of its differing perspective on impacts on traditional land and resource use (**Section 9.9.6.1**) and overall assessment findings (**Section 11.1),** into the EIS.	CNL and AOPFN have agreed to the following commitment: AOPFN-3: CNL is committed to collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN community members and application of the AOPFN Algonquin Risk Communication Program at the NPD Site. AOPFN-5: CNL is committed to support the AOPFN with NPD Closure Project and NPD site specific Guardian monitoring activities, incorporating traditional knowledge and AOPFN valued components. Until the Guardian Program is stood up, CNL can support AOPFN participation/observation in our current environmental monitoring activities. CNL welcomes recommendations for other monitoring/mitigation activities that should be integrated into our existing program to ensure that environmental and cultural components of value to AOPFN are protected. AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary. AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected.
19. Traditional Land and Resource Use and Cultural Impacts	(e) Participation of knowledge holders in the assessment of effects to TLRU AOPFN is concerned about the lack of integration of AOPFN knowledge and AOPFN members into the assessment of effects on traditional land and resource use,	In July 2020, AOPFN submitted formal comments on the 2020 EIS. Several comments were related to effects on traditional land and resource use, culture, Indigenous health and well-being. In their letter dated August 13, 2021 that outlined the implications of the AOPFN studies for the NPD Closure Project, AOPFN highlighted that best practice considers all potential impact pathways and that for impacts on the	<u>Where is this topic discussed in the EIS?</u> **Section 8.9** of the EIS presents information about traditional land and resource use, including specific information about the AOPFN (**Section 8.9.2.2.3**). **Section 9.9** of the EIS assesses risk to traditional land and resource use VCs, including new VCs (**Sections 6.3 and**	<u>Status:</u> Further alignment on this concern unlikely CNL believes that they have addressed this concern based on the requirements of *CEAA* (2012). CNL understands that this concern is outstanding from the AOPFN's perspective based on AOPFN feedback in April 2023. AOPFN remains concerned that CNL

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
	culture, and Indigenous health and well-being. AOPFN holds that it is a principle of meaningful assessment of effects on Indigenous land use, culture, and health and well-being that not only must Indigenous inputs be provided into the process, but the Indigenous Knowledge holders, with their unique expertise as the actual land users and culture holders, must be involved in effects characterization and significance estimation. This is not a project-specific interest; however it has implications for the EA process and methods used in this project-specific assessment.	human environment they should be considered by the people who would be impacted themselves. AOPFN reiterated to CNL in its feedback from April 2023 that Knowledge holders should participate in the effects characterization for traditional land, resource use and culture. <u>CNL Response:</u> CNL acknowledges that AOPFN is concerned that Knowledge holders did not participate in the effects assessment. The EIS and supporting studies have assumed that traditional uses do occur adjacent to the NPD site, whether on the Ottawa River or outside the restricted/fenced area. CNL has also assumed that there will be future interest in re-establishing traditional use activities on the NPD site. CNL has determined that there are no adverse impacts on Traditional Land and Resource Use resulting from the NPD Closure Project. Indigenous Nations, communities and organizations often prefer a different approach, consider different factors, and evaluate against a different baseline than CNL and, subsequently, the findings of the Indigenous Nations, communities and organizations, and CNL, differ. CNL has provided AOPFN an opportunity to directly integrate its assessment findings for impacts on traditional land and resource use within the EIS. Through the contribution agreement with AOPFN, CNL provided funding for a Culture and Rights Study. CNL has provided evidence in the EIS to support the conduct of a rights impact assessment between the CNSC and AOPFN. The proposed NPD Closure Project has the potential to help reduce concerns of alienation and/or fears. The proposed project involves a long-term solution to ensure the waste that currently resides at the NPD site is effectively contained and isolated from the environment, ensuring public safety. This solution has the potential to result in additional lands being freed up for traditional harvest or other uses by Indigenous peoples or the public. CNL stands by its conclusion that the project will not interfere with traditional activities or have a negative impact on the biological resources on which they are dependent. Ultimately, the decision of impacts to rights rests with the CNSC. If the CNSC finds any potential impacts to AOPFN's Indigenous and/or treaty rights, CNL remains committed to understanding these rights and working collaboratively to ensure that they are appropriately mitigated to the greatest extent possible.	**9.9**). **Section 9.1.1.1** of the EIS presents the future exposure scenarios and groups that are considered in the PostSA TSD. <u>What changes have been made (and where)?</u> CNL expanded the description of traditional uses and added and evaluated new traditional land and resource use VCs (**Sections 6.3 and 9.9** of the EIS). Content from the AKLUS, Harvest and Diet Study and Culture and Rights Study has been added to the EIS (**Section 8.9)**. The EIS update includes additional detail on the VC-related engagement process (**Section 6.3**) and how Indigenous interests have been incorporated into the VCs selected for the NPD Closure Project. CNL has provided AOPFN an opportunity to directly integrate a summary of its differing perspective on impacts on traditional land and resource use (**Section 9.9.6.1**) and overall assessment findings (**Section 11.1),** into the EIS.	has not shown expertise in assessing effects on these valued components, has not included Algonquin Knowledge holders in the assessment of effects on these valued components and that AOPFN perspectives have had little to no influence on CNL's assessment findings. <u>Next steps:</u> AOPFN and CNL disagree on the assessment methodology and on the assessment of impacts to TLRU. Through continued engagement at the working group CNL hopes that the parties are able to find common ground on this topic. CNL and AOPFN have agreed to the following commitment: AOPFN-3: CNL is committed to collaborative development of risk-informed communication materials for the NPD Closure Project for AOPFN community members and application of the AOPFN Algonquin Food Program and Risk Communication Program at the NPD Site. AOPFN-5: CNL is committed to develop with AOPFN a meaningful role for AOPFN in the monitoring for the NPD Closure Project in addition to AOPFN participation in current environmental/compliance monitoring. AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary. AOPFN-18: CNL is committed to co-developing with the AOPFN additional mitigation measures to include within the NPD Closure Project Environmental Protection Plan to ensure that items of value to AOPFN are protected.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
20. Valued Components	(a) Inclusion of VCs identified by AOPFN AOPFN is concerned that the specific species they have identified are sometimes assessed using a representative species. The decision to use a receptor species and the appropriateness of that species was not informed by Algonquin Knowledge. For example AOPFN is concerned that the many fish species are evaluated using only two generic categories – pelagic and benthic and that vegetation is represented by a single VC – terrestrial vegetation. AOPFN also suggests additional work to understand the values, distribution, abundance, and risks to impacts of specific aquatic and terrestrial vegetation is required. Further, AOPFN is concerned that the final decisions on what VCs to include was made by CNL, and was not verified as appropriate by AOPFN, which suggests that Algonquin Knowledge is still not treated as of equivalent value to western science in CNL's environmental assessment. This is a project-specific concern.	CNL has updated the draft EIS to include a mapping of Indigenous VCs to the effects assessment. CNL shared the new content in Section 6.3 with AOPFN for review and comment. AOPFN has drafted Section 6.3.2.1 of the EIS, identifying remaining issues AOPFN has with the VCs and how they are used in the CNL assessment. Through the contribution agreement, AOPFN and CNL have worked together to conduct site-wide Algonquin Knowledge Seasonal Inventories at the NPD site in 2022 and 2023 CNL Response: CNL initially created a Master List of Candidate Valued Components by reviewing relevant reference documents and applying EA process and site knowledge. These candidate VCs include biota such as fish or birds, as well as abiotic qualities such as cultural and heritage sites, or socio-economic entities such as fishing. CNL provides rationale for including or not including species as a VC. The VCs selected for the NPD Closure Project reflect a wide range of Indigenous interests. Many of the interests and concerns raised by Indigenous Nations, communities and organizations, correspond directly or indirectly to the VCs selected for the project. Based on Indigenous feedback received during engagement activities, CNL has added several human and non-human VCs that were identified as being of importance to Indigenous Nations, communities and organizations. Berries, mushrooms, mink, river otter, weasel, red fox, moose and monarch butterflies were added as VCs, as well as soil quality, groundwater quality, groundwater flow and several Indigenous socio-economic and Indigenous health VCs. In some cases no new VCs were added, because direct, representative or related VCs that encompass the value or interest of the Indigenous Nation, community or organization were already included in the assessment.	Where is this topic discussed in the EIS? A complete listing of VCs assessed by the project can be found in **Table 5.2-3** of the EIS while **Appendix B** provides a Master List of Candidate Valued Components, providing a rationale for including or not including the species as a VC. **Section 6.3** of the EIS captures VCs identified by Indigenous Nations, communities and organizations. What changes have been made (and where)? CNL has developed a detailed table (**Table 6.3-1 (b)**) for **Section 6.3** of the EIS that captures VCs of Indigenous Nations, communities and organizations and organizations and demonstrates how they are either directly or indirectly assessed in the EIS. CNL shared and incorporated AOPFN feedback into this table in November 2021. CNL has also provided AOPFN an opportunity to directly integrate a summary of its differing perspective on the use of representative species and other VC-related issues (**Section 6.3.2.1**) into the EIS.	Status: Resolution is in Progress CNL's EIS considers a wide range of VCs and where individual species have not been selected CNL provides rationale for the use of representative species. CNL and AOPFN have completed four one-day seasonal field inventories at portions of the NPD site and AOPFN has requested funding and time for a site-wide Algonquin knowledge inventory, which has yet to occur. CNL looks forward to discussing the inventory results and recommendations. CNL understands that this concern is outstanding from AOPFN's perspective, with specific issues raised in the AOPFN-developed **Section 6.3.2.1** of the EIS. Next Steps: CNL and the AOPFN are continuing engagement through the framework of the contribution agreement. Using the findings and recommendations from AOPFN's partial site inventory to date, CNL commits to work with AOPFN to develop specific project and corporate commitments that consider AOPFN valued species and components and mitigations to ensure AOPFN valued species are protected. AOPFN and CNL have agreed to the following commitment: AOPFN-6: CNL is committed to supporting AOPFN-led site inventory work to develop an Algonquin Knowledge baseline for the entire NPD site. Where AOPFN identifies important resources that could be impacted by the project, CNL is committed to evaluate and implement additional mitigation measures if necessary.

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Appendix C.3 – Record of Engagement and Tables of Interests and Concerns for the Métis Nation of Ontario (MNO)

This appendix provides a complete record of all engagement between CNL and MNO from June 2016 to March 2024 (Table C-7). Table C-7 includes the date and method of the communication/engagement, the topics discussed and participants. The table also highlights engagements where key EA topics were discussed. The key EA topics align with "Generic Guidelines for Preparation of an Environmental Impact Statement Pursuant to the *Canadian Environmental Assessment Act*, 2012" as well as the requirements of REGDOC 3.2.2 "Indigenous Engagement" and guidance specific to NPD provided by the CNSC in January 2021 (e-doc # 6467843).

Following the record of engagement is a mapping of how the summary of interests and concerns were compiled (Table C-8), as well as a summary of interests and concerns raised by MNO (Table C-9).

Section 6.2.4.4.1 of the EIS summarizes the engagement activities that have taken place to date between CNL and the MNO.

Table C-7 Record of Engagement with the Métis Nation of Ontario (MNO)

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 02, 2016 Meeting	This teleconference between CNL staff (including the Director of Corporate Communications) and MNO representatives (including the MNO's Manager of Natural Resources and Consultations) was an introductory overview discussion on the NPD Closure Project to build awareness on the project and on Métis interests.			√						√	
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the President of the MNO introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5(1)(c), the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* • *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	
July 20, 2016 Meeting	This meeting between MNO (including members of the MNO Mattawa/Lake Nipissing Métis Traditional Territory Consultation Committee and the MNO's Manager of Natural Resources and Consultations) and CNL representatives was an introductory meeting hosted by the MNO in North Bay to share information on the project and learn about the MNO and in particular the MNO Mattawa/Lake Nipissing Métis Traditional Territory Consultation Committee. Six staff members from CNL, from the NPD Closure Project, Corporate Communications and Environmental Protection attended, as well as four members of the MNO Mattawa/Lake Nipissing Métis Traditional Territory Consultation Committee and two MNO staff members. CNL staff shared a presentation on the proposed project, which focussed on: the existing site and its history, alternative means, the project timeline and planned phases for decommissioning, environmental assessments (including its purpose of determining mitigation measures) and Environmental Impact Statement contents, VCs, effluent monitoring and shared North American examples of technique. The MNO identified a number of interests at this meeting. A member of the consultation committee stated that CNL did a good job of identifying the "potential" VCs to their communities and asked if CNL could look into whether berry patches would be affected, sharing that the people in his community did a lot of berry picking along the side of the roads and highways. The same member also inquired on could find out if any historic or current cemeteries that could be affected. Employment opportunities for Métis business owners also came up as a topic of discussion as well as the whether the project would remain on Crown property. Interest in medicinal plants in the region was also identified, as well as an interest in facility tours. This is the first instance where the MNO raised interest in VCs and archaeology and cultural sites.	√	√	√	√					√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 01, 2016 Outgoing telephone call	This telephone call from a CNL communications officer to a member of the Mattawa Métis Council was in follow-up to earlier interest in the Chimney Swifts. CNL had understood there was interest in the Chimney Swifts and left a voicemail offering more information and an opportunity to chat with a subject matter expert.			√						√	
December 22, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Presidents representing the Mattawa Métis Council, the North Bay Métis Council and the Sudbury Métis Council inquired about asserted rights and traditional activities in the region around CRL. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested a better understanding of MNO's historic and/or modern day use of lands in and/or near both of the projects and asked the following questions: • *Do members have traditional territory near the NSDF and/or NPD Closure Project?* • *What is the history of the Métis using the areas around the two projects?* • *Do you have any members that currently live in close or reasonable proximity to either of the projects?* • *Do you have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects?* • *Do the Métis have sites of cultural significance in close proximity to either of the two sites, or more generally, any cultural activities near either of the two sites?* CNL also indicated interested in learning more about the MNO and any asserted rights, interests or activities members might undertake in the local or regional areas in proximity to the project.				√	√				√	
July 19, 2017 Incoming letter	This letter from the MNO Provisional Council to CNL's Director of Corporate Communications shared information to CNL on Métis rights, the need for consultation per the Crown's duty to consult, and confirmation that the MNO Mattawa/Lake Nipissing Traditional Territory Consultation Committee will be the Métis community that CNL should engage with in regards to the proposed project. This is the first instance of the MNO raising the interest of Métis rights and interests and traditional use with respect to the project.					√				√	
July 20, 2017 Outgoing email	This email from CNL's Director of Corporate Communications to the MNO's Manager of Natural Resources and Consultation confirmed receipt of the earlier letter and indicated that CNL would respond and look forward to engagement with the MNO.									√	
August 25, 2017 Outgoing letter	This letter to the MNO Provisional Council from CNL's Director of Communications thanked the MNO for the July letter and shared information on the CNSC as the Crown with respect to the duty to consult. This letter also discussed working on an MOU or Consultation Plan between the MNO and CNL.					√				√	
August 30, 2017 Incoming email	This email from the MNO's Manager of Natural Resources and Consultation to CNL's Director of Corporate Communications indicated that an agreement between the MNO and CNL should be designed to: • Identify Métis-specific values; • Identify Métis land use and traditional knowledge; • Engage the community; • Identify impacts to Métis rights, interests and way of life; • Undertake a thorough technical review of the EIS, its baseline data, assumptions and conclusions; • Mitigate any potential impacts; and • Accommodate those potential impacts that cannot be mitigated.					√				√	

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
September 26, 2017 Meeting	This meeting between nine MNO representatives (including members of MNO Mattawa/Lake Nipissing Métis Traditional Territory Consultation Committee and the Manager of Natural Resources and Consultation) and six CNL representatives (including the Director of the NPD Closure Project and the Director of Corporate Communications) in North Bay, Ontario was to discuss developing a work plan agreement/ MOU and to discuss the project. Information shared included: • Environmental monitoring; • Environmental assessment; • Traditional use and traditional use effects assessment; • NPD Closure Project timelines; • End state; and • Species at risk.	√		√	√	√				√	
October 2017 Outgoing letter	This letter from CNL's Corporate Communications staff to the MNO representative on the ESC was sent enclosing the agenda from the October 26, 2017 ESC meeting and the notes from the June 22, 2016 ESC meeting. The notes gave the following information about the ESC meeting related to the NPD Closure Project: *Meggan Vickerd – Manager, NPD Operations at CNL presented to the council an update on the NPD Closure Project comprising of an overview on environmental performance which included current and future site monitoring and reporting.* *QUESTIONS:* • *Where is the source of tritium at NPD and what percentage is background?* • *Do you monitor at the top of the stack and do you monitor liquid emissions into the Ottawa River?* • *Does the 2020 completion date reflect all closure activities?* • *ESC Action 170622:05 – NPD project to provide ESC members with the airborne tritium levels at NPD? Kurt Kehler is responsible for this action.*										√
November 15, 2017 Outgoing email	This email from CNL's Corporate Communications staff to MNO representatives enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and the environmental assessment, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	√
November 17, 2017 Outgoing email	This email from CNL's Corporate Communications staff to MNO representatives enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: "*CNL would be pleased to update information in this current draft with input from your community."*	√	√	√	√	√	√	√	√	√	√
December 18, 2017 Incoming email	This email from the MNO's Manager of Lands, Resources and Consultation to the CNL's Director of Corporate Communications requested supporting information to assist in the MNO's review of the NPD Closure Project's draft EIS.										√
December 18, 2017 Outgoing email	This email from CNL's Corporate Communications staff to the MNO's Manager of Lands, Resources and Consultation was to share the complete set of technical support documents to support the MNO's review of the draft EIS. The email also offered a meeting with the MNO to discuss.	√	√	√	√		√	√	√	√	
March 09, 2018 Meeting	This meeting between representatives of the MNO (including the Manager of Natural Resources and Consultation) and CNL (including the Director of Corporate Communications and NPD Closure Project staff) focussed on the development of an MOU. CNL also shared information on past cultural resources management at CNL and the Stage 1 Archaeological Assessment for the NPD Closure Project with the MNO at this meeting.									√	√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 13, 2018 Outgoing email	This email from a CNL communications officer to the MNO's Director of Lands, Resources and Consultation enclosed 13 documents requested by the MNO related to topics of interest with respect to the NPD Closure Project, which included information on the following: • Annual compliance monitoring and reporting; • Derived release limits for the NPD site; • Past groundwater and hydrogeological reports; • Draft follow-up monitoring plans.	√								√	
December 17, 2018	The MOU between the MNO and CNL related to the NPD Closure Project and NSDF Project was signed.	√	√	√	√	√	√	√	√	√	√
January 23, 2019 Incoming email	This email from the MNO's Manager, Nuclear Energy Lands Resources & Consultations to CNL's Director of Corporate Communications attached the MNO's draft hydrogeological and archaeological technical reviews for the NPD Closure Project.	√			√	√	√			√	
February 28, 2019 Incoming email	This email from MNO staff to CNL staff enclosed the MNO's Traditional Knowledge and Land Use Study (TKLUS).				√	√				√	
April 02, 2019 Outgoing email	This email from CNL's Director of Corporate Communications to the MNO's Manager, Nuclear Energy Lands Resources & Consultations and the MNO's Manager of Lands, Resources and Consultations enclosed a partial set of draft responses to the MNO's comments on the NPD Closure Project's draft EIS.		√		√		√	√	√	√	
April 23, 2019 Meeting	This meeting between representatives of the MNO (including members of the Mattawa/Lake Nipissing Traditional Territory Consultation Committee and the Manager of Lands, Resources and Consultation) and CNL (including the Director of Environmental Protection, the Director of Corporate Communications and the Director of the NPD Closure Project) involved an NPD Closure Project update, an overview of environmental monitoring and a presentation on proposed VC for the NPD Closure Project. The update on the NPD Closure Project included an overview of the EIS, which covered the following topics: • Alternative means; • Valued Components (VC); • Baseline environment; • Aboriginal land and resource use; • Groundwater and the Ottawa River; • Effects on the environment; • Project timeline; • EIS conclusion. The VCs presentation included definition and identification, types of VCs, approach and selection of VCs and the MNO VCs addressed in the environmental assessment. This meeting also included a review and discussion of the draft dispositions to the formal EIS comments and draft dispositions to MNO VCs workshop comments. All questions were addressed verbally at the meeting.	√	√	√	√	√	√	√		√	

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 15, 2019 Incoming email	This email from MNO staff to CNL's Communications Officer attached the MNO comments on the draft follow-up monitoring plans for the NPD Closure Project.					√	√		√	√	
October 23, 2019 Meeting	This meeting between CNL representatives (including the Director of the NPD Closure Project, the Director of Corporate Communication and the Environmental Specialist for the NPD Closure Project) and the MNO (including members of the Mattawa/Lake Nipissing Traditional Territory Consultation Committee and the Manager of Lands, Resources and Consultation) involved a discussion of the NPD Closure Project and a review of their comments and CNL responses. Specific topics presented included: • Alternative means; • Geological site characterization; • Archaeological assessment; • VCs; • Follow-up monitoring; • Site restoration.		√	√	√		√		√	√	
October 23, 2019 Community Information Session	This community information involving CNL representatives (including the Director of the NPD Closure Project, the Director of Corporate Communication and the Environmental Specialist for the NPD Closure Project) and MNO representatives (including members of the Mattawa/Lake Nipissing Traditional Territory Consultation Committee and the Manager of Lands, Resources and Consultation) was held in North Bay for MNO citizens. MNO citizens were able to discuss and share feedback on the NPD Closure Project with CNL representatives. Specific topics presented included: • Project overview; • Environmental assessment; • VCs; • Groundwater flow and the Ottawa River; • Project interactions with the environment; • Follow-up monitoring.			√	√				√	√	
November 12, 2019 Incoming letter	This letter from MNO staff to CNL's Communications Officer outlined the MNO responses to CNL's disposition of MNO comments on the draft EIS.		√		√		√	√	√	√	

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
April 02, 2020 Virtual meeting	This virtual meeting between CNL (including the Director of Corporate Communications), AECL (including the Director of Communications and Government Reporting), and the MNO (including the Manager, Lands Resources & Consultations) involved preliminary discussions on developing an LTRA.									√	
May 06, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the MNO's Manager, Lands Resources & Consultations enclosed a preliminary version of the 2020 EIS and updated IER and indicated an interest in meeting with the MNO. The letter also asked for feedback through the following three questions: • *Any additional information you have regarding traditional use (fishing, hunting, trapping, gathering, practicing cultural ceremonies).* • *Any additional information on important resources, uses, activities, values and interests to your community near the NPD site.* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights. CNL would be pleased to describe its proposed design and mitigation measures and is open to hearing about other mitigation and monitoring measures from your community.*	√	√	√	√	√	√	√	√	√	
June 05, 2020 Outgoing email	This email from CNL's Communications Officer to the MNO's Manager of Lands Resources and Consultation was to follow-up on the 2020 May 06 letter sent from CNL.										√
June 06, 2020 Virtual meeting	This virtual meeting between CNL representatives (including the Director of Corporate Communications) and the MNO (including the Manager of Lands, Resources and Consultation) involved further preliminary discussion on a LTRA.										√
September 09, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the MNO's Manager, Nuclear Energy Lands Resources and Consultations enclosed a full set of CNL's responses to the MNO's comments on the 2017 draft EIS.		√		√		√	√	√	√	
October 01, 2020 Outgoing email	This email CNL's Communications Officer to the MNO's Manager, Nuclear Energy Lands Resources and Consultations was to follow up on the September letter enclosing the full set of CNL's responses to the MNO's comments on the 2017 draft EIS.										√
October 19, 2020 Incoming email	This email from the MNO's Manager, Nuclear Energy Lands Resources and Consultations to a CNL Communications Officer was to clarify that a response to CNL's September letter, which enclosed a full set of dispositions on the MNO comments on the 2017 draft EIS for the NPD Closure Project was in draft and that the consultation committee would need to approve.									√	√
October 30, 2020 Meeting	This meeting was between CNL's Communications Officer and the MNO's Manager of Natural Resources and Consultation was to plan for the wider meeting on NPD Closure Project monitoring scheduled for November 09, 2020.										√

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Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 09, 2020 Meeting	This meeting between nine representatives of the MNO (including the Manager, Lands, Resources and Consultation, the Nuclear Policy Analyst and members of the consultation committee) and five CNL staff (including the Manager of Stakeholder Relations, Communications Officers, Director of the NPD Closure Project, Manager of NPD Regulatory Approvals and an Environmental Specialist with the NPD Closure Project) focused on monitoring for the NPD Closure Project. The focus was follow-up monitoring and the potential involvement of MNO citizens in monitoring. Some questions were answered verbally and CNL shared further information on the remaining questions following the meeting. Questions and interests that arose included the following: • Is it dry? • If there is a release what is the contingency plan? • How long until we could harvest on the land? • It would be good to have a reference point for background monitoring; example? • Why not sample the dust in all four corners of the footprint? How do we ensure the dust is properly monitoring across the site? • Do you have an idea on how long it takes for groundwater to flow across the site? • Has the Province of Quebec been consulted? • Do you monitor the noise on the Quebec side? • How is water treated at CRL? • Is there an erosion plan? • Will fumes from grout effect Chimney Swifts? • Interest in citizen monitoring?			√					√	√	
November 17, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the MNO's Manager, Nuclear Energy Lands Resources and Consultations enclosed follow-up on a number of questions that arose in the earlier meeting on monitoring for the NPD Closure Project. The information provided covered the following: • Background radiation in the region; • Noise monitoring (the MNO had indicated interest in expanded noise monitoring); • Groundwater flow; • Further information on specific phases of decommissioning; • Examples what MNO involvement in monitoring could look like.	√							√	√	
November 30, 2020 Outgoing email	This email from the Director of Corporate Communications for CNL to the MNO's Manager, Nuclear Energy Lands Resources and Consultations to attend CNL's virtual industry for the opportunity to learn more about CNL's operations and projects, including the NPD Closure Project.									√	√
January 11, 2021 Outgoing email	This email from CNL's Communications Officer to MNO's Manager, Nuclear Energy Lands Resources and Consultations and Nuclear Policy Analyst enclosed CNL's dispositions of the MNO's comments on the three draft follow-up monitoring plans.					√	√		√	√	
February 03, 2021 Virtual meeting	This meeting between CNL (including the Director of Environmental Protection, the Director of the NPD Closure Project, the Manager of Stakeholder Relations and Communications Officer) and the MNO (including the MNO's Manager, Nuclear Energy Lands Resources and Consultations and Nuclear Policy Analyst) was to discuss CNL's current monitoring program and where the MNO could be involved in the future with respect to the NPD Closure Project.								√	√	

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 15, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the MNO's Manager, Nuclear Energy Lands Resources and Consultations enclosed a preliminary list of commitments and indicated interest in meeting to discuss.									√	√
May 05, 2021 Outgoing letter	This letter from a CNL communications officer to the MNO's Manager, Nuclear Energy Lands Resources and Consultations enclosed the 2020 EIS and directed to the sections where the MNO TKLUS had been incorporated (8.9 and 9.9) for verification.									√	√
June 08, 2021 Virtual meeting	This virtual meeting between CNL (including the Manager of Stakeholder Relations and the Director of Corporate Communications), AECL (including the Director of Communications and Government Reporting), and the MNO (including the Manager, Lands Resources & Consultations) involved discussions on developing an LTRA.										√
June 15, 2021 Outgoing email	This email from a communications officer with CNL to the MNO's Manager, Nuclear Energy Lands Resources and Consultations was to follow-up on the April letter.										√
June 21, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the MNO's Manager, Nuclear Energy Lands Resources and Consultations enclosed a draft summary of the MNO's interests and concerns for the NPD Closure Project for the MNO's review and verification.									√	√
June 22, 2021 Outgoing email	This email from a communications officer with CNL to the MNO's Manager, Nuclear Energy Lands Resources and Consultations was to share a CNL proposal on MNO involvement in Environmental Monitoring activities.								√		
July 12, 2021 Incoming letter	This email from the MNO's Manager, Nuclear Energy Lands Resources and Consultations to a CNL Communications Officer was to provide MNO's comments on the June 21, 2021 draft summary of the MNO's interests and concerns for the NPD Closure Project letter.									√	
July 15, 2021 Virtual meeting	This meeting between the MNO's Manager, Nuclear Energy Lands Resources and Consultations and CNL (including the Manager of Regulatory Approvals for the NPD Closure Project, the Manager for ERM Stakeholder Relations and communications specialists) discussed the MNO's feedback on CNL's *Table of Interests and Concerns* and confirmed that the general topics were accurate, that commitments were in development, and that the long-term relationship agreement between CNL and the MNO would enact the commitments specific to the NPD Closure Project. It was also confirmed that no further formal response on the 2017 draft EIS comments was necessary.									√	√
August 10, 2021 Incoming email	This email from the MNO's Manager, Nuclear Energy Lands Resources and Consultations to a CNL communications officer was to provide MNO's comments on the June 22 CNL proposal on MNO involvement in environmental monitoring activities.								√		
August 12, 2021 Outgoing email	This email from a Communications Officer with CNL to the MNO's Manager, Nuclear Energy Lands Resources and Consultations was to share the draft summary table of interests and concerns (attached) that was revised to reflect our conversation at the July 15, 2021 meeting. CNL added commitments to address the remaining interests and concerns of the MNO.									√	
August 19, 2021 Outgoing email	This email from a Communications Officer with CNL to the MNO's Manager, Nuclear Energy Lands Resources and Consultations was to confirm that the information from the MNO Traditional Knowledge and Land Use Study has been adequately incorporated into the draft Environmental Impact Statement and confirm that CNL has captured the Valued Components (VC), which the MNO have shared with CNL on the NPD Closure Project, to date. CNL included working revisions of **Sections 8.9 and 9.9** of the EIS and Valued Components Identified by Métis Nation of Ontario through the TKLUS.	√			√					√	

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August 31, 2021 Outgoing email	This email from a Communications Officer with CNL to the MNO's Manager, Nuclear Energy Lands Resources and Consultations requested MNO confirmation that CNL has captured accurately the MNO summary of interests and concerns. CNL shared the updated Summary Table of Interest and Concerns, which had been updated following the July 15, 2021 meeting.									√	
September 7, 2021 Outgoing telephone call	This telephone call from a Communications Officer with CNL to the MNO's Manager, Nuclear Energy Lands Resources and Consultations discussed the MNO's review of the *Table of Interests and Concerns* and how CNL planned on submitting the revised draft EIS in October, and would need feedback on the Table before then. A meeting date to discuss updating the MOU between CNL and the MNO was also discussed.										√
September 7, 2021 Outgoing email	This email from a Communications Officer with CNL to the MNO's Manager, Nuclear Energy Lands Resources and Consultations confirmed the details of the phone call and coordinated the next meeting.										√
October 6, 2021 Virtual meeting	This meeting between the MNO's Manager, Nuclear Energy Lands Resources and Consultations and CNL (including the Manager for ERM Stakeholder Relations and a Senior Communications Officer) discussed a proposed schedule of activities to amend the MOU to cover continued engagement with MNO on the NPD Closure Project and the NSDF Project.										√
October 20, 2021 Outgoing Email	This email from a Senior Communications Officer at CNL to the MNO's Manager of Lands, Resources, and Consultations (LRC) was to follow up on previous correspondence regarding the *Table of Interests and Concerns* stating: "the MNO provided verbal agreement to the interests and concerns shared and discussed (attached) at the 2021 July 15 meeting and CNL has been seeking a formal agreement in writing that these are an accurate portrayal of the MNO's interests and concerns since then." This email also shared an update on CNL's plans to submit the revised draft EIS and requested verification by November 15, 2021.									√	√
November 3, 2021 Outgoing Email	This email from a Senior Communications Officer at CNL was to follow up on an email that was sent on October 20, 2021 that included a summary of the next steps on the NSDF Project as well as the NPD Closure Project. This email was to follow up and ensure that the MNO had received this email.									√	√
December 3, 2021 Virtual Meeting	This virtual meeting between a Senior Communications Officer at CNL and the MNO's Manager of Lands, Resources, and Consultations (LRC) discussed the NSDF Project and the NPD Closure Project. The MNO confirmed knowledge that CNL was submitting the revised draft EIS for the NPD Closure Project in December 2021.										√
December 23, 2021 Letter from CNL to MNO	CNL' Director of Corporate Communications sent a letter to the MNO's Manager of Lands, Resources, and Consultations (LRC) providing MNO the opportunity to participate in future diet and harvest studies. The purpose of the letter was to advise the MNO of the opportunity to participate in a study to support the update of derived release limits for airborne and liquid emissions at the Chalk River Laboratories Site. CNL provided information on derived release limits. CNL proposed engaging MNO community members in a survey during the summer of 2022.										√
February 03, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to MNO was to connect to discuss any of the information that CNL shared about Douglas Point. CNL also informed MNO that they hired a new Director of Indigenous Relations. CNL offered to coordinate a brief introductory meeting to discuss the most recent engagements with the MNO Region 7 prior to (the new member of MNO's) arrival.										√

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February 03, 2022 Incoming Email	This email from MNO's Manager of Nuclear Lands, Resources, and Consultations agreed to coordinate a future discussion in the next while. MNO informed CNL of a new staff person who will be the Consultation Advisor responsible for connecting with CNL hopefully starting on February 14 and MNO requested to meet at that time.										√
March 03, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to MNO's (Jesse) was to inform MNO that the NPD Closure Project was working on completing all outstanding comments and the response to the MNO's Water and Archaeology Technical review was complete. CNL attached both the original letter from the MNO, dated January 23, 2019, enclosing the review, as well as the CNL's responses to the MNO's review in a word document.										√
March 03, 2022 Incoming Email	This email from MNO's Manager of Nuclear Lands, Resources, and Consultations to a CNL Senior Communications Officer was to thank CNL for the presentation and discussion about the Douglas Point Decommissioning Project on February 9, 2022. MNO noted that they had spoken with the Georgian Bay Traditional Territory Consultation Committee about initiating a long-term contribution agreement with CNL and the Committee had expressed interest and had asked MNO to reach out to CNL to begin discussions.										√
March 08, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to MNO (Jesse) was to inform MNO of the inclusion of a revised column to link each of MNO's interests and concerns to a specific aspect of the project, and/or an Aboriginal and treaty right, where possible. CNL informed MNO that the interest and concerns that MNO previously verified would remain unchanged as part of the Environmental Impact Statement (EIS) and Indigenous Engagement Report that is submitted alongside the EIS. CNL asked for MNO to confirm whether they would like to verify that the revised table still reflects your interests and concerns.										√
March 16, 2022 Incoming Email	MNO (Jesse) confirmed that MNO would like to review the Summary of Interests and Concerns Table before CNL's submission to the CNSC.										√
March 16, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to MNO (Jesse) was to confirm sharing a restructured copy of the table within the next 2 weeks.										√
March 30, 2022 Incoming email	This email from MNO FN to a CNL Senior Communications Officer was to inquire about the radiation protection training.										√
April 11, 2022 Outgoing email	This email from a CNL Senior Communications Officer to MNO was to inform MNO that members of the MNO are welcome to come on site and observe monitoring with CNL personnel. Observing monitoring (e.g. collecting biota, surface or groundwater samples) would provide the MNO with a very good idea of monitoring activities at the CRL site.										√
April 19, 2022 Outgoing email	This email from a CNL Senior Communications Officer to MNO attached the goals document for the GRA with a few minor comments from the ERM team at CNL. CNL offered MNO to give a call or set up a chat if there is clarification needed.										√
April 23, 2022 Outgoing email	This email from a CNL Senior Communications Officer to MNO FN attached the repackaged summary table of interests and concerns. This repackaging is based on feedback from the Canadian Nuclear Safety Commission (CNSC) on CNL's December 2021 draft EIS submission package. CNL requested that MNO review the new table and provide feedback with a potential 4 week turnaround.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 25, 2022 Incoming email	This email from MNO FN to a CNL Communications Officer was to confirm the fact that there are there are multiple opportunities for MNO observers to visit the site should they not have time to complete the radiation protection training.										√
April 27, 2022 Outgoing email	This email from a CNL Communications Officer to MNO FN to CNL's Industry Day on June 2, 2022.										√
May 06, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the MNO's Manager of Lands, Resources, and Consultations (LRC) was an invitation to the CNL Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.										√
May 07, 2022 Incoming email	This email from the MNO's Manager of Lands, Resources, and Consultations (LRC) to a CNL Senior Communications Officer asked if the June 2, 2022 Industry Day was related to all CNL sites, or just CRL? CNL confirmed that the day included all CNL sites.										√
May 09, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the MNO's Manager of Lands, Resources, and Consultations (LRC) was to follow-up on the April 23, 2022 email requesting feedback on the repackaged summary table of interests and concerns. CNL attached the table.									√	
June 07, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the MNO's Manager of Lands, Resources, and Consultations (LRC) was to follow-up on the April 23, 2022 and May 9, 2022 emails requesting feedback on the repackaged summary table of interests and concerns.									√	
June 10, 2022 Incoming email	This email from the MNO's Manager of Lands, Resources, and Consultations (LRC) to a CNL Senior Communications Officer confirmed receipt of the repackaged summary table of interests and concerns and had no comments.									√	
August 19, 2022 Outgoing email	This email from CNL's Environmental Assessment Section Head to the MNO's Manager of Lands, Resources, and Consultations (LRC) shared the draft MNO Diet and Harvest Survey for review.										√
August 30, 2022 Outgoing email	This email from CNL's Environmental Assessment Section Head to the MNO's Manager of Lands, Resources, and Consultations (LRC) confirmed that the MNO Diet and Harvest Survey could be completed online. CNL proposed meeting in September 2022 to conduct the survey.										√
September 02, 2022 Incoming email	This email from the MNO's Manager of Lands, Resources, and Consultations (LRC) to CNL's Environmental Assessment Section Head provided MNO's comments on the Diet and Harvest Survey.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
September 08, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the MNO's Manager of Lands, Resources, and Consultations (LRC) offered a fall tour of NSDF and NPD. MNO confirmed interest and provide CNL the contact of the Consultation Advisor to coordinate with.										√
September 08, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the MNO's Consultation Advisor extended an invitation to the MNO staff and RCC to visit the Chalk River Laboratories (CRL) site and the NPD) site.										√
September 09, 2022 Incoming email	This email from the MNO's Manager of Lands, Resources, and Consultations (LRC) to CNL's Environmental Assessment Section Head confirmed that the MNO would like to offer the Diet and Harvest Study survey virtually.										√
September 09, 2022 Outgoing email	This email from CNL's Environmental Assessment Section Head to the MNO's Manager of Lands, Resources, and Consultations (LRC) confirmed that CNL would assist in the virtual Diet and Harvest Study survey. CNL requested the MNO identify participants in advance and provide them paper copies. MNO confirmed.										√
September 12, 2022 Incoming email	This email from the MNO's Manager of Lands, Resources, and Consultations (LRC) to CNL's Environmental Assessment Section Head asked if there is a deadline to complete the Diet and Harvest Study survey. CNL replied that there is no deadline for completion but CNL was hoping to conduct by the end of November 2022. To meet the deadline CNL offered to conduct the survey virtually.										√
September 22, 2022 Incoming email	This email from the MNO's Manager of Lands, Resources, and Consultations (LRC) to a CNL Senior Communications Officer replied to CNL's September 7, 2022 email regarding Radiation Protection Training. MNO asked about the length of training requested.								√		
September 28, 2022 Outgoing email	This email from CNL's Environmental Assessment Section Head to the MNO's Manager of Lands, Resources, and Consultations (LRC) asked about dates and locations for the Diet and Harvest Study survey.										√
September 22, 2022 Incoming email	This email from the MNO's Manager of Lands, Resources, and Consultations (LRC) to CNL's Environmental Assessment Section Head sharing the mail out that was shared with community members regarding the Diet and Harvest Study survey. MNO requested that CNL provide a short presentation of the NPD and NSDF Projects during the meeting. CNL confirmed.										√
October 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer the MNO's Manager of Lands, Resources, and Consultations (LRC) provided information about Radiation Protection Training, staring that the training could be covered as a one hour pre-job. MNO confirmed.								√		

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the MNO's Consultation Advisor extended an invitation to the MNO staff and RCC to visit the Chalk River Laboratories (CRL) site and the NPD) site.										√
October 03, 2022 Outgoing Letter	This letter addressed to the MNO's Manager of Lands, Resources, and Consultations (LRC) from CNL's Director of Indigenous Relations provided a project update and the engagement status with the MNO, CNL noted that the next step to address comments for the MNO to review the final EIS. CNL believes that the next steps are to establish commitments between the MNO and CNL to ensure that all interests and concerns are addressed and tracked to resolution. CNL enclosed an updated draft set of commitments for the MNO's review. CNL offered additional capacity. CNL also proposed a meeting to establish commitments prior to December 2022. CNL requested that the MNO respond confirming their agreement to proceed with these engagement activities, or modified engagement activities.				√	√				√	
October 05, 2022 Outgoing email	This email from CNL's Environmental Assessment Section Head to the MNO's Manager of Lands, Resources, and Consultations (LRC) sent the MNO the updated Diet and Harvest Study survey. CNL asked that the survey be circulated to those participating by Zoom.										√
October 11, 2022 Incoming email	This email from MNO's Consultation Advisor to CNL's Environmental Assessment Section Head provided the agenda for the October 21, 2022 CNL Diet and Harvest Survey Community Information Session. 15 minutes were allotted for a NPD presentation.										√
October 18, 2022 Outgoing email	This email from a CNL Senior Communications Officer to MNO's Consultation Advisor confirmed receipt of the October 11, 2020 agenda. CNL asked for an idea of the number of participants. CNL also asked if a community member would be willing to speak to their harvesting and /or cultural narratives prior to the survey.										√
October 19, 2022 Incoming email	This email from MNO's Consultation Advisor to a CNL Senior Communications Officer shared that they had received 29 RSVPs for the CNL Diet and Harvest Survey Community Information Session. MNO committed to reaching our tot eh RSVPs to find is any would be interested in speaking. MNO asked CNL to provide the names of the presenters.										√
October 19, 2022 Incoming email	This email from MNO's Manager of Lands, Resources, and Consultations (LRC) to a CNL Senior Communications Officer noted that CNL's request for speakers at the Diet and Harvest Survey Community Information Session may not be possible. This is due to potential time it may take for those interested to share their experiences. CNL confirmed.										√
October 21, 2022 Outgoing email	This email from a CNL Senior Communications Officer to MNO's Consultation Advisor attached CNL's presentation for the Diet and Harvest Survey Community Information Session. CNL sent a PowerPoint version via FTP link.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 21, 2022 Community Information Session	CNL staff attended the MNO community information session for citizens who harvest in Region 5 to participate in a Diet and Harvest Study survey. For those who cannot join in person, CNL was also be available via ZOOM to guide participants through the survey. The meeting included a presentation on the NPD Closure Project.										√
October 24, 2022 Outgoing email	This email from CNL's Environmental Assessment Section Head to the MNO's Consultation Advisor and Manager of Lands, Resources, and Consultations (LRC) thanked the MNO for their participation in the October 21, 2022 Diet and Harvest Survey Community Information Session. CNL requested the surveys completed by the Zoom participants. CNL followed-up on a comment made that the digital survey could be circulated to other Metis Nation of Ontario Members in region 5. CNL requested any additional survey results by November 7, 2022.										√
October 24, 2022 Outgoing email	This email from CNL Senior Communications Officer to the MNO's Consultation Advisor and Manager of Lands, Resources, and Consultations (LRC) followed-up on the letter sent October 3, 2022.				√	√				√	
October 26, 2022 Incoming email	This email from a MNO community member to a CNL Senior Communications Officer requested a tour of CNL sites.										√
November 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to a MNO community member offered to support a tour of CNL sites.										√
November 02, 2022 Incoming email	The email from a MNO community member to a CNL Senior Communications Officer confirmed preferred days of the week for a tour and suggested November 11, 2022.										√
November 04, 2022 Outgoing email	This email from a CNL Senior Communications Officer to a MNO community member suggested November 14, 2022 for the requested tour. CNL asked questions about the tour, including if the community member would like to tour the NPD facility.										√
November 05, 2022 Incoming email	The email from a MNO community member to a CNL Senior Communications Officer confirmed that they would like to tour NPD and would provide CNL a date that worked better. CNL follow-up on November 11, 2022 regarding dates.										√
November 14, 2022 Incoming email	This email from the MNO's Consultation Advisor to CNL's Environmental Assessment Section Head informed CNL that they had not received any more Diet and Harvest Study surveys. CNL acknowledged and noted that they were processing the results.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 15, 2022 Outgoing email	Email invitation from a CNL Senior Communications Officer to the MNO's Consultation Advisor and Manager of Lands, Resources, and Consultations (LRC) to discuss the NPD Project commitments.										√
November 23, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the MNO's Consultation Advisor and Manager of Lands, Resources, and Consultations (LRC) proposed the agenda for the October 30, 2022 meeting on NPD commitments. Proposed agenda: • LTRA status update; • Confirming NPD commitments for the MNO; • Ensure commitments are covered within LTRA.										√
November 28, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the MNO's Consultation Advisor and Manager of Lands, Resources, and Consultations (LRC) advised of the upcoming CNL supply chain event in Pembroke, Ontario. Canadian Nuclear Laboratories in partnership with the AOPFN, County of Renfrew, and Pontiac Regional County Municipality (MRC), will be hosting the "Meet and Greet: CNL Major/Strategic Supply Chain Partners. MNO confirmed receipt.										√
November 28, 2022 Incoming email	The email from a MNO community member to a CNL Senior Communications Officer requested to postpone the tour until the spring of 2023. CNL confirmed receipt.										√
November 30, 2022 Meeting	This meeting between to the MNO's Consultation Advisor and Manager of Lands, Resources, and Consultations (LRC) and CNL (including the Director of Indigenous Relations and NPD Closure Project staff) focussed on reviewing the NPD commitments and the status of the LTRA.										√
December 01, 2022 Outgoing email	This email from a CNL Communications Officer to the MNO's Consultation Advisor and Manager of Lands, Resources, and Consultations (LRC) confirmed the next steps from the 2022 November 30 meeting.										√
January 20, 2023 Outgoing Email	This email from a CNL Communications Officer to the MNO Manager, Nuclear Energy Lands Resources and Consultations to inform of the decision to postpone the submission of the NPD Closure Project's draft Environmental Impact Statement (EIS) until 2023 May to allow for additional Indigenous input. CNL proposed the next steps would be to discuss the MNO's interest and desired involvement in the NPD project.										√
January 26, 2023 Incoming Email	This email from MNO to a CNL Communications Officer with an invitation to the Métis Business Tradeshow (March 18th/19th 2023) in Midland Ontario. CNL acknowledged receipt of the invitation.										√
March 14, 2023 Outgoing Email	This email from a CNL Senior Communications Officer to the MNO Manager, Nuclear Energy Lands Resources and Consultations with CNL's Indigenous Relations Procurement Strategy.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 14, 2023 This email from CNL to MNO	This email from CNL Senior Communications Officer to a MNO member following up from a previous conversation from 2023 November to inquire if the MNO is still interested in attending a site visit in late spring 2023.										√
July 04, 2023 Emails	This email from CNL Communications Officer to MNO is to discuss MNO's interest in touring the NPD Site Facility. On 2023-07-06 MNO confirmed their interest in an NPD site tour.										√
July 10, 2023 Emails	This email from CNL Communications Officer to MNO is to discuss MNO's availability for an NPD site tour, and availability to first discuss the NPD Commitments. MNO confirmed some upcoming dates for an NPD commitment meeting in 2023 July.										√
July 13, 2023 Outgoing Email	This email from CNL Communications Officer to MNO is to confirm receipt of available times for the MNO and to inform them that CNL will confirm dates and send a draft agenda.										√
August 22, 2023 Emails	Email from CNL Communications Officer to MNO is to provide the draft agenda and potential tour dates for the MNO NPD and CRL site tours. CNL requested dates for the tour, and MNO noted they will send potential dates. CNL confirmed receipt of email. (5 emails).										√
September 19, 2023 Incoming Email	This email from the MNO to CNL Communications Officer is to inform CNL that there has been a lack of interest shown for a CNL site tour. MNO has asked that CNL reach out again in the spring-summer of 2024. CNL confirmed receipt.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

MNO - Mapping of Key Interests and Concerns

Table C-8 presents a mapping of how the key interests and concerns relate to detailed feedback and input from the MNO, up to March 2024.

Table C-8 has 3 columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, why it is important to the Indigenous Nation, community or organization, and connects it to a project aspect or an Aboriginal or treaty right wherever possible. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 presents details of the key interest or concern that the Indigenous Nation, community or organization has identified formally in writing and/or verbally to CNL.

Table C-8 Mapping of MNO Key Interests and Concerns

Topic	MNO Key Interests and Concerns	Specific feedback provided by the MNO on this interest/concern
1. Accidents & Malfunctions	(a) Effects of accidents and malfunctions including as applicable to offsite transportation activities It is important to the MNO that impacts from accidents and malfunctions be assessed, and that procedures are in place to notify and provide information to MNO citizens in the event of an accident or malfunction. This is both a site-wide and project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concern about the potential accidents and malfunctions related to the proposed project. The MNO also expressed concern about offsite transportation activities in relation to this topic area.
2. Alternatives	(a) Concern about the suitability of In-situ disposal (ISD). It is important to the MNO that future land users of the NPD site are protected. This is a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concern about the suitability of in-situ disposal as an alternative specifically with respect to the ILW inventory.
	(b) Input into the Alternative Means Assessment It is important that the MNO's perspectives be taken into account in the assessment of alternatives, because the approach selected has implications for Métis people's future use of the site. This is a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concern that they were not provided an opportunity to provide input into the four proposed alternatives or the preferred approach selected.
3. Archaeology and Cultural Heritage	(a) Métis-specific Archaeology and Cultural Sites The MNO is concerned that without participation of MNO citizens, the project could potentially lack information about Métis-specific heritage resources. This is both a site-wide and project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concern about the lack of involvement and lack of Métis history in the archaeology study. The MNO also requested that a Métis history section be included in the background section of future reports, when relevant to the project area.
	(b) Archaeological buffer zone and rating It is important that areas with high archaeological value are identified appropriately and protected from project-related impacts.	The MNO consultant provided supplemental review comments in January 2019, including the following comments on archaeology: • Apply a 100 m high potential buffer to the entire length of the Ottawa River shoreline within NPD property area on the historical potential map. • Change the historical potential rating outside of the project area and high potential lands within the NPD property to 'moderate'.
4. Atmospheric Environment	(a) Atmospheric study area boundaries and data It is important to the MNO that study areas are large enough to encompass intangible effects and that baseline conditions in the study areas are correctly represented. This is a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concern about the baseline data used to develop study area boundaries for the atmospheric environment. Further, the MNO expressed concern that the study area boundaries are limited and may not extend to far enough to encompass the area where intangible aspects of Métis way-of-life may be affected and where there is Métis citizens perceive there may be impacts from the project.
	(b) C-14 releases from the stack It is important to the MNO that they understand historic releases from the NPD site and implications of potential releases related to the project so they have confidence that the rights and interests of MNO citizens are upheld in relation to the environment. This is a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concern about increases in C-14 releases from the stack in recent years. The MNO also wish to understand any implications of the planned modifications to the stack.

Topic	MNO Key Interests and Concerns	Specific feedback provided by the MNO on this interest/concern
5. Baseline Characterization	(a) Inclusion of Métis-specific socio-economic baseline data and effects This is important to the MNO because the socio-economic characterization and effects assessment should include consideration of Indigenous receptors (including citizens of the Métis Nation), and this can't be done without collecting information from Indigenous Nations, communities and organizations . This is a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concern that Metis-specific socio-economic baseline data was not included and request both collection and presentation of Métis-specific data.
	(b) Baseline soil contamination (near historic landfill) This is a concern for the MNO because it is important that the final state of the NPD site is safe to use, regardless of whether the contamination comes from the NPD Closure Project or earlier activities. This is a project-specific concern.	In their comments on the 2017 draft EIS, the MNO expressed concern about elevated soil concentrations in historic landfills.
	(c) Baseline for the Surface Water and Aquatic Environments This is important to the MNO because an understanding of current contamination in the Ottawa River is necessary in order to assess impacts on aquatic biota. It is also important to confirm that there are currently no discharges to the Ottawa River from NPD activities. This is a project-specific concern.	In their comments on the 2017 draft EIS the MNO identified a number of concerns related to the baseline conditions in both the surface water and aquatic environments including: • applicability of the current effluent monitoring plan, to Métis rights and interests; • discharges to the Ottawa River; • baseline and future chemical levels in surface water; • baseline sediment quality data.
	(d) MNO involvement in baseline data collection activities. This is important to the MNO because engagement should involve two-way communication, information-sharing, and participation in project-related activities This is a project-specific interest.	In its comments on the 2017 draft EIS, the MNO expressed interest in being involved in collection of baseline data for areas of interest.
	(e) Geological and Hydrogeological site characterization It is important to the MNO that baseline hydrogeological conditions are accurate and well understood, so that the long-term impacts of the NPD Closure Project can be accurately assessed, and management plans can be made. This is a project-specific interest.	The MNO expressed a particular interest in hydrogeology including: • the groundwater flow characteristics being different from CRL site's decommissioning project; • long term impact of groundwater on infrastructure; • groundwater management plan.
6. Engagement	(a) Meaningful engagement using best practices. It is important for the MNO to be meaningfully engaged on the project, using protocols and a workplan that are appropriate for Indigenous engagement and have been developed in consultation with the MNO. This is a project-specific concern.	Early in the engagement process, MNO expressed concern with the level of engagement and the lack of funding to support their involvement. In its comments on the 2017 draft EIS, the MNO expressed the need for Indigenous specific engagement activities and capacity to support meaningful engagement on the NPD Closure Project. The MNO have requested funding to better enable participation, including for the completion of a TKLUS.
	(b) Terminology: Use of "Métis Nation" instead of "Métis community" This is important to the MNO because the language "Métis community" minimizes the political structure and organization that the MNO has and operates under. This is both a site-wide and project-specific concern.	In its comments on the 2017 draft EIS, the MNO requested that CNL use the terminology Metis Nation instead of Metis community.

Topic	MNO Key Interests and Concerns	Specific feedback provided by the MNO on this interest/concern
7. EA Process and Methodology	(a) Effects assessment methodology It is important that impacts of concern to the MNO be considered in the assessment of effects of the project on MNO citizens. This is a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concern in regards to assessment of residual effects, the criteria used to define significance of effects, likelihood analysis; consideration of MNO values, sustainability and uncertainty and CNL's conclusion on significance of effects.
	(b) Cumulative effects This is important to the MNO because it is interested in the overall protection of the Ottawa River and the NPD site, not just the impacts of a single project. This is a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concern about the potential that the NPD Closure Project may interact with existing and reasonably foreseeable projects and activities in the vicinity specifically those occurring at the CRL site.
8. Environmental Effects and Mitigation Measures	(a) Perceived effects of the project It is important to the MNO that the assessment of effects include the potential impacts of negative perceptions from Métis citizens. This is a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concern that the assessment did not include the potential perceptive effects of the project on the rights-bearing Métis Nation.
	(b) Impacts of increased dust and other emissions, noise, traffic volumes, and changes to access including those associated with transportation activities It is important to the MNO that they have input into mitigation and monitoring of dust, noise and emissions and other impacts to Métis harvesters who may be exercising their rights in the vicinity, to confirm that effects are low as predicted and do not extend beyond the project footprint.. MNO would like input in the selection of valued components for the assessment of potential effects. This is a project-specific concern	In its comments on the 2017 draft EIS, the MNO expressed concern and interest related to impacts on the Atmospheric Environment including: • Concern with the assumption that road dust, noise and emissions effects are negligible • An interest in providing input to the monitoring and mitigation for dust, noise and emissions • An interest in the VCs selected for evaluation of effects on the atmospheric environment • Concern about effects resulting from transportation activities
	(c) Involvement of MNO in developing mitigation measures This is important because the MNO feels that consultation and their input should have been sought to ensure reduction and elimination of potential effects. This is a project-specific interest.	In its comments on the 2017 draft EIS, the MNO expressed interest in collaborating to identify mitigation measures, where applicable and in providing input into alternate mitigation measures.
	(d) Need for additional mitigation measures in the surface water, aquatic and terrestrial environments This is important to the MNO because the Ottawa River is of great importance to Métis harvesters, and because effects on vegetation and wildlife may have potential impacts on Métis rights and interests. This a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed the following concerns related to mitigation measures: • Need for additional mitigation measures specific to the aquatic environment: Ottawa River, benthic invertebrates, aquatic vegetation, Emerald shiner, White sucker and Lake sturgeon. • The mitigation measures proposed for traditional land use activities are the same as those for the aquatic and terrestrial environments. • Need for additional mitigation measures (beyond standard construction practices) specific to wildlife and vegetation.
	(e) Effectiveness of Mitigation measures It is important to the MNO that the mitigation measures address the potential impacts on Métis citizens, and that the selected measures are likely to be successful. This is a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed that mitigation measures and follow-up programs must address the potential impacts of the project on the rights-bearing Métis Nation. They expressed concern about the likelihood of mitigation being successful.

Topic	MNO Key Interests and Concerns	Specific feedback provided by the MNO on this interest/concern
9. Indigenous Health	(a) Postclosure Safety Assessment and Indigenous Health It is important to MNO that the human health assessment reflects the lifestyle of MNO citizens. This is a project-specific concern.	The MNO has raised concerns that their traditional food consumption levels are not reflected in the human health assessment. The MNO requested separate consideration of Indigenous Health within the EIS. The MNO would like involvement in the scoping/execution of future lifestyle surveys to ensure the best response rates of Métis harvesters.
10. Métis Rights and Interests	(a) Participation and engagement related to Métis rights and interests. The MNO believes that engagement is required to ensure that CNL understands, presents and assesses any Métis Rights and Interests that may be impacted in the general and surrounding areas resulting from the project. This is both a site-wide and a project-specific interest.	Early in the engagement process, the MNO identified a lack of documentation of Métis rights and interests. The MNO have requested to be more deeply engaged in the NPD Closure Project to ensure that Métis rights are incorporated. The MNO wishes to ensure that MNO rights in the vicinity of the project are accurately presented within the EIS. The MNO would like an opportunity to provide input into the Environmental Protection Program to ensure Métis rights are reflected in the document and for the ongoing reduction of potential effects on Métis rights and interests. The MNO specifically indicated that rights and interests go beyond hunting and trapping.
	(b) Impacts on Métis rights and interests. It is important to MNO that the rights and interests of the Métis Nation be understood and upheld. This is a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concern about the assessment of impacts on Métis rights and interests including: • Impacts on Métis harvesting rights. • Significant information gaps, including Métis-specific VCs and potential perceptive effects of the project on the regional rights-bearing Métis Nation. • MNO's perception and intangible aspects of Métis way-of-life – see Row 14c.
11. Monitoring	(a) Review and input to, monitoring plans This is important to the MNO because they want an opportunity to provide input into monitoring details (e.g., frequency, location, parameters) This is a project-specific interest.	In its comments on the 2017 draft EIS, the MNO requested that they be engaged to provide input into the final scope and framework of the follow-up monitoring program. The MNO have also indicated their desire to be involved in development and design of the draft follow-up monitoring plans. The MNO expressed specific interest in the monitoring plan design related to monitoring the preferential pathway and slope between the facility and the river and environmental monitoring of sediment.
	(b) Participation in monitoring This is important to MNO because they want to ensure transparency and confidence in monitoring activities. This is a project-specific interest.	The MNO have indicated that they wish to participate in implementation of the draft follow-up monitoring plans. MNO submitted supplemental comments on CNL's draft Follow-up monitoring plans (October 2019). Within the supplemental comments, the MNO requested that their input be sought during reviews and audits of the follow-up monitoring program. There was renewed interest from the MNO in the Fall of 2020 and early in 2021 in the draft follow-up monitoring plans and opportunities for involvement in monitoring activities.
	(c) Overall process and incorporating MNO comments It is important to the MNO that their comments are considered and incorporated into EA documents, including the draft follow-up monitoring plans. This is a project-specific concern.	The MNO wants to ensure that when their comments on the EIS are addressed that relevant changes are also incorporated in the draft follow-up monitoring plans. Similarly, the MNO provided comments on groundwater characterization that should be incorporated through changes to the groundwater monitoring plan as necessary. Finally, the MNO wants to ensure that MNO traditional uses and harvesting rights are included in the EIS and incorporated into the draft follow-up monitoring plans.
	(d) Specific technical comments on Follow-up monitoring Plans It is important to the MNO that the monitoring plans reflect their input on monitoring details (e.g., frequency, location, parameters) This is a project-specific concern.	MNO submitted supplemental comments on CNL's draft Follow-up monitoring plans (October 2019). Specific technical comments include: • Groundwater benchmarks used in the Groundwater Monitoring Plan; • Evaluation and Acceptance Criteria; • Tritium as an indicator contaminant of concern; • Baseline interactions between sediment, groundwater, and surface water; • Landfill groundwater monitoring; • More detail required on sample locations and number of samples.

Topic	MNO Key Interests and Concerns	Specific feedback provided by the MNO on this interest/concern
12. Socio-Economics	(a) Consideration of Métis use and enjoyment of the land This is important to the MNO because use and enjoyment of the land are values that may be affected by the project, and should be considered in the assessment. This is a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concern that assessment of impacts to the socio-economic component needed to consider Métis use and enjoyment of the land.
	(b) Socio-economic mitigation measures and follow-up monitoring This is a concern for the MNO because it is not clear how effects related to the socio-economic environment can be mitigated and/or verified through activities in other environmental compartments. This is a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concern that the proposed mitigation measures are those typically used for construction activities and may be inadequate to address indirect socio-economic effects. Further, the MNO identified a lack of follow-up monitoring for the socio-economic environment.
13. Technical	(a) Local Study Area does not vary between environmental components This is important to the MNO because they want to ensure that potential effects on the different types of VCs have been thoroughly considered and assessed. This is a project-specific concern.	In their comments on the 2017 draft EIS the MNO expressed concern that the Local Study Area does not vary between environmental components.
	(b) Concern about whether the Institutional Control Period is long enough This is important to the MNO because they would like assurance that the end state of the NPD site will be acceptable for safely engaging in unrestricted land use. This is a project-specific concern.	In their comments on the 2017 draft EIS, the MNO expressed concern about the length of the Institutional Control Period.
	(c) Benefits to Indigenous peoples The MNO is interested in reviewing changes to the project, which is also a requirement under the CNSC's Generic EIS Guidelines. This is a project-specific interest.	In their comments on the 2017 draft EIS the MNO expressed interest in seeing the changes that have been made to the project, including benefits of these changes.
14. Traditional Land and Resource Use and Cultural Impacts	(a) Métis traditional knowledge and Métis specific information should be collected and incorporated into the EIS. It is important to the MNO that community-specific knowledge be obtained and used, to properly characterize current conditions and develop scenarios that accurately represent potential future uses of the site. This is a project specific concern.	In its comments on the 2017 draft EIS, the MNO identified a number of areas related to traditional use where the assessment could be strengthened by integration of Metis specific information including: • collection of Métis specific information related to areas of interest, via a Métis -specific traditional land use study; • integration of Métis-specific information into the EIS and IER; • consideration of activities such as fishing in the Ottawa River and Métis harvesting regions; • description of the Indigenous rights practiced in the vicinity of the project; • inclusion of geographical setting from Indigenous perspective; • description of plants and other species of traditional importance to the MNO.
	(b) Spatial boundaries for Indigenous land and resource use It is important to the MNO that the determination of study areas takes into account the actual use of the land by Metis citizens for traditional purposes. This is a project-specific interest.	In its comments on the 2017 draft EIS, the MNO expressed interest in how the spatial boundaries for traditional land and resource use were determined.

Topic	MNO Key Interests and Concerns	Specific feedback provided by the MNO on this interest/concern
14. Traditional Land and Resource Use and Cultural Impacts	(c) Impacts on Indigenous traditional activities: biophysical effects on species of importance as well as perceptive and intangible effects on Métis way of life The MNO would like to ensure that all potential effects of concern have been considered and addressed. This is a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concerns about impacts to Indigenous traditional activities and CNL's assessment of those impacts including: • the need to consider all potential effects outlined in *CEAA* (2012); • consideration of impacts to the Metis way-of-life; • concern that the project-interactions matrix does not capture Métis rights and interests, including qualitative aspects; • ensuring the assessment includes aquatic and terrestrial species of importance to MNO citizens; • effects on harvester perceptions and access to species such as deer and walleye; • identification of intangible effects to Métis rights and interests, including perceptive effects; • assessment of impacts on Indigenous Health (this is discussed in Row 9 (a) above).
	(d) Separate assessment of the effects to Métis rights and interests. It is important to the MNO that the EIS consider the potential effects of the project on Métis rights and interests, as they differ from those of other Indigenous Nations, communities and organizations . This is a project-specific concern.	In its comments on the 2017 draft EIS, the MNO expressed concern that a separate assessment of the effects to Metis rights and interests was needed and that TLRU information from other Indigenous Nations, communities and organizations cannot be used as a proxy for the MNO (CNL PI-203).
15. Valued Components	(a) Inclusion of VCs identified by MNO This is of interest to the MNO because these species and features are of particular importance to the MNO. The VCs selected need to consider Metis rights and interests in the assessment and the potential for interaction with the project activities. This is a project-specific concern.	The MNO expressed concern that VCs were selected without seeking feedback or input from the MNO. The MNO expressed verbally, in negotiations on scope of MOU and formally submitted comments that VCs must be representative of Metis interests (CNL PI-197, CNL PI-252. Beyond species VCs, the MNO TKLUS report participants identified a number of features within proximity to the NPD Closure Project including: • Habitat for wildlife (e.g., moose, partridge, grouse, rabbit, deer, duck, goose); • Habitat for plants (e.g., oak, ground hemlock and berries); • Small and large game harvesting areas; • Métis cultural practice site; • Trapping; • Fish harvesting areas; • Plant and Natural materials harvesting areas. In their review of the 2017 draft EIS, the MNO also noted that the selected VCs contain significant information gaps, including Métis-specific VCs and potential perceptive effects of the project on the regional rights-bearing Métis Nation (CNL PI-15, CNL PI-125, CNL PI-135, CNL PI-187).

Métis Nation of Ontario (MNO) – Summary of Interests and Concerns

Table C-9 below summarizes the key interests and concerns that the MNO have raised on the NPD Closure Project, up to March 2024, through comments submitted on the 2017 draft EIS to the CNSC or through direct discussion and engagement between MNO and CNL.

The full submission of MNO comments on the 2017 draft EIS can also be found online: Comments on the 2017 draft EIS for NPD from Métis Nation of Ontario. These comments were summarized by CNSC and included as part of the CNL Table: Consolidated Public and Indigenous Groups' Comments on the Nuclear Power Demonstration Closure Project Draft EIS: IAA - NPD - Consolidated Public and Indigenous Comments (April 2018).

Table C-9 has five columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, why it is important to the Indigenous Nation, community or organization, and connects it to a project aspect or an Aboriginal or treaty right wherever possible. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 summarizes CNL's response or conclusions as well as CNL's efforts to address this key interest or concern
- Column 4 identifies where in the EIS the key interest or concern is addressed, and whether any changes were made to the EIS in response to the interest/concern. If these changes resulted in a different outcome in the EIS, this is also discussed;
- Column 5 summarizes the "Status" of the key interest or concern and the anticipated Next Steps towards achieving resolution of the key interest or concern. Not all concerns can be quickly or easily resolved, as some concerns go beyond the scope of the EA process, or there may divergent perspectives on certain interests or concerns. Note: this column does not, unless specifically confirmed by the Indigenous Nation, community or organization, mean that they have verified that the interest or concern has been dealt with to their satisfaction.

Table C-9 MNO Key Interests and Concerns

Topic	MNO Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
1. Accidents & Malfunctions	(a) Effects of accidents and malfunctions including as applicable to offsite transportation activities It is important to the MNO that impacts from accidents and malfunctions be assessed, and that procedures are in place to notify and provide information to MNO citizens in the event of an accident or malfunction. This is both a site-wide and project-specific concern.	CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL's response has been accepted by the MNO. CNL Response: CNL has heard MNO's concerns about potential accidents and malfunctions resulting from the NPD Closure Project. CNL has assessed the various accidents or malfunctions that could occur during the three phases of the project: all effects from postulated accidents or malfunctions during all three phases were found to be below regulatory limits. With respect to off-site transportation, CNL would like to clarify that there will be no off-site transportation of radioactive waste because all waste is proposed to remain on-site and grouted in the facility. There will be shipments of raw construction material to site, but these transportation activities would be consistent with other construction projects. Building a batch plant on-site significantly reduces the amount transportation of material to the site. The NPD site has an Emergency Procedure that will remain in place and be updated as required throughout the Decommissioning Execution and Institutional Controls phases of this project. This procedure focuses on the prevention, mitigation of, preparedness for, response to, and recovery from a wide range of abnormal and emergency conditions including fires, floods, hazardous spills, loss of power, earthquakes, and tornados. The Emergency Procedure also defines the actions of specific staff/roles in such events. The NPD Emergency Plan is developed and maintained in accordance with CNL's company-wide Emergency Preparedness Program that has been accepted to meet the CNSC's requirements (under REGDOC-2.10.1). In the event of an accident or malfunction, CNL's Corporate Communications may activate its own local Emergency Information Centre to disseminate information to the public. In the event a site emergency occurs and escalates leading to potential off-site consequences, a Municipal Emergency Information Centre (MEIC) will be established by the municipality to provide emergency communications for the media and the public. This process will be followed for the NPD Project. CNL is willing to discuss this process with the MNO if requested.	Where is this topic discussed in the EIS? **Section 9.12** of the EIS discusses the various accidents or malfunctions (radiological and non-radiological) that could occur during the three phases of the project. **Section 10.2** discusses CNL's Emergency Preparedness Program, which includes process for public notification in the event of an accident or malfunction that could have an impact on the public or the environment The EIS directs readers to **Section 7.4** of the Decommissioning Safety Assessment TSD, which lists many examples of safeguards that will be applied to the project. **Section 9.10.3.3** of the EIS discusses the potential impacts of increased traffic volume on traditional land and resource use, noting that the increased traffic volume is expected to be temporary and minor, and that the Ministry of Transportation (MTO) has reviewed the project and concluded that it has no traffic or transportation-related concerns with respect to the project. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolved CNL considers this concern to be resolved. MNO has acknowledged and accepted CNL's response on this topic.

Topic	MNO Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
2. Alternatives	(a) Concern about the suitability of In-situ disposal (ISD). It is important to the MNO that future land users of the NPD site are protected. This is a project-specific concern.	CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL's response has been accepted by the MNO. CNL Response: In discussions with the MNO, CNL agreed that protection of future land users is an important concern and has addressed it. CNL has assessed the suitability of ISD for NPD, and the EIS shows that such disposal is safe for human health and the environment in the short term and long term. CNL has considered national and international standards and guidelines and continues to believe that the NPD facility has characteristics that support ISD.	Where is this topic discussed in the EIS? Alternative means are discussed in the **Alternative Means Assessment TSD** (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this comment. However, CNL has revised **Section 4.2** of the EIS since the MNO's review – details are provided in the next row.	Status: Resolved CNL considers this concern to be resolved. MNO has acknowledged and accepted CNL's responses on this topic.
	(b) Input into the Alternative Means Assessment It is important that the MNO's perspectives be taken into account in the assessment of alternatives, because the approach selected has implications for Métis people's future use of the site. This is a project-specific concern.	CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL has revised the EIS to include additional information on the alternative means assessment (AMA) and findings. As requested by MNO, the AMA TSD was shared with MNO in December 2017. In August 2021, the MNO indicated that they had no further comments on this topic. CNL Response: CNL is committed to meeting with the MNO to continue to discuss the four alternatives and describe how the approach selected interfaces with MNO's vision on potential future use of the site. In particular, CNL is interested in going over the changes incorporated in the revised version of the AMA TSD with the MNO to discuss the additional quantitative analyses conducted for each of the alternatives that were considered.	Where is this topic discussed in the EIS? Alternative means are discussed in the **Alternative Means Assessment TSD** (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS. What changes have been made (and where)? Since the MNO's review, CNL has revised the EIS **(Section 4.2)** to include additional information from the AMA TSD, to provide greater clarity on how the AMA was completed and what the results mean. In addition, both the AMA TSD and **Section 4.2** of the EIS were updated to assess the projected radiological dose and industrial safety risk to workers for each option.	Status: Resolved The MNO indicated in a meeting in August 2021 that they had no further comments on this topic.
3. Archaeology and Cultural Heritage	(a) Métis-specific Archaeology and Cultural Sites The MNO is concerned that without participation of MNO citizens, the project could potentially lack information about Métis-specific heritage resources. This is both a site-wide and project-specific concern.	As part of the Memorandum of Understanding (MOU) established between CNL and MNO, CNL has provided funding and the MNO has provided feedback on the Stage 1 Archaeological Assessment. CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses and agrees with the MNO request that Métis history be included in future CNL reports when it is relevant to the project. CNL concurs with the MNO that a Traditional Knowledge and Land Use Study (TKLUS) is a beneficial input to the project. CNL and the CNSC jointly funded the MNO TKLUS. CNL reviewed and incorporated relevant information from the MNO TKLUS into the EIS. CNL shared the revised sections of the EIS with the MNO for feedback on the incorporation of TKLUS results. CNL also conducted an MNO TKLUS follow-up meeting/presentation in North Bay in October 2019. In August 2021, the MNO indicated that they had no further comments on this topic. CNL Response: CNL is committed to working with the MNO to identify potential information regarding Métis specific heritage resources. CNL has conducted a Stage 1 Archaeological Assessment, and shared the results with the MNO. No further archaeological work is planned for NPD. If any archaeological reports	Where is this topic discussed in the EIS? Indigenous cultural resources and ceremonies, including the presence of Métis-specific cultural sites and features, are discussed in in **Section 8.9.3** of the EIS. **Section 8.11.4** of the EIS summarizes the **Archaeology TSD,** including the findings of the Stage 1 Archaeological Assessment. What changes have been made (and where)? CNL added information from the MNO TKLUS to **Section 8.9.3** of the EIS, specifically the spiritual and cultural connection that Métis citizens have with the Ottawa River corridor.	Status: Resolved The MNO indicated in a meeting in August 2021 that they had no further comments on this topic.

Topic	MNO Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		are prepared in the future, CNL will add a section on Métis history to the Background section. CNL has incorporated information on Métis-specific archaeology and cultural sites into the EIS, based on the results available from the MNO TKLUS.		
3. Archaeology and Cultural Heritage	(b) Archaeological buffer zone and rating It is important that areas with high archaeological value are identified appropriately and protected from project-related impacts.	CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. In August 2021, the MNO indicated that they had no further comments on this topic. CNL Response: CNL acknowledges that the NPD property, including the shoreline of the Ottawa River, carries a high level of archaeological potential and warrants protection. However, as indicated in the Stage 1 Archaeological Assessment, because there is no disturbance planned for the shoreline outside of the project footprint, there is no trigger at this time for further archaeological assessment and subsequent application of such a buffer. This does not leave the area unprotected; rather, the entire NPD property will be managed, as all CNL operated sites currently are, under CNL's Environmental Protection Program and subsequent Cultural Resource Management practices. The Stage 1 Archaeological Assessment did not identify the need for a "moderate" potential rating, based on historical information and planned project activities. However, it does recommend the following: "should any construction be planned in the future, a further Stage 1&2 assessment would be in order".	Where is this topic discussed in the EIS? **Section 8.11.4** of the EIS summarizes the **Archaeology TSD,** including the findings of the Stage 1 archaeological assessment. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolved The MNO indicated in a meeting in August 2021 that they had no further comments on this topic.
4. Atmospheric Environment	(a) Atmospheric study area boundaries and data It is important to the MNO that study areas are large enough to encompass intangible effects and that baseline conditions in the study areas are correctly represented. This is a project-specific concern.	CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL, AECL and the MNO are working together on an LTRA that includes collaboration in the area of environmental monitoring at CNL sites including facilitating the involvement of MNO Monitors in environmental monitoring activities at the sites. CNL Response CNL acknowledges that there is some uncertainty involved with using data from "far away" locations to represent baseline conditions, in the absence of site-specific data for NPD. However, the uncertainty is deemed to be very minor. For example, the CRL site (used to represent Regional Study Area) and NPD share similar topography, latitude and distance from the Ottawa River. In addition, conservative assumptions were made, such as using air quality from urban areas that are likely to have worse air quality than the NPD site. The EIS found that when the impact to air quality from the project is added to the baseline air quality from the more urban areas, the resulting impact is still so low that it's not considered measurable. Follow-up monitoring will take place during the project execution to verify that the impact to the environment is low, as predicted in the EIS. With respect to the effects on Métis perception or intangible aspects of Métis way-of-life, CNL is eager to learn more and discuss how these effects may be minimized, for example through participation in air monitoring activities. In addition, to address avoidance, CNL is committed to providing on-going educational and awareness opportunities, to alleviate concerns related to safety and risk.	Where is this topic discussed in the EIS? The atmospheric environment is defined in **Section 8.2** of the EIS, including Study Areas in **Section 8.2.1**. Effects to the atmospheric environment are assessed in **Section 9.2** of the EIS. The EIS does not predict any adverse residual effects on the atmospheric environment (**Section 9.2.4**). MNO involvement in follow-up monitoring programs is discussed in **Section 6.2.4.4.3** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolved CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.

Topic	MNO Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
4. Atmospheric Environment	(b) C-14 releases from the stack It is important to the MNO that they understand historic releases from the NPD site and implications of potential releases related to the project so they have confidence that the rights and interests of MNO citizens are upheld in relation to the environment. This is a project-specific concern.	CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL, AECL and the MNO are working together on an LTRA that includes collaboration in the area of environmental monitoring at CNL sites including facilitating the involvement of MNO Monitors in environmental monitoring activities at the sites. CNL looks forward to ongoing discussions with the MNO, regarding MNO input in and participation in mitigation measures and environmental monitoring activities. CNL Response: The main reason for an increase/decrease in C-14 over the years and specifically the increase between 2012 and 2015 is the frequency of operation of the ventilation. In recent years CNL has been operating the ventilation fans more frequently than earlier years because more work has been undertaken in the nuclear area, such as asbestos abatement and characterization activities. CNL only operates the ventilation units when work is being undertaken in the nuclear area. With respect to stack modifications: The potential releases from stack modification activities have been assessed and were determined to be negligible. However, CNL is open to meeting with MNO further, to discuss its concerns about avoidance behaviours and opportunities for education, awareness and involvement.	Where is this topic discussed in the EIS? The planned stack modifications are discussed in **Section 4** (Project Description). Mitigation measures related to the stack are discussed in **Section 9.6.3.2.** MNO involvement in follow-up monitoring programs is discussed in **Section 6.2.4.4.3** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolved CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.
5. Baseline Characterization	(a) Inclusion of Métis-specific socio-economic baseline data and effects This is important to the MNO because the socio-economic characterization and effects assessment should include consideration of Indigenous receptors (including citizens of the Métis Nation), and this can't be done without collecting information from Indigenous Nations, communities and organizations . This is a project-specific concern.	CNL has responded in writing to MNO comments on this topic citing relevant sections of the EIS in the response. MNO has engaged CNL and AECL in a preliminary tripartite discussion on a CNL Corporate LTRA. The LTRA discussion is expected to include socio-economic supports such as an Indigenous procurement policy. CNL Response CNL acknowledges the importance of collecting and incorporating information from the MNO, including socio-economic baseline information. CNL has jointly funded the MNO TKLUS and has reviewed and incorporated information from the MNO TKLUS into the EIS. CNL is also open to receiving more socio-economic information from the MNO; this information will be documented in the Indigenous Engagement Report that supports the EIS. CNL has added a new Indigenous socio-economic component and VCs to the EIS, in order to assess socio-economic impacts of the project on these VCs. The EIS does not predict any adverse residual effects on the Indigenous socioeconomic VCs.	Where is this topic discussed in the EIS? Indigenous socio-economic baseline is presented in **Section 8.10.1** of the EIS. The assessment of effects to Indigenous socio-economic VCs is discussed in **Section 9.10.1** of the EIS. What changes have been made (and where)? CNL added information from the MNO TKLUS into **Section 6.2.4.4** of the EIS and **Section 8.10** of the EIS, containing Indigenous Socioeconomic Baseline data. In response to this and other comments, CNL introduced a new Indigenous Socio-Economic component and VCs in **Section 5.2.4** of the EIS. This is discussed further in **Section 6.3** of the EIS. **Section 9.10** of the EIS presents assessment of effects on the new Indigenous socio-economic VCs.	Status: Resolved. CNL considers that this concern will be addressed through an appropriate commitment to develop an Indigenous procurement policy as part of the LTRA.
	(b) Baseline soil contamination (near historic landfill) This is a concern for the MNO because it is important that the final state of the NPD site is safe to use, regardless of whether the contamination comes from the NPD Closure Project or earlier activities. This is a project-specific concern.	CNL has responded in writing to MNO comments on this topic citing relevant sections of the EIS in the response. CNL has revised the EIS to state that there are no chemical contaminants of potential concern in soil. In August 2021, the MNO indicated that they had no further comments on this topic. CNL Response CNL investigated the original references and determined that the text in the EIS was incorrect. CNL has corrected the text.	Where is this topic discussed in the EIS? The text in question is from **Section 5.2.2** of the EIS. What changes have been made (and where)? CNL has revised **Table 5.2-2** in **Section 5.2.2** of the EIS.	Status: Resolved. The MNO indicated in a meeting in August 2021 that they had no further comments on this topic.

Topic	MNO Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
5. Baseline Characterization	(c) Baseline for the Surface Water and Aquatic Environments This is important to the MNO because an understanding of current contamination in the Ottawa River is necessary in order to assess impacts on aquatic biota. It is also important to confirm that there are currently no discharges to the Ottawa River from NPD activities. This is a project-specific concern.	CNL has responded in writing to MNO comments on this topic citing relevant sections of the EIS in the responses. CNL undertook baseline studies of benthic macroinvertebrate, sediment quality and water quality in the Ottawa River in the summer of 2020. Samples were taken upstream, downstream and adjacent to the NPD facility. CNL has clarified in its responses to MNO that discharges to the Ottawa River have been discontinued since 2017. CNL Response CNL conducts a very rigorous effluent monitoring program and is committed to ensuring that the environment around the NPD site, including the Ottawa River, is protected. The use of CSA Standards is not intended to replace ensuring Métis rights and interest are considered, but it is important to include as a well-established standard when discussing monitoring plans. CNL is happy to further discuss the monitoring plans with the MNO, including possible opportunities for MNO participation in monitoring activities. There may also be opportunities for MNO participation in collection of baseline data before commencement of the project. Capacity for MNO's involvement may be covered under the LTRA, which is currently being discussed by AECL, CNL and the MNO. To supplement baseline data, a study of sediment, benthic invertebrates and fish habitat features was undertaken upstream, adjacent to and downstream of the NPD site in 2020. The study determined that the Ottawa River benthic invertebrate community near NPD is healthy and typical of what is observed in many large, soft-bottomed, relatively deep river systems. CNL is planning to regularly monitor the Ottawa River water quality.	Where is this topic discussed in the EIS? **Section 8 of the EIS** presents the baseline data available so far. **Section 8.3** presents baseline surface water and sediment data. **Section 8.4** presents the aquatic environment. **Section 12 of the EIS** presents CNL's plans for monitoring of the NPD site during all phases of the project. What changes have been made (and where)? New sediment and surface water data has been added to **Section 8.3**. **Section 8.4** now includes a description of the fish habitat near NPD. The benthic macroinvertebrate community as found in the 2020 study is now described. **Section 12** of the EIS addresses the interests and concerns expressed by the MNO, and notes that additional baseline data may be required to be collected before the project commences.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.
	(d) MNO involvement in baseline data collection activities. This is important to the MNO because engagement should involve two-way communication, information-sharing, and participation in project-related activities This is a project-specific interest.	CNL has responded in writing to all MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL looks forward to ongoing discussions with the MNO regarding MNO input in and participation in baseline data collection activities and other monitoring activities. These activities will be captured under the LTRA that is being established between CNL, AECL and the MNO. CNL Response: CNL is committed to providing opportunities for MNO citizens to participate in activities related to baseline data collection. CNL is planning to undertake additional monitoring of the current environment in order to establish a baseline before the NPD Closure Project begins and would welcome MNO feedback on this aspect of monitoring.	Where is this topic discussed in the EIS? **Section 6.2.4.4** of the EIS discusses CNL and MNO's interest in participation of MNO citizens in monitoring programs. It also discusses the MOU and work towards establishing a LTRA. **Section 12** of the EIS discusses Indigenous group feedback on and participation in monitoring programs. What changes have been made (and where)? CNL has expanded its discussion of MNO interests and involvement, in **Section 6.2.4.4** of the EIS.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring and engagement to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.

Topic	MNO Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
5. Baseline Characterization	(e) Geological and Hydrogeological site characterization It is important to the MNO that baseline hydrogeological conditions are accurate and well understood, so that the long-term impacts of the NPD Closure Project can be accurately assessed, and management plans can be made. This is a project-specific interest.	CNL has responded in writing to MNO comments related to hydrogeology citing relevant sections of the EIS in the responses. In October 2019, CNL met with MNO Councillors and staff for an NPD Closure Project update and to review CNL comment responses. A key topic in the discussion was geological site characterization. CNL Response: CNL acknowledges that the 2017 draft EIS indicated a discrepancy in flow characteristics between the NPD and NSDF EIS, due to factors like sampling density (number of samples taken), and study methodology. Since that time, CNL has completed additional geoscientific characterization work to better understand the local geology and hydrogeology. These additional findings, which are consistent with observations at the NSDF Project site, are presented in CNL's 2019 Geoscientific Characterization Report. CNL has also developed a detailed, calibrated groundwater flow model used to define hydrogeological conditions into the future to support Postclosure Safety Analysis. CNL has updated the EIS to incorporate the new hydrogeological data. With respect to long-term impacts of groundwater on the grouted NPDWF: this has been assessed. The Postclosure Safety Assessment (PostSA) technical supporting document (TSD) evaluates cases where groundwater comes in to contact with the grouted NPD facility and discharges to sediments at the base of the Ottawa River and where this groundwater discharges along the slope between the NPD facility and the Ottawa River. The predicted concentrations of contaminants in this groundwater and its discharge points are considered for the Indigenous receptor who is living a traditional self-sufficient lifestyle and are carried to the Ecological Risk Assessment (EcoRA), where risk to valued species (including those identified by the MNO in the MNO TKLUS) is evaluated. Both the EcoRA and PostSA conclude that humans and the environment remain protected. Follow up monitoring of groundwater will be used to confirm the predictions in the EcoRA and PostSA. Groundwater monitoring will commence before project approval (in order to obtain baseline data) and continue throughout the Decommissioning Execution and Institutional Controls phases of the project.	Where is this topic discussed in the EIS? **Section 8.5.5** of the EIS presents the hydrogeological baseline data. **Section 9.1.1.1** discusses the expected and gradual degradation of parts of the facility through contact with groundwater, and that this degradation is considered in the assessment of long-term safety of the facility. **Section 9.5** of the EIS presents the expected changes to the hydrogeological environment, including groundwater concentrations calculated in the PostSA TSD, and concludes that no adverse residual effects on will occur as a result of the NPD Closure Project. The predicted concentrations of contaminants in groundwater and its discharge points are considered in **Section 9.10.2** for the Indigenous receptor who is living a traditional self-sufficient lifestyle and in **Sections 9.4 and 9.6** for non-human biota. These assessments also conclude that humans and the environment remain protected. **Section 9.9** of the EIS evaluates the effects of the project on Indigenous Land and Resource use and concludes that no adverse residual effects on Indigenous land and resource use will occur as a result of the NPD Closure Project. What changes have been made (and where)? CNL updated **Section 8.5.5** of the EIS to include information that is more recent and more consistent with the NPD site. CNL updated **Section 9.5** of the EIS to incorporate the new geoscientific characterization information.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.
6. Engagement	(a) Meaningful engagement using best practices. It is important for the MNO to be meaningfully engaged on the project, using protocols and a workplan that are appropriate for Indigenous engagement and have been developed in consultation with the MNO. This is a project-specific concern.	CNL heard the MNO's request for on-going meaningful engagement, and since 2016 has carried out extensive engagement with the MNO, implemented a MOU, funded information-gathering studies such as the MNO TKLUS, and carried out engagement activities with the MNO. For CNL, meaningful engagement involves listening to the citizens' concerns and making real changes to the EIS and/or to the project as appropriate, for example: • Changes to monitoring plan based on MNO feedback (see row later in this table). • Incorporation of information from the MNO TKLUS into the EIS. • Addition of VCs based on inputs from the MNO and other Indigenous Nations, communities and organizations (e.g., the Indigenous Health receptor). • Commitments to participation of Indigenous Nations, communities and organizations in future monitoring activities (see row later in this table). CNL has responded to MNO specific comments on the EIS, in writing. Some of the engagement activities that CNL has conducted specifically for the MNO include: Community information session for MNO citizens in North Bay (2019 October)	Where is this topic discussed in the EIS? **Section 6.2.4.4** of the EIS summarizes CNL engagement with MNO to date and presents information on CNL and MNO's MOU for the NSDF and NPD projects. What changes have been made (and where)? CNL has updated **Section 6.2.4.4** of the EIS (and Section 4.4 of the IER) to reflect recent and planned engagement activities to support the MNO's meaningful participation in the EA process. **Section 6.2.4.4.1** of the EIS directs the reader to the IER for a detailed listing of MNO-specific engagement activities. CNL added information from the MNO TKLUS to **Section 8.9.3** of the EIS. CNL revised the VCs to incorporate input from MNO, adding new human and ecological receptors (**Section 6.3** of the EIS).	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for ongoing engagement and participation objectives as part of the LTRA. CNL will continue to engage with the MNO, e.g., through the MOU, on the topic of meaningful engagement, including specific engagement activities.

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		Focused meetings on monitoring, including monitoring involvement, with the Consultation Committee (2020 November and 2021 February) Funding for a TKLUS, including a specific VC workshop CNL, AECL and the MNO are working together on an LTRA that includes collaboration in the area of engagement and communication in order to enable MNO participation and community capacity, including providing funding for the MNO to maintain open dialogue with its citizens about Projects. CNL Response: CNL is committed to open, transparent and continuing engagement with the MNO. Since submission of the EIS, CNL has expanded its engagement with the MNO through dedicated meetings and communications. CNL and the MNO have agreed to a mutually beneficial, ongoing working relationship and to provide a process by which CNL can engage with the MNO at the local and regional levels in order to better understand any Métis Rights and Interests that may be impacted in the general and surrounding areas resulting from the project.		
6. Engagement	(b) Terminology: Use of “Métis Nation” instead of “Métis community” This is important to the MNO because the language “Métis community” minimizes the political structure and organization that the MNO has and operates under. This is both a site-wide and project-specific concern.	CNL’s Actions to Address the Concern: CNL has revised the EIS and the IER to use Métis Nation of Ontario (MNO) when referring to the governing body. A few instances of “Métis communities” or “Métis community” occur in the EIS and IER TSD when used in a similar context as is in the MNO Traditional Knowledge and Land Use Study (TKLUS) or in a historical context. For example, **Section 8.9.2.4** of the EIS (which discusses Gathering activities) states: The MNO TKLUS (KnowHistory 2019) documented that the collection of plants, berries, wood and other natural materials is a practice associated with both historical and modern day Métis communities. In August 2021, the MNO indicated that they had no further comments on this topic. CNL Response CNL acknowledges the difference and is committed to using the correct terminology in the EIS and supporting documents.	Where is this topic discussed in the EIS? The MNO is discussed throughout the EIS, appearing most frequently in **Sections 6.2.4.4, 6.3, 8.9 and 9.9**. What changes have been made (and where)? CNL has revised the language throughout the EIS. It appears mostly in **Sections 6.2.4.4, 6.3, 8.9 and 9.9**.	Status: Resolved. The MNO indicated in a meeting in August 2021 that they had no further comments on this topic.
7. EA Process and Methodology	(a) Effects assessment methodology It is important that impacts of concern to the MNO be considered in the assessment of effects of the project on MNO citizens. This is a project-specific concern.	CNL has responded in writing to the MNO’s comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL is willing to participate in discussions with MNO focused on these concerns. CNL response CNL acknowledges the MNO’s concerns about the EA process and methodology, in particular: the process for determination of significance; consideration of likelihood of residual effects; success of mitigation measures; consideration of societal values and sustainability; measures to address uncertainty; and conclusions on significance. The criteria used for the evaluation of significance are from the CNSC (2020) Regulatory Document 2.9.1, Environmental Protection: Environmental Principles, Assessments and Protection Measures. CNL is willing to present to the MNO its process and findings on the environmental effects of the project and explain and discuss the process and thresholds for determination of significance of adverse residual effects.	Where is this topic discussed in the EIS? **Section 9.1.2** of the EIS explains the methodology used for the determination of significance of residual effects. It also presents the criteria used for the evaluation of significance, which are from the CNSC (2020) Regulatory Document 2.9.1, Environmental Protection: Environmental Principles, Assessments and Protection Measures. **Section 11** of the EIS, Conclusion on Significance, discusses the assessment findings. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.

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7. EA Process and Methodology	(b) Cumulative effects This is important to the MNO because it is interested in the overall protection of the Ottawa River and the NPD site, not just the impacts of a single project. This is a project-specific concern.	CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL Response: CNL acknowledges the MNO's concern about the effects on the Ottawa River and NPD site from various activities in the past, present and future. As discussed in the EIS and outlined in the technical guidance Assessing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2018), a cumulative effects assessment is only required to be undertaken for residual effects of the project. For all environmental components, since it was determined that no adverse residual effects are expected to occur from the NPD project, there is no potential for the occurrence of cumulative effects, including no potential for synergistic and/or additive effects. CNL will undertake follow-up monitoring of the environment including the Ottawa River to verify the predictions of the EIS. CNL looks forward to ongoing discussions with the MNO regarding MNO participation in environmental monitoring activities.	Where is this topic discussed in the EIS? **Section 9.13** of the EIS describes the process for evaluating cumulative effects and presents CNL's assessment of cumulative effects for the NPD Closure Project. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.
8. Environmental Effects and Mitigation Measures	(a) Perceived effects of the project It is important to the MNO that the assessment of effects include the potential impacts of negative perceptions from Métis citizens. This is a project-specific concern.	CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL is attempting to address these concerns by: (i) Incorporating information from MNO's TKLUS and MNO's VC workshop into the EIS. (ii) involving the Indigenous Nations, communities and organizations, including MNO, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near the CNL operated sites and build confidence that the decommissioning strategy and mitigation measures are effective; and (iii) developing an Indigenous-driven risk-informed communications program for the NPD Closure Project, to promote understanding of the EIS results, and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern. CNL Response: CNL acknowledges MNO's concerns about perceived effects from the NPD site. The proposed NPD Closure Project has the potential to help reduce concerns of alienation and/or fears. The proposed project involves a long-term solution to ensure the waste that currently resides at the NPD site is effectively contained and isolated from the environment, ensuring public safety. This will potentially result in additional lands being freed-up for traditional harvest. CNL stands by its conclusion that the project will not interfere with traditional activities nor impact biological resources upon which they are dependent. However, CNL is open to increased engagement, education and participatory involvement in monitoring activities at CNL operated sites to help alleviate any concerns.	Where is this topic discussed in the EIS? **Section 8.9** of the EIS discusses presents specific information about the MNO obtained from the MNO TKLUS report. **Section 9.9.5** of the EIS discusses CNL's understanding and approach towards negative perceptions associated with the NPD Closure Project. What changes have been made (and where)? CNL added content from the MNO TKLUS report to the EIS **(Sections 6.3 and 8.9).** The EIS update includes additional detail on the VC-related engagement process and how Indigenous interests (including MNO input) have been incorporated into the VCs selected for the NPD Closure Project.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.

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8. Environmental Effects and Mitigation Measures	(b) Impacts of increased dust and other emissions, noise, traffic volumes, and changes to access including those associated with transportation activities It is important to the MNO that they have input into mitigation and monitoring of dust, noise and emissions and other impacts to Métis harvesters who may be exercising their rights in the vicinity, to confirm that effects are low as predicted and do not extend beyond the project footprint. MNO would like input in the selection of valued components for the assessment of potential effects. This is a project-specific concern	CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL, AECL and the MNO are working together on an LTRA that includes collaboration in the area of environmental monitoring at CNL sites including facilitating the involvement of MNO Monitors in environmental monitoring activities at the Sites CNL looks forward to ongoing discussions with the MNO, regarding MNO input in and participation in mitigation measures and environmental monitoring activities. CNL Response: CNL understands the MNO's concerns about project impacts from noise, dust and emissions, and from transportation-related impacts such as noise, traffic, changes to routes and access, and other inconveniences. The EIS assesses potential effects related to dust and noise nuisance, loss of connection, safety of harvesting and consuming local foods, and changes to access and identified no significant adverse effects. The EIS assesses the traffic and transportation effects on traditional land and resource use. The EIS notes that the increased traffic volume on the highway is expected to be temporary and minor, and noise related to this transportation is expected to be very minor and temporary. No residual adverse effects are predicted. CNL has developed mitigation measures for the protection of the atmospheric environment. For example, CNL has planned comprehensive dust suppression techniques and is willing to work with the MNO to explore further ways to minimize effects on nearby land users such as harvesters. The construction area for the project is surrounded by a larger restricted area where traditional harvesting does not occur. No large plumes of dust are anticipated to be released from the project. In addition, follow-up monitoring of the environment will be undertaken to verify the EIS predictions of no significant adverse effect and to confirm that mitigation measures are effective. With respect to noise, a baseline noise survey took place in 2020. Eleven locations around the NPD site were monitored, as well as one location offsite, in Swisha which is the nearest community to the NPD site, located approximately 1 km northwest of the NPD site. Baseline noise on the NPD site was similar to a quiet rural area (≤ 45 dBA), with slightly higher noise measured near Highway 17 (the entrance to the NPD site) and in Swisha. Noise will be monitored during the Decommissioning Execution phase of the project and CNL would welcome MNO input and involvement in noise monitoring activities. CNL is eager to learn more about the exercise of Métis rights and how ambient noise can affect perceived and actual use of the project area (e.g., impact on MNO harvesting timing windows).	Where is this topic discussed in the EIS? The atmospheric environment is defined in **Section 8.2** of the EIS and effects on the atmospheric environment are discussed in **Section 9.2**. Mitigations for the atmospheric environment and additional context on hazardous substances have been included in **Section 9.2.3** and are summarized in **Section 10.** The EIS does not predict any adverse residual effects on the atmospheric environment (**Section 9.2.4**). **Section 9.9.3.3** of the EIS discusses the effect of increased traffic volume from the project on traditional land and resource use. There are no adverse residual effects predicted. **Section 12** of the EIS summarizes the draft Follow-up Monitoring Plans. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.
8. Environmental Effects and Mitigation Measures	(c) Involvement of MNO in developing mitigation measures This is important because the MNO feels that consultation and their input should have been sought to ensure reduction and elimination of potential effects.	CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL has revised the EIS to include mitigation measures specifically for Indigenous Socio-economic and Health and Traditional Land and Resource Use. CNL is willing to host workshops to gather MNO feedback on effects and mitigation measures.	Where is this topic discussed in the EIS? **Section 6.2.4.4** of the EIS discusses CNL and MNO's interest in participation of MNO citizens in development of mitigation measures. It also discusses the MOU and work towards establishing a LTRA. A full list of mitigation measures is presented in **Table 10.3-1** of the EIS. Some examples of mitigation measures are	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to seek and incorporate MNO input on mitigation measures, as part of the MOU.

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	This is a project-specific interest.	CNL Response: CNL agrees that MNO input into mitigation measures will be valuable. Since these comments were submitted, the MNO and CNL have signed an MOU. Within this framework, CNL will seek to work together with the MNO regarding their input on alternate mitigation measures. CNL is committed to providing opportunities for MNO citizens to identify mitigation measures. The project is also eager to collaboratively discuss the list of mitigation measures proposed for the NPD Closure Project.	misting to control dust, and site sweeps of work areas to determine if Species at Risk are present (e.g., milksnakes, bats, monarchs). What changes have been made (and where)? CNL has added mitigation measures for Indigenous Land and Resource Use to **Section 9.9.3.2** of the EIS, and for Indigenous Socio-Economic and Health in **Section 9.10.1.3.2** of the EIS. CNL has expanded its discussion of MNO interests and involvement, in **Section 6.2.4.4** of the EIS.	Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.
8. Environmental Effects and Mitigation Measures	(d) Need for additional mitigation measures in the surface water, aquatic and terrestrial environments This is important to the MNO because the Ottawa River is of great importance to Métis harvesters, and because effects on vegetation and wildlife may have potential impacts on Métis rights and interests. This a project-specific concern.	CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. The MNO has reviewed the Environmental Monitoring Plan reports and submitted technical comments. CNL and MNO have discussed them once, and plan to conduct a more thorough discussion of all the MNO comments on follow-up monitoring at a subsequent meeting. CNL looks forward to future meetings with the MNO to resolve all comments on the draft follow-up monitoring plans. CNL Response: CNL appreciates that the aquatic environment and terrestrial environments are very important to the Métis citizens. CNL has developed mitigation for the protection of both the Ottawa River (as part of the Surface Water Environment), aquatic species (as part of the Aquatic Environment) and wildlife and vegetation (as part of the Terrestrial Environment). CNL is open to considering additional mitigation measures. In addition, follow-up monitoring of the environment will be undertaken to verify the EIS predictions of no significant adverse effect and to confirm that mitigation measures are effective. In response to concerns that CNL has proposed the same mitigation measures for the terrestrial and aquatic environments, as for minimizing potential effects on trapping, hunting, fishing and gathering of Indigenous Nations, communities and organizations. This is because those mitigation measures are needed in order to prevent effects on plants, wildlife and fish upon which resource harvest is based. They are not the only mitigation measures employed. CNL prepared three draft Follow-up Monitoring Plans, which provide more detail on the proposed monitoring for the NPD Closure Project. One of the plans, the Environmental Follow-Up Monitoring Plan, describes the planned monitoring of Ottawa River water, sediment, fish and benthic macroinvertebrates. To supplement baseline data, a study of sediment, benthic invertebrates and fish habitat features was undertaken upstream, adjacent to and downstream of the NPD site in 2020. The study determined that the Ottawa River benthic invertebrate community near NPD is healthy and typical of what is observed in many large, soft-bottomed, relatively deep river systems. This study can be repeated when decommissioning is complete, to verify if the project has had an impact. CNL is planning to regularly monitor the Ottawa River water quality before the project begins.	Where is this topic discussed in the EIS? Mitigation measures for the protection of the surface water, aquatic and terrestrial environments are discussed in **Sections 9.3.3.2, 9.4.3.2 and 9.6.3.2** of the EIS. They are also summarized in **Section 10** of the EIS. **Section 12** of the EIS summarizes the draft Follow-up Monitoring Plans. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.

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8. Environmental Effects and Mitigation Measures	(e) Effectiveness of mitigation measures It is important to the MNO that the mitigation measures address the potential impacts on Métis citizens, and that the selected measures are likely to be successful. This is a project-specific concern.	CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. The MNO has also reviewed the Environmental Monitoring Plan reports and submitted technical comments. CNL and MNO have discussed these comments once, and plan to conduct a more thorough discussion of all the MNO comments on follow-up monitoring at a subsequent meeting. CNL looks forward to future meetings with the MNO to resolve all comments on the draft follow-up monitoring plans. CNL Response: CNL agrees with MNO that it is important to develop mitigation measures that are likely to be successful at reducing potential impacts. CNL has used information from the MNO TKLUS to develop and/or confirm mitigation measures that will reduce impacts on Métis citizens. With respect to the likelihood of mitigation being successful, most of the mitigation measures identified in the EIS are for activities in the Decommissioning Execution phase. These consist of standard mitigation measures for those activities (e.g., demolition, construction, transportation, storage of chemicals) and reflect industry best management practices. As such, these mitigation measures are assumed to be effective. The remaining mitigation measures consist of in-design mitigation measures. These are features included in the project design for the purpose of pre-empting possible environmental effects, such as the grout used to fill the structure restricts contaminant release from the NPD disposal facility. In order to reduce the uncertainty of the characteristics of these design features, the assessment includes sensitivity analysis to understand how much the impact to the environment would change if scenarios are changed. In addition, follow-up monitoring of the environment will be undertaken to verify the EIS predictions of no significant adverse effect and to confirm that mitigation measures are effective.	Where is this topic discussed in the EIS? Mitigation measures for the protection of the surface water, aquatic and terrestrial environments are discussed in **Sections 9.3.3.2, 9.4.3.2 and 9.6.3.2** of the EIS. They are also summarized in **Section 10** of the EIS. **Section 12** of the EIS summarizes the draft Follow-up Monitoring Plans. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.
9. Indigenous Health	(a) Postclosure Safety Assessment and Indigenous Health It is important to MNO that the human health assessment reflects the lifestyle of MNO citizens. This is a project-specific concern.	CNL has provided funding to MNO through an MOU to ensure that the MNO can be meaningfully engaged in the NPD regulatory review process. Under the MOU was the provision of capacity to undertake a TKLUS. The MNO's TKLUS was submitted to CNL in February 2019. CNL reviewed and discussed the MNO TKLUS report with the MNO at engagements starting in February 2019. CNL has incorporated findings from the MNO TKLUS into the EIS, including addition of an Indigenous receptor for the assessment of health effects. CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL Response: CNL has added an Indigenous receptor group to the PostSA TSD. CNL also added a separate section on Indigenous Health.	Where is this topic discussed in the EIS? With respect to Indigenous Health, Indigenous consumption of country foods is considered under Human Health (**Section 8.8 and 9.8** of the EIS) and CNL has added a stand-alone section on Indigenous Health (**Section 8.10.2** and **9.10.2** of the EIS). What changes have been made (and where)? An Indigenous receptor was added to the human health assessment in the PostSA and EIS.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance

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		In the 3rd iteration of the PostSA TSD issued in March 2020, CNL included a Potential Exposure Group consisting of a family of self-sufficient Indigenous receptors in the NPD Area. The exposure profile in the postclosure period was developed based on a traditional Indigenous lifestyle pre-European contact (SENES 2014). This lifestyle results in a more cautious dose estimate than that based on current day lifestyle, where some food is store-bought and likely not from the contaminated area. The EIS does not predict any adverse residual effects to human health or Indigenous health.		confidence and trust in CNL's assessment.
10. Métis Rights and Interests	(a) Participation and engagement related to Métis rights and interests. The MNO believes that engagement is required to ensure that CNL understands, presents and assesses any Métis Rights and Interests that may be impacted in the general and surrounding areas resulting from the project. This is both a site-wide and a project-specific interest.	CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL has changed the terminology in the EIS to reference Indigenous rights. The MNO and CNL have signed an MOU. Together the two organizations have agreed to a mutually beneficial, ongoing working relationship and to provide a process to which CNL can engage with the MNO at the local and regional levels in order to better understand any Métis Rights and Interests that may be impacted in the general and surrounding areas around the projects. Canadian Nuclear Laboratories and the MNO are jointly working to establish additional engagement opportunities under this MOU. The MNO has also reviewed the Environmental Monitoring Plan reports and submitted technical comments. CNL and MNO have discussed these comments once, and plan to conduct a more thorough discussion of all the MNO comments on follow-up monitoring at a subsequent meeting. CNL looks forward to future meetings with the MNO to establish commitments for MNO involvement in monitoring. <u>CNL Response:</u> The EIS recognizes the MNO's assertion of rights in the vicinity of the NPD site. MNO, MNO North Bay, MNO Mattawa Métis, and MNO Sudbury (included via the Mattawa/Lake Nipissing Traditional Territory Consultation Committee) are identified in **Table 6.2-1**. In order to enable ongoing meaningful engagement with the MNO, CNL supported participation through a MOU with the MNO. Through the MOU, the MNO completed a TKLUS; the MNO shared the report with CNL in April 2019 and which contained information that CNL incorporated into the EIS. Trapping and hunting remain as VCs, along with fishing, gathering, and cultural resources & ceremonies under the Traditional Land and Resource Use component. CNL welcomes MNO's feedback on the planned monitoring program. CNL and the MNO have agreed to conduct a more thorough discussion of all the MNO comments on follow-up monitoring at a future meeting.	<u>Where is this topic discussed in the EIS?</u> **Section 6.2.4** of the EIS discusses CNL's willingness to involve Indigenous Nations, communities and organizations, including the MNO, in its monitoring programs. The follow up monitoring program is described at a high level in **Section 12** of the EIS, with significant details developed compared to the 2017 draft EIS. <u>What changes have been made (and where)?</u> **Section 6** of the EIS includes reference to MNO's stated rights in the vicinity of the project. CNL has changed the terminology in the EIS to reference Indigenous rights.	<u>Status:</u> Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.

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10. Métis Rights and Interests	(b) Impacts on Métis rights and interests. It is important to MNO that the rights and interests of the Métis Nation be understood and upheld. This is a project-specific concern.	CNL has responded in writing to MNO comments related to assessment of impacts on rights citing relevant section of the EIS as part of the comment response. CNL is continuing its efforts to address this concern by: (i) Involving the Indigenous Nations, communities and organizations, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near CNL operated sites and build confidence that the decommissioning strategy and mitigation measures are effective. (ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern (**Section 9.9.5** of the EIS). CNL, AECL and the MNO are working towards establishing a Long-Term Relationship Agreement (LTRA) that includes support for MNO involvement and participation in environmental monitoring. The MNO indicated in a meeting in August 2021 that they had no further comments on this topic. <u>CNL Response:</u> CNL acknowledges MNO's concerns about assessment of impacts to rights and traditional land and resource use, driven by distrust in the safety of the land and water. CNL is open to increased engagement, education and participatory involvement in monitoring activities at its sites to address these concerns. The proposed NPD Closure Project has the potential to help reduce concerns of alienation and/or fears. The proposed project involves a long-term solution to ensure the waste that currently resides at the NPD site is effectively contained and isolated from the environment, ensuring public safety. This solution has the potential to result in additional lands being freed up for traditional harvest or other uses by Indigenous peoples or the public. CNL stands by its conclusion that the project will not interfere with traditional activities or have a negative impact on the biological resources on which they are dependent. Ultimately, the decision of impacts to rights rests with the CNSC. It is CNL's understanding that the CNSC will engage directly with MNO on a rights assessment related to the NPD Closure Project. As the proponent of the project holding the responsibility to inform and engage the MNO, CNL will support that process where needed.	<u>Where is this topic discussed in the EIS?</u> **Sections 6 and 8** of the EIS present information about Indigenous rights. The EIS does not predict any adverse residual effects to traditional land and resource use (**Section 9.9.3.5**). <u>What changes have been made (and where)?</u> **Sections 5, 6, 8 and 9** of the EIS now reference Indigenous and/or treaty rights to be inclusive of Métis rights and interests.	<u>Status:</u> Resolved. The MNO indicated in a meeting in August 2021 that they had no further comments on this topic.
11. Monitoring	(a) Review and input to, monitoring plans This is important to the MNO because they want an opportunity to provide input into monitoring details (e.g., frequency, location, parameters) This is a project-specific interest.	Follow-up monitoring for the NPD Closure Project will include monitoring of environmental components critical to the MNO. CNL has committed to involving Indigenous Nations, communities and organizations in its environmental monitoring programs and to hosting workshops in spring 2022 to gather more feedback on the draft follow-up monitoring plans. CNL has responded in writing to MNO comments related to review and input to monitoring plans and met with the MNO in February 2021 to further discuss MNO's involvement in long-term monitoring.	<u>Where is this topic discussed in the EIS?</u> CNL has indicated that it is willing to involve the MNO in its monitoring programs (**Section 6.2.4.4.3**). Sediment monitoring locations are discussed in the draft Environmental Monitoring Plan, and in **Section 9.3.5.2** and **Section 12** of the EIS. The follow-up monitoring program is described at a high level in **Section 12** of the EIS, details of which derive from the development of the effluent, environment and groundwater draft follow-up monitoring plans.	<u>Status:</u> Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring and engagement to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional

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		CNL Response: Potential contaminant migration through the preferential groundwater flow pathway (i.e., pipe trench) is assessed in the PostSA, as well as the EcoRA. Both the EcoRA and PostSA conclude that humans and the environment remain protected. Additionally, the draft follow-up monitoring plan proposes several wells along the preferential pathway for groundwater flow. Sediment monitoring locations are proposed in the draft Environment Monitoring Plan. Only the "primary" monitoring locations are shown (i.e., the triggered monitoring locations were not shown). The draft Environmental Monitoring Plan explains that sediment sampling locations would be co-located with surface water monitoring locations, if triggered.	What changes have been made (and where)? No changes have been made to the EIS in response to this interest.	mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.
11. Monitoring	(b) Participation in monitoring This is important to MNO because they want to ensure transparency and confidence in monitoring activities. This is a project-specific interest.	CNL has indicated to the MNO willingness to collaborate and engage with interested Indigenous Nations, communities and organizations on environmental monitoring activities specific to the NPD Closure Project and the NPD site. CNL, AECL and the MNO are working together on an LTRA that includes collaboration in the area of environmental monitoring at CNL sites including facilitating the involvement of MNO Monitors in environmental monitoring activities at the Sites. CNL is open to discussing with the MNO the preferred ways of MNO involvement in monitoring plan design, implementation and communication of changes. CNL has responded in writing to MNO comments on this topic and met with the MNO in February 2021 to further discuss MNO's involvement in long-term monitoring. CNL Response: CNL is committed to involving the Indigenous Nations, communities and organizations, including MNO, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help build confidence that the decommissioning strategy and mitigation measures are effective.	Where is this topic discussed in the EIS? CNL has indicated that it is willing to involve the MNO in its monitoring programs (**Section 6.2.4.4.3**). The follow up monitoring program is described at a high level in **Section 12** of the EIS with significant details developed compared to the 2017 draft EIS. These details come through the development of the three draft follow-up monitoring plans for effluent, environment and groundwater. What changes have been made (and where)? No changes have been made to the EIS in response to this concern.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring and engagement to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.
	(c) Overall process and incorporating MNO comments It is important to the MNO that their comments are considered and incorporated into EA documents, including the draft follow-up monitoring plans. This is a project-specific concern.	Follow-up monitoring for the NPD Closure Project will include monitoring of environmental components critical to the MNO. CNL has committed to involving Indigenous Nations, communities and organizations in its environmental monitoring programs and to hosting workshops in spring 2022 to gather more feedback on the draft follow-up monitoring plans. CNL met with the MNO in November 2020 to provide an overview presentation on the draft follow-up monitoring plans for the NPD Closure project with focus on monitoring aspects that were raised through MNO's comments on the draft EIS. CNL has responded in writing to MNO comments on this topic and met with the MNO in February 2021 to further discuss MNO's involvement in long-term monitoring. CNL Response: CNL has been working with the MNO to share more detailed information on follow-up monitoring through the provision of three draft follow-up monitoring plans. The MNO has provided feedback on the three drafts and CNL is looking at how to best incorporate this feedback. The monitoring plans were prepared as drafts to reflect the fact that CNL is seeking input on the plans, including through engagement with the MNO. There is an opportunity to update these plans with additional feedback from the MNO and others. Additional groundwater characterization and site data have been undertaken and added to the EIS.	Where is this topic discussed in the EIS? CNL has indicated that it is willing to involve the MNO in its monitoring programs (**Section 6.2.4.4.3**). The follow up monitoring program is described at a high level in **Section 12** of the EIS with significant details developed compared to the 2017 draft EIS. These details come through the development of the 3 draft follow-up monitoring plans for effluent, environment and groundwater. What changes have been made (and where)? The EIS was updated to include an expanded description of traditional uses, and harvesting rights related to Traditional Land Use.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring and engagement to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.

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11. Monitoring	(d) Specific technical comments on Follow-up monitoring Plans It is important to the MNO that the monitoring plans reflect their input on monitoring details (e.g., frequency, location, parameters) This is a project-specific concern.	CNL met with the MNO in November 2020 to provide an overview presentation on the draft follow-up monitoring plans for the NPD Closure project with focus on monitoring aspects that were raised through MNO's comments on the draft EIS. CNL has responded in writing to MNO comments on this topic and met with the MNO in February 2021 to further discuss MNO's involvement in long-term monitoring. CNL Response: CNL has been working with the MNO to share more detailed information on follow-up monitoring through the provision of three draft follow-up monitoring plans. The MNO has provided feedback on the three drafts and CNL is looking at how to best incorporate this feedback. In the absence of CCME standards for groundwater, the groundwater monitoring plan uses Health Canada and MECP standards. Tritium is used as an indicator contaminant of concern due to its mobility in groundwater, which means that tritium would be the first contaminant seen flowing out of the facility. However, other parameters, gross beta and gross alpha, will also be measured. Groundwater near the landfills has been assessed through comprehensive campaigns in 2014 and 2017 and no groundwater impacts were noted related to the landfills. CNL has also conducted additional baseline surveys of sediment quality and benthic macroinvertebrates.	Where is this topic discussed in the EIS? The follow up monitoring program is described at a high level in **Section 12** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this concern.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring and engagement to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.
12. Socio-Economics	(a) Consideration of Métis use and enjoyment of the land This is important to the MNO because use and enjoyment of the land are values that may be affected by the project and should be considered in the assessment. This is a project-specific concern.	CNL has responded in writing to MNO comments on this topic citing relevant sections of the EIS in the response. CNL has added a new Indigenous socio-economic environmental component and VCs, in order to address these concerns. CNL Response CNL agrees that use and enjoyment of the land is an important consideration. Therefore, CNL has added a new Indigenous socio-economic component to the EIS. Use and enjoyment of the land is one of the VCs for this component, alongside several other socio-economic VCs specific to Indigenous Nations, communities and organizations including the MNO. The EIS does not predict any adverse residual effects on the Indigenous socioeconomic VCs.	Where is this topic discussed in the EIS? Indigenous socio-economic VCs are presented in **Section 5.2.4** of the EIS, and baseline is presented in **Section 8.10.1** of the EIS. The assessment of effects to Indigenous socio-economic VCs is discussed in **Section 9.10.1** of the EIS. What changes have been made (and where)? In response to this and other comments, CNL introduced a new Indigenous Socio-Economic component and VCs in **Section 5.2.4** of the EIS. This is discussed further in **Section 6.3** of the EIS.	Status: Resolved. CNL believes that these concerns are addressed through additional VCs and revisions to the EIS.
12. Socio-Economics	(b) Socio-economic mitigation measures and follow-up monitoring This is a concern for the MNO because it is not clear how effects related to the socio-economic environment can be mitigated and/or verified through activities in other environmental compartments. This is a project-specific concern.	CNL has responded in writing to MNO comments on this topic citing relevant sections of the EIS in the response. The MNO and CNL have signed an MOU and are working towards establishing a LTRA. Within this framework, CNL will seek to work together with the MNO regarding their feedback on alternate mitigation measures, and MNO participation in monitoring activities. CNL Response The reason why the EIS identifies no mitigation measures for land use is because a decision hasn't yet been made on the future land use designation of the unaffected areas of the NPD site. The NPD property belongs to AECL, a federal Crown corporation. Once CNL completes the decommissioning of the NPDWF, AECL will look at the future of the lands and consider input from Indigenous Peoples (as described in **Section 4.3.1.9** of the EIS). In the meantime, CNL is willing to discuss this topic with the MNO to better understand the indirect socio-economic effects from land use. As discussed at the 2019 October 23 meeting with the MNO Consultation Committee, CNL is also preparing a document which elaborates on CNL's plan for site restoration after	Where is this topic discussed in the EIS? **Section 9.10.1.3.2** of the EIS describes the proposed mitigation measures for the Indigenous Socio-Economic environment. The EIS does not predict any adverse residual effects on the Indigenous socioeconomic environment. **Section 9.10.1.5** of the EIS discusses follow-up and monitoring for this component. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolved. CNL considers that this concern will be addressed through an appropriate commitment to develop an Indigenous procurement policy and support MNO involvement in environmental monitoring to be established as part of the LTRA.

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		decommissioning is complete. When the document is complete, CNL will share it with the MNO in order to seek feedback on site restoration plans. With respect to follow-up monitoring for effects to the socio-economic environment: CNL's approach involves verifying effects in the socio-economic environment through other environmental components: The negative impacts are primarily nuisance effects (dust, noise) on use and enjoyment of private property, occurring during the Decommissioning Execution phase. Ensuring that the environmental impact from dust and noise is minimized through air quality monitoring is a way to minimize these negative impacts. Potentially positive economic and employment benefits to MNO citizens have also been identified. Some discussions have occurred on the types of economic opportunities associated with the NPD Closure Project (e.g., MNO participation in environmental monitoring). CNL is committed to further discussions on this topic with the MNO, including how to verify potential positive effects, perhaps through tracking of participation of MNO citizens in environmental monitoring.		
13. Technical	(a) Local Study Area does not vary between environmental components This is important to the MNO because they want to ensure that potential effects on the different types of VCs have been thoroughly considered and assessed. This is a project-specific concern.	CNL has responded in writing to MNO comments on this topic citing relevant sections of the EIS in the response. CNL Response: Early in the assessment process, the Local Study Area was chosen to be the NPD property as a convenient estimate of this area, with the intention of increasing the boundary if required, based on the results of the assessment. In **Section 9** of the EIS, the assessment confirmed that there are no measurable effects for any environmental component beyond the Local Study Area.	Where is this topic discussed in the EIS? **Section 5.2.1** of the EIS explains the general selection of study areas. The study areas selected for each environmental compartment are presented in **Section 8** of the EIS (e.g., **8.2.1** for Atmospheric Environment, **8.3.1** for Surface Water Environment, etc.). Study areas for Traditional Land and Resource Use are presented in **Section 8.9** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.
	(b) Concern about whether the Institutional Control Period is long enough This is important to the MNO because they would like assurance that the end state of the NPD site will be acceptable for safely engaging in unrestricted land use. This is a project-specific concern.	CNL has responded in writing to MNO comments on this topic citing relevant sections of the EIS in the response. CNL Response: CNL understands MNO's concern about the length of the Institutional Control period being insufficient. CNL is proposing a minimum of a 100-year Institutional Control period; however, this time period could be extended much longer and will be based on regulatory approval and public and Indigenous engagement at that time. The PostSA TSD demonstrates that beyond the Institutional Controls period, under all scenarios, the impact on the public, Indigenous and the environment is negligible.	Where is this topic discussed in the EIS? The phases of the project are introduced in **Section 3.2** of the EIS. Temporal Boundaries are discussed in **Section 5.2.1.2.** CNL's plans for the Institutional Controls phase are also discussed throughout the EIS, e.g., in **Section 4.1 (Project Description), Section 9 (Effects Assessment) and Section 12 (Follow-up Program).** What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.

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13. Technical	(c) Benefits to Indigenous peoples The MNO is interested in reviewing changes to the project, which is also a requirement under the CNSC's Generic EIS Guidelines. This is a project-specific interest.	The MNO and CNL have signed an MOU. Together the two organizations have agreed to a mutually beneficial, ongoing working relationship and to provide a process to which CNL can engage with the MNO at the local and regional levels in order to better understand any Métis Rights and Interests that may be impacted in the general and surrounding areas around the projects. CNL Response CNL has revised the EIS to incorporate MNO feedback shared through the context of the MOU and includes a summary of how public and Indigenous feedback has impacted decisions made on the project.	Where is this topic discussed in the EIS? **Section 6.3.1 of the EIS** summarizes changes that have been made to the project based on feedback from the public and Indigenous Peoples. What changes have been made (and where)? **CNL added discussion to Section 6.3.1** of the EIS, summarizing changes that have been made to the project based on feedback from Indigenous Peoples. CNL added and evaluated new Indigenous health and traditional land and resource use VCs (**Sections 6.3 and 9.9** of the EIS).	Status: Resolved. CNL considers that this concern will be addressed through an appropriate commitment to develop an Indigenous procurement policy as part of the LTRA.
14. Traditional Land and Resource Use and Cultural Impacts	(a) Métis traditional knowledge and Métis specific information should be collected and incorporated into the EIS. It is important to the MNO that community-specific knowledge be obtained and used, to properly characterize current conditions and develop scenarios that accurately represent potential future uses of the site. This is a project specific concern.	CNL sent two letters asking specific questions of MNO to align with the requirements of *CEAA* (2012) Section 5(1)(c). These questions included: • Do you have any members that currently practice traditional activities such as trapping, hunting, fishing and/or gathering, near the two projects? • Does [the MNO], or any members, have sites of ceremonial significance in close proximity [of NPD], or more generally, any cultural activities near [the NPD site]? CNL contributed funds for the MNO to undertake a TKLUS, which was completed in February 2019. CNL has incorporated findings from the MNO TKLUS into the EIS and shared the revised sections of the EIS with the MNO for feedback on the incorporation of TKLUS results. CNL has responded in writing to MNO comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL is looking forward to continuing to work with the MNO to ensure that information on the Métis way-of-life is incorporated into the project. CNL Response: CNL agrees that Métis-specific information and traditional knowledge from the MNO and other Indigenous Nations, communities and organizations should be integrated into the EIS. Since receiving this feedback, CNL has contributed funding to the preparation of a TKLUS from the MNO and has integrated the findings and concerns into the EIS. The EIS and supporting studies have assumed that traditional uses do occur adjacent to the NPD site, whether on the Ottawa River or outside the restricted/fenced area. CNL has also assumed that in the future there is an interest to re-establish traditional use activities on the NPD site. CNL has incorporated important Métis-specific information into the EIS, from sources such as the MNO Traditional Knowledge and Land Use (TKLUS) study as well as findings from the Valued Components (VC) workshop. Examples are as follows: • Species of important traditional value to the Métis have informed the Valued Components selected for the project. Based on MNO feedback, moose and berries were added as VCs in the EIS. • Fish species identified in the MNO TKLUS (walleye, bass, trout) were assessed in the EcoRA TSD, which concludes that there is a negligible impact to fish from the NPD	Where is this topic discussed in the EIS? **Section 8.9** of the EIS presents information about traditional land and resource use, including specific information about the MNO (**Section 8.9.2.2.4**). The assessment of effects to traditional land and resource use VCs is discussed in **Section 9.9** of the EIS. What changes have been made (and where)? CNL added information from the MNO TKLUS to **Section 8.9.3** of the EIS, including Métis harvesting regions. The potential impacts of the project on traditional land and resource use (including perceptive and other intangible effects) are discussed in **Section 9.9** of the EIS. CNL added content from the MNO TKLUS report to the EIS **(Sections 6.3 and 8.9).** The EIS update includes additional detail on the VC-related engagement process and how Indigenous interests have been incorporated into the VCs selected for the NPD Closure Project.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring and engagement to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.

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		Closure Project. Fishing in the Ottawa River is assessed in the EIS as a traditional land and resource use VC. • With respect to plant species of importance: CNL reviewed the MNO TKLUS and noted the following plant species of value: wintergreen, blueberries, raspberries, chaga, choke cherries, fiddleheads, and trees suitable for the traditional Métis craft of canoe building (cedar, oak, ash and yellow birch).Of these species, blueberries, raspberries, maple trees, eastern white cedar, white ash and (white) birch are noted as observed on the NPD property in Appendix B of the Ecological Land Classification (ELC) TSD. The EIS has been updated to include these species of interest of the MNO. CNL is always open to providing a tour of the site to MNO citizens if there is interest in plant species in the forested areas of the NPD site.		
14. Traditional Land and Resource Use and Cultural Impacts	(b) Spatial boundaries for Indigenous land and resource use It is important to the MNO that the determination of study areas takes into account the actual use of the land by Metis citizens for traditional purposes. This is a project-specific interest.	CNL has responded in writing to the MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL Response For the assessment of effects on traditional land and resource use, CNL selected a Local Study Area that extends beyond NPD property boundaries, including Crown land in Ontario and Quebec, and the Ottawa River. If any effects were to be experienced, they would occur in the selected Local Study Area. If required, based on the results of the assessment, the boundaries of the Local Study Area could be extended. In **Section 9** of the EIS, the assessment confirmed that there are no measurable effects for any environmental component beyond the Local Study Area. Enlarging the Local Study Area would not change these findings. Similarly, the Regional Study Area boundaries were chosen to include the expected area of possible effects. The assessment, which was conducted per *CEAA* (2012) requirements, found that no measurable effects on traditional land use VCs in the Regional Study Area are expected from the project. The Local Study Area covers possible Métis harvest area on the Ottawa River and the Regional Study Area includes some crown land in which some Métis harvesters might practice traditional activities.	Where is this topic discussed in the EIS? **Section 5.2.1** of the EIS explains the general selection of study areas. The study areas selected for each environmental compartment are presented in **Section 8** of the EIS (e.g., **8.2.1** for Atmospheric Environment, **8.3.1** for Surface Water Environment, etc.). Study areas for Traditional Land and Resource Use are presented in **Section 8.9** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring and engagement to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.
	(c) Impacts on Indigenous traditional activities: biophysical effects on species of importance as well as perceptive and intangible effects on Métis way of life The MNO would like to ensure that all potential effects of concern have been considered and addressed. This is a project-specific concern.	CNL has sent two targeted letters asking specific questions of MNO to align with the requirements of *CEAA* (2012) Section 5(1)(c). CNL has responded in writing to MNO comments on impacts on Indigenous traditional activities citing relevant section of the EIS as part of the comment response. CNL is continuing its efforts to address these concerns by involving the Indigenous Nations, communities and organizations, including MNO, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near CNL operated sites and build confidence that the decommissioning strategy and mitigation measures are effective CNL incorporated information from the MNO TKLUS study into the EIS and has revised the EIS to include new Indigenous Socioeconomic & Health components, each with distinct VCs of interest to the MNO. CNL is willing to review the project-interactions matrix with the MNO to ensure all interactions are correctly identified and that the matrix properly captures qualitative aspects such as Métis perceptions and way-of-life. For example, CNL is willing to learn more about Métis harvesters' rights, perceptions and concerns about access to hunting species such as white-tailed deer.	Where is this topic discussed in the EIS? The EIS discusses Métis rights and interests and negative perceptions of the project as key concerns from the MNO, in **Section 6.2.4.4** and in **Section 9.9** within the EIS. The EIS discusses concerns about potential loss of connection to land and water (e.g., feeling of discomfort or concern), and loss of land and water use in **Section 9.9.5** within the EIS. **Section 8.9** of the EIS presents information about traditional land and resource use, including specific information about the MNO (**Section 8.9.2.2.4)**. **Section 9.9** of the EIS assesses risk to traditional land and resource use VCs. **Section 9.1.1.1** of the EIS presents the future exposure scenarios and groups that are considered in the PostSA TSD.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring and engagement to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.

Topic	MNO Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		The EIS and supporting studies have assumed that traditional uses do occur adjacent to the NPD site, whether on the Ottawa River or outside the restricted/fenced area. CNL has also assumed that in the future there is an interest to re-establish traditional use activities on the NPD site CNL has assessed the potential effects of the project on several VCs, including those of importance to the MNO. With respect to potential impacts on species of importance and perceptions of Métis way-of-life, CNL is eager to learn more and discuss how these effects may be minimized. The Ecological Risk Assessment Technical Support Document (EcoRA TSD) also assessed species of value identified by the MNO. For example, fish species identified in the MNO TKLUS (walleye, bass, trout) were assessed in the EcoRA TSD, which concludes that there is a negligible impact to fish from the NPD Closure Project. Similarly, the EcoRA TSD was updated to include terrestrial species of value identified by the MNO (e.g., moose, goose, partridge, turkey, berries). The MNO and CNL have signed a Memorandum of Understanding (MOU). Together the two organizations have agreed to a mutually beneficial, ongoing working relationship and to provide a process to which CNL can engage with the MNO at the local and regional levels in order to better understand any Métis Rights and Interests that may be impacted in the general and surrounding areas around the projects. CNL is looking forward to continuing to work with the MNO to ensure any effects on the Métis way-of-life are incorporated into the applicable project phase. CNL is also committed to ongoing communications and involving the MNO in environmental monitoring which may help improve perceptions of the NPD site and NPD Closure Project. CNL Response: CNL acknowledges MNO's concerns about potential impacts on the rights of the MNO and other Indigenous Nations, communities and organizations to practice traditional activities around the NPD site. CNL has assessed potential effects related to dust and noise nuisance, loss of connection, safety of harvesting and consuming local foods, and changes to access and identified no significant adverse effects. To instill confidence in the EIS findings and the effectiveness of the follow-up monitoring, CNL will involve the MNO and other Indigenous Nations, communities and organizations in the monitoring program, which aims to confirm the predictions of the EIS. The PostSA TSD addresses the potential for concerns about loss of connection to land and water, and about food safety. The PostSA and EIS (and other supporting studies) have demonstrated that, there are no concerns about the accessibility or safety of the NPD site in the long term based on several different future use scenarios, including self-sufficient Indigenous receptors. The EIS concludes that no adverse residual effects on Indigenous health, socio-economics, and land and resource use will occur as a result of the NPD Closure Project. The proposed activities will result in an enhancement of current conditions at the NPD site and will improve the ability to practice traditional activities in the area surrounding the NPD site. These findings, which will be confirmed by monitoring, may reduce concerns about loss of connection to land and water, and about food safety.	What changes have been made (and where)? Findings from the MNO TKLUS study and more recent engagement activities have been incorporated into **Sections 5, 6, 8 and 9** of the EIS as follows: In **Section 5** of the EIS, CNL added new Indigenous Health and Socio-economic components and VCs and assessed project interactions. **Table 6.3-3** was added to the EIS, summarizing VCs identified as important in the MNO TKLUS, and how they have been represented in the EIS. CNL expanded the description of traditional uses in **Section 8.9** of the EIS based on information from the MNO TKLUS. CNL evaluated the new Indigenous health and socio-economic VCs and the traditional land and resource use VCs in **Section 9.9 and 9.10** of the EIS.	

Topic	MNO Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
14. Traditional Land and Resource Use and Cultural Impacts	(d) Separate assessment of the effects to Métis rights and interests. It is important to the MNO that the EIS consider the potential effects of the project on Métis rights and interests, as they differ from those of other Indigenous Nations, communities and organizations . This is a project-specific concern.	CNL has responded in writing to the MNO comments on the EIS, describing how Métis-specific information has been collected (e.g., the MNO TKLUS and VC Workshop) and incorporated into the EIS. CNL Response CNL acknowledges that the citizens of the Métis Nation have distinctive cultural perceptions, ways of life and activities. CNL notes that the practice of Indigenous assessments under *CEAA* (2012) is to not assess individual Indigenous Nations, communities and organizations separately. However, CNL has updated the EIS to incorporate the information obtained from the MNO TKLUS and meetings with the MNO (including information about Métis traditional land use and perceptions) and to address VCs identified by the MNO.	Where is this topic discussed in the EIS? **Section 6.2.4.4** of the EIS discusses the Métis-specific information obtained from the MNO as part of engagement activities. **Section 8.9** of the EIS presents a description of traditional land and resource uses, including information incorporated from the MNO TKLUS. **Table 6.3-3** was added to the EIS, summarizing VCs identified as important in the MNO TKLUS, and how they have been represented in the EIS. The potential impacts to these VCs are assessed in **Section 9** of the EIS, including: **Sections 9.4 and 9.6** for wildlife VCs, **Section 9.9** for Indigenous health and socio-economic VCs and **Section 9.10** for the traditional land and resource use VCs. What changes have been made (and where)? Findings from the MNO TKLUS study and more recent engagement activities have been incorporated into **Sections 5, 6, 8 and 9** of the EIS as follows: In **Section 5** of the EIS, CNL added new Indigenous Health and Socio-economic components and VCs and assessed project interactions. **Table 6.3-3** was added to the EIS, summarizing VCs identified as important in the MNO TKLUS, and how they have been represented in the EIS. CNL expanded the description of traditional uses in **Section 8.9** of the EIS based on information from the MNO TKLUS. CNL evaluated the new Indigenous health and socio-economic VCs and the traditional land and resource use VCs in **Section 9.9 and 9.10** of the EIS.	Status: Resolved. CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for monitoring and engagement to be established as part of the LTRA. Continued engagement between CNL and the MNO may result in additional mitigation measures or commitments that support MNO involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.
15. Valued Components	(a) Inclusion of VCs identified by MNO This is of interest to the MNO because these species and features are of particular importance to the MNO. The VCs selected need to consider Metis rights and interests in the assessment and the potential for interaction with the project activities. This is a project-specific concern.	With funding support from the CNSC and CNL, the MNO completed a Traditional Knowledge and Land Use (TKLUS) study, which was shared with CNL in February 2019. Findings from the MNO TKLUS study have been incorporated into the EIS. CNL and the CNSC provided capacity funding to the MNO to conduct a Valued Components (VC) workshop which was also submitted to CNL in 2019. Findings from the VCs study have been incorporated into the EIS. In April 2019, CNL met with MNO Councilors and staff for a NPD Closure Project update, including a presentation on proposed NPD VCs. The VCs presentation included definition and identification, types of VCs, approach and selection of NPD VCs and the MNO VCs addressed in the NPD EIS. All questions were addressed verbally at the meeting. This	Where is this topic discussed in the EIS? **Section 6.3** of the EIS captures VCs identified by Indigenous Nations, communities and organizations, including mapping of Indigenous VCs to the effects assessment. **Table 6.3-1(c)** shows the new VCs added to the assessment and **Table 6.3-3** of the EIS highlights how VCs identified by MNO are represented by the species that are evaluated in the NPD EIS. The EIS includes an expanded description of traditional uses in **Section 8.9**.	Status: Resolved The MNO indicated in a meeting in August 2021 that they had no further comments on this topic.

Topic	MNO Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		meeting also included a review and discussion of the draft dispositions to MNO VCs workshop comments. CNL also held a community information session in North Bay for MNO citizens. MNO citizens were able to discuss and share feedback on VC, TKLUS, and the NPD Closure Project in general with CNL representatives. CNL has also responded in writing to all MNO's comments on this topic, citing relevant sections of the EIS as part of the comment responses. In August 2021, the MNO indicated that they had no further comments on this topic. <u>CNL Response:</u> CNL agrees that VC selection should consider Metis rights and interests. CNL has contributed funding to the preparation of a MNO TKLUS and a targeted VC workshop and has integrated findings and into the EIS. CNL initially created a Master List of Candidate Valued Components by reviewing relevant reference documents and applying EA process and site knowledge. These candidate VCs include biota such as fish or birds, as well as abiotic qualities such as cultural and heritage sites, or socio-economic entities such as fishing. CNL provides rationale for including or not including species as a VC. The VCs selected for the NPD Closure Project reflect a wide range of Indigenous interests. Many of the interests and concerns raised by Indigenous Nations, communities and organizations, correspond directly or indirectly to the VCs selected for the project. Based on Indigenous group feedback received during engagement activities, CNL has added several human and non-human VCs that were identified as being of importance to Indigenous Nations, communities and organizations. Berries, mushrooms, mink, river otter, weasel, red fox, moose and monarch butterflies were added as VCs, as well as soil quality, groundwater quality, groundwater flow and several Indigenous socio-economic and Indigenous health VCs. In some cases, no new VCs were added, because direct, representative or related VCs that encompass the value or interest of the Indigenous Nation, community or organization were already included in the assessment. CNL includes a detailed table (**Table 6.3-1 (c)**) that shows how the interests and concerns and specific species VCs identified by the MNO are considered and captured by CNL's assessment.	**Section 9.6.3.2** describes the mitigation, monitoring and follow up activities for the Terrestrial Environment VCs. **Section 9.9** describes the VCs related to Traditional Land Use, including the rationale, the mitigation, monitoring and follow-up activities related to the Traditional Land Use VCs. The EIS does not predict any adverse residual effects to traditional land and resource use (**Section 9.9.3.3**). The EIS does not predict any residual effects for the terrestrial environment (**Section 9.6.3.3**). <u>What changes have been made (and where)?</u> CNL has developed a detailed table for **Section 6.3** of the EIS that captures VCs of Indigenous Nations, communities and organizations and demonstrates how they are either directly or indirectly assessed in the EIS and shared this with MNO for comment on November 4, 2021. With respect to the VCs indicated by the MNO, some were added to the EIS, and others were represented by species that CNL was already evaluating as VCs. The EIS also includes an expanded description of existing traditional uses.	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Appendix C.4 – Record of Engagement and Tables of Interests and Concerns for the Algonquin Anishinabeg Nation Tribal Council (AANTC)

This appendix provides a complete record of all engagement between CNL and AANTC from June 2016 to March 2024 (Table C-10). Table C-10 includes the date and method of the communication/engagement, the topics discussed and participants. The table also highlights engagements where key EA topics were discussed. The key EA topics align with "Generic Guidelines for Preparation of an Environmental Impact Statement Pursuant to the *Canadian Environmental Assessment Act*, 2012" as well as the requirements of REGDOC 3.2.2 "Indigenous Engagement" and guidance specific to NPD provided by the CNSC in January 2021 (e-doc # 6467843).

Following the record of engagement is a mapping of how the summary of interests and concerns were compiled (Table C-11), as well as a summary of interests and concerns raised by AANTC (Table C-12).

Section 6.2.4.5.1 of the EIS summarizes the engagement activities that have taken place to date between CNL and the AANTC.

Table C-10 Record of Engagement with the Algonquin Anishinabeg Nation Tribal Council (AANTC)

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Director General of the AANTC introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5(1)(c), the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* • *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	√
November 10, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Director General of the AANTC inquired about asserted rights and traditional activities in the region around CRL. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested a better understanding of AANTC's historic and/or modern day use of lands in and/or near both of the projects and asked the following questions: • *Do members of the AANTC have traditional territory near the NSDF and/or NPD Closure Project?* • *What is the history of the AANTC using the areas around the two projects?* • *Do you have any members that currently live in close or reasonable proximity to either of the projects?* • *Do you have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects?* • *Does the AATNC have sites of cultural significance in close proximity to either of the two sites, or more generally, any cultural activities near either of the two sites?* CNL also indicated interested in learning more about the AANTC and any asserted rights, interests or activities members might undertake in the local or regional areas in proximity to the project.				√	√				√	

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 26, 2017 Meeting	This meeting occurred in Maniwaki, Quebec with representatives from the AANTC (including the Grand Chief and the Director General), CNL (including the Director of Corporate Communications and the Director of Environmental Protection), the CNSC (including the Participant Funding Program Administrator) and representatives from two member First Nations of the AANTC – KZA and KFN. CNL shared information in English and French and heard some interests and concerns from the AANTC. Information shared on the NPD Closure Project included: • Site location; • Project components; • Timeline; • Species at risk; • Proposed end state; • Safety barriers (how the environment will remain protected).			√	√					√	
November 15, 2017 Outgoing email	This email from a communications officer with CNL to the Director General of the AANTC enclosed links to the full draft EIS, an interactive “public-friendly” executive summary of the draft EIS, the CNSC’s public notice, a short overview of the project and environmental assessment, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	
November 17, 2017 Outgoing email	This email from a communications officer to the Director General of the AANTC enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: *“CNL would be pleased to update information in this current draft with input from your community.”*	√	√	√	√	√	√	√	√	√	
December 14, 2017 Incoming email	This email from the AANTC’s consultant to CNL’s Director of Corporate Communications requested a tour of the NPD site and more information on the existing groundwater and surface water conditions at the site, as well as annual compliance and monitoring information. This was one of the first indications of the AANTC’s interest in monitoring.	√								√	
December 19, 2017 Outgoing email	This email from a communications officer with CNL to the AANTC’s Director General and the AANTC consultant sharing the requested information (the two most recent ACMRs and the Updated Groundwater Modeling Report), as well as all the technical support documents to the draft EIS.	√	√		√		√	√		√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
January 11, 2018 Meeting	This meeting between six representatives of CNL on the NPD Closure Project (including the Decommissioning Manager, a hydrogeological subject matter expert and a communications officer) and the Director General of the AATNC and the AANTC consultant included a site visit at NPD. Discussions and presentations covered the following topics: • An overview of the project; • Current hydrology and surface water conditions; • Groundwater modelling; • Postclosure Safety Assessment. The AANTC's consultant also brought forward a number of information requests and questions at this meeting, related to the following: • Derived Release Limits for the NPD site; • Monitoring locations and groundwater flow on a map; • Surface water generated from precipitation; • Hydrogeological characterization of the site; • Tritium; • Licensing information; • Interim end state; • Former decommissioning plans.	√	√	√	√		√	√	√	√	
January 22, 2018 Outgoing email	This email from a communications officer with CNL to the AANTC consultant was in follow-up to the meeting at the beginning of January. CNL shared 17 documents and written responses to the questions the AANTC consultant had brought forward on January 11, 2018.	√			√					√	
February 13, 2018 Letter to the CNSC	This letter was addressed to the CNSC from the Grand Chief of the AANTC and copying the Director of Corporate Communications. The letter enclosed the AANTC's comments on the Project Description, which outlined the AANTC's interests in the following: • Alternatives; • Baseline Characterization; • Monitoring; • Technical; • EA Process and Methodology; • EIS – Language.		√		√					√	
February 15, 2018 Incoming letter	This letter from the Grand Chief of the AANTC to the CEO of CNL requested that CNL cease liquid effluent releases from the NPD site.									√	
March 08, 2018 Outgoing letter	This letter from the CEO of CNL to the Grand Chief of the AANTC provided context on the releases from the NPD site and shared information on how the releases fall within safe regulatory limits.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 09, 2018 Outgoing email	This email from CNL staff to the AANTC Director General and their consultant provided an additional annual monitoring report (2017 ACMR), which had been requested by the AANTC.	√								√	
December 05, 2019 Outgoing email	This email from a communications officer with CNL to the AANTC's consultant was in follow-up to the AANTC's previously identified areas of interest by sharing seven documents related to the following; • Surveillance during the institutional control period; • Geocharacterization; • Draft follow-up monitoring plans.	√					√		√	√	
In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
March 23, 2020 Incoming email	This email from the AANTC consultant to CNL's Director of Corporate Communications inquired about the updated timeline for the project.			√							
March 25, 2020 Outgoing email	This email from CNL's Director of Corporate Communications to the AANTC's consultant was in response to the previous email and provided updates on the project timeline for the NPD Closure Project, the EA process and regulatory timelines. The letter also indicated interest in meeting.									√	√
May 06, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the AANTC Director General enclosed a preliminary version of the 2020 EIS and an updated IER and indicated an interest in meeting with the AANTC to discuss the previously shared documents in December 2019, as well as the AANTC's comments on the 2017 draft EIS. This letter also asked for feedback in the following seven areas: • *Do any AANTC communities have additional information that they would like to provide in the context of traditional territory near the NPD site? (Based on the above noted value placed on the Ottawa River, CNL would be interested to learn of community practices near the NPD project as they pertain to traditional use and modern day harvesting).* • *Do the AANTC communities have any members who currently live close or in reasonable proximity to the NPD site?* • *Do any AANTC communities have historical and/or current traditional practices near the NPD site, specifically we are interested in AANTC communities' traditional uses such as trapping (traditional or commercial), hunting, fishing (traditional or commercial), gathering and practicing cultural ceremonies? (Recognizing the Ottawa River as a component on which the AANTC places a high value, CNL is interested in knowing if the AANTC can describe any member use in close proximity to the NPD site).* • *Do any AANTC communities have sites of ceremonial significance in close proximity or more generally any cultural activities near the NPD site?* • *Tell us about any important resources, uses, activities, values and interests to AANTC communities near the NPD site.* • *If there is use in close proximity to the NPD site, is current AANTC community use different than historic use and can a description of those difference be provided?* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights.*	√	√		√	√	√	√	√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 14, 2020 Incoming letter	This letter from Kebaowek First Nation Chief and the AANTC Grand Chief was addressed to Prime Minister Trudeau outlining concerns with inconsistencies in the EA processes which included the NPD Closure Project. CNL's Director of Corporate Communications was copied on the letter.					√					
May 26, 2020 Outgoing email	This email from a communications officer with CNL to the Director General of the AANTC indicated interest in pursuing a contribution agreement with the AANTC to support their participation in the environmental assessment process for the NPD Closure Project.										√
May 28, 2020 Incoming email	This email from the Director General of the AANTC to CNL staff indicated that the AANTC were interested in being involved in the EA process and would be interested in support for continued participation.									√	
June 12, 2020 Incoming email	This email from the AANTC consultant to CNL staff requested a hard copy of 2020 draft EIS to support their review on behalf of the AANTC.									√	
June 17, 2020 Virtual meeting	This meeting between eight CNL representatives (including the Director of the NPD Closure Project, the Manager of Regulatory Approvals and the Manager of Stakeholder Relations) and five representatives of the AANTC (including the Grand Chief, the Director General, a policy consultant with KFN, an economic development officer and a consultation coordinator with the AANTC) was not considered engagement or consultation by the AANTC. It focused on how CNL could support AANTC participation in the environmental assessment process through a contribution agreement or other formal mechanism.									√	
June 24, 2020 Outgoing email	This email from a communications officer with CNL to the AANTC Director General was to follow-up on items from the virtual meeting in June.										√
July 16, 2020 Outgoing email	This email from a communications officer with CNL to the AANTC Director General shared an overview presentation on the NPD Closure Project and inquired on a follow-up meeting with respect to the contribution agreement discussions.										√
July 25, 2020 Incoming email	This email from the AANTC consultant to a communications officer with CNL was to confirm that they were beginning review of the 2020 draft EIS.										√
July 29, 2020 Incoming email	This email from the AANTC consultant to a communications officer with CNL was to request a number of supplementary documents in hard copy to assist in their review of the 2020 draft EIS.			√	√					√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 29, 2020 Outgoing emails	These two emails from a communications officer with CNL to the AANTC's consultant were to confirm that the following documents would be mailed out: • Groundwater Modelling TSD, REV 0; • Geosynthesis TSD, REV 1; • Environmental Site Assessment Report; • 2020 Resaturation Modelling Report; • Draft Effluent Follow-Up Monitoring Plan; • Draft Environmental Follow-Up Monitoring Plan; • Draft Groundwater Follow-Up Monitoring Plan.	√					√		√	√	
August 14, 2020 Outgoing email	This email from CNL staff to the AANTC Director General inquired on a follow-up meeting with respect to the contribution agreement discussions.										√
August 26, 2020 Incoming letter	This letter from the AANTC and Kebaowek First Nation to the Minister of Natural Resources, copying CNL and the CNSC, indicated dissatisfaction with the regulatory process for a number of projects including the NPD Closure Project.					√					
August 31, 2020 Outgoing email	This email from a communications officer with CNL to the AANTC Director General inquired on a follow-up meeting with respect to the contribution agreement discussions.										√
September 01, 2020 Outgoing letter	This letter from CNL's Manager of ERM Stakeholder Relations to the AANTC Director General enclosed CNL's draft responses to the Algonquin of Anishinabeg Nation Tribal Council's (AANTC) comments on the 2017 draft EIS and inquired on a meeting with the AANTC.		√		√					√	
September 03, 2020 Incoming email	This email from the AANTC Director General to a communications officer with CNL stated that the AANTC was not interested in meeting until the letter to the Minister sent in August had been addressed.									√	
September 04, 2020 Incoming email	This email from the AANTC consultant to a communications officer with CNL was to confirm their receipt of the responses sent on September 01 and to confirm that these responses would be considered in their review of the 2020 draft EIS.										√
October 02, 2020 Outgoing email	This email from a communications officer with CNL to the AANTC Director General enclosed a French translation of CNL's draft response to the AANTC comments on the 2017 draft EIS.		√		√					√	
October 26, 2020 Incoming email	This email from the AANTC consultant to a communications officer with CNL responded to the CNL responses to AANTC comments sent on September 01, 2020 with a number of follow-up questions relating to effluent, waste water management and groundwater.		√		√					√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 28, 2020 Outgoing email	This email from a communications officer with CNL to the AANTC consultant responded to the AANTC consultant's questions from October 26, 2020.		√		√					√	
October 30, 2020 Incoming email	This email from the AANTC consultant a communications officer with CNL had a few further clarifying questions on waste water management.		√		√					√	
November 05, 2020 Outgoing email	This email from a communications officer with CNL to the AANTC consultant responded to the clarifying questions on waste water management.		√		√					√	
November 05, 2020 Incoming letter	This letter from the Minister of Natural Resources to the AANTC Grand Chief and Kebaowek First Nation Chief responded to the letter of August 2020. CNL's Director of Corporate Communications was copied.					√					
November 18, 2020 Incoming email	This email from the AANTC consultant to a communications officer with CNL was to inquire on further information related to waste water management.		√		√					√	
November 18, 2020 Outgoing email	This email from a communications officer with CNL to the AANTC consultant confirmed that CNL would provide more information and offered a virtual meeting to discuss the issue further.		√		√					√	
November 27, 2020 Outgoing email	This email from a communications officer with CNL to the AANTC consultant provided the requested information to address the question from November 18.		√		√					√	
January 11, 2021 Incoming letter	This letter from the AANTC's Grand Chief and Kebaowek FN Chief to the Minister of Natural Resources (copying CNL's Director of Corporate Communications) outlined concerns with the resolution of problems regarding supporting Indigenous participation for CNL and CRL-based projects. The letter requested a meeting to discuss issues in detail and arrive at mutually satisfactory conditions supporting Indigenous consultation and engagement.					√					
January 19, 2021 Outgoing email	This email from a communications officer with CNL to the Director General of the AANTC offered a meeting and further discussion on a contribution agreement.										√
April 12, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Director General of the AANTC enclosed a preliminary list of commitments and indicated interest in meeting to discuss.										√
April 22, 2021 Incoming letter	This letter from the Grand Chief of the AANTC and the Chief of KFN to CNL's Manager of Stakeholder Relations indicated that neither was in agreement with the list of commitments and indicated that engagement with the AANTC and KFN was essential.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 30, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Grand Chief of the AANTC and the Chief of KFN shared that the letter was not intended to provide a final set of commitments and CNL was interested in engaging with the AANTC and KFN to determine a mutually agreed upon set of commitments.									√	
May 06, 2021 Outgoing email	This email from a communications officer with CNL to a consultation coordinator with KFN (copying the Director General of the AANTC) followed up on the previous letter.										√
May 27, 2021 Outgoing email	This email to the consultation coordinator with the AANTC from a communications officer with CNL was to determine who the primary point of contact with the AANTC was.										√
June 21, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Director General of the AANTC enclosed a draft summary of the AANTC"s interests and concerns for the NPD Closure Project for the AANTC's review and verification.									√	√
July 5, 2021 Outgoing email	This email from a communications officer with CNL to the Director General of the AANTC was to follow-up on the June 21, 2021 letter.										√
July 13, 2021 Outgoing email	This email from a communications officer with CNL to a consultation coordinator with the AANTC was to follow-up on the June 21, 2021 letter.										√
July 14, 2021 Outgoing email	This email from a communications officer with CNL to the AANTC's general mailbox was to follow-up on the June 21, 2021 letter and to seek a point of contact.										√
August 12, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the KFN Chief and AANTC Grand Chief enclosed CNL's response to the July 15, 2021 letter from AANTC's Grand Chief and the KFN Chief. CNL's response included information on the role of CNL in the EA process, how CNL documents comments from the AANTC and KFN on the NSDF and NPD Closure Project, CNL's willingness to a draft letter of Intent and draft process Agreement for AATNC and KFN, information on a regional assessment, the opportunity to provide into follow-up monitoring, and CNL's response to the request to include the letter of July 15, 2021 in the IAA registry. This letter also indicated a need for any additional feedback on the Summary of Interests and Concerns to be brought forward by August 31, 2021 in order to be reflected in the NPD revised draft EIS.									√	√
October 21, 2021 Outgoing Email	This email from a CNL Senior Communications Officer to the AANTC consultation coordinator and the Director General sought confirmation that the AANTC's interests (attached in the email) on the NPD Closure Project were accurate and up to date. CNL informed AANTC of the new timeline for submission of the revised draft EIS and the need to receive any feedback on AANTC's summary of interests and concerns by November 15, 2021.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
March 08, 2022 Outgoing email	This email from a CNL Senior Communications Officer to AANTC consultation that the NPD Closure Project had to revise how they presented the summary table of interests and concerns and requested that the AANTC verify that the new table still reflects their interests and concerns. CNL requested that AANTC review the table within the next 2 weeks.										√
April 18, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the AANTC Consultation Coordinator was to extend an invitation to Industry Day on June 2, 2022.										√
May 06, 2022 Outgoing email	Email invitation to AANTC to the CNL Industry Day at the Chalk River Laboratories on June 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.										√
October 03, 2022 Outgoing letter	This letter addressed to the Director General of the AANTC from CNL's Director of Indigenous Relations provided a project update and the engagement status with the AANTC. CNL stated it is committed to incorporating the ANNTC's interests and concerns into the EIS. CNL provided an engagement status and next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that the ANNTC respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.									√	
October 03, 2022 Outgoing email	Email from a CNL Senior Communications Officer to the Director General of the AANTC attached the NPD Project's updated draft set of commitment for the ANNTC's review.									√	
October 26, 2022	Email from CNL Senior Communications Officer to the Director General of the AANTC following up on a letter sent from CNL's Director of Indigenous Relations about CNL's NPD Closure Project and if they would like to discuss further.									√	
November 23, 2022 Outgoing telephone call	Telephone call from a CNL Senior Communications Officer to the general inbox for the AANTC stating CNL was following up on October 3, 2022 letter for NPD Closure Project. CNL left a message.									√	
January 20, 2023 Outgoing email	This email from a CNL Senior Communications Officer to the AANTC (including, AANTC Consultation AANTC Director General) to inform of the decision to postpone the submission of the NPD Closure Project's draft EIS until 2023 May to allow for additional Indigenous input. CNL proposed the next step would be to discuss the ANTC's interest and desired involvement in the NPD project.										√
March 14, 2023 Outgoing email	This email from a CNL Senior Communications Officer to the AANTC (including, AANTC Consultation AANTC Director General) sharing CNL's Indigenous Relations Procurement Strategy.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
March 16, 2023 Outgoing email	This email from a CNL Communications Officer to AANTC Consultation is to confirm with AANTC that CNL accurately recorded the interests and concerns of AANTC related to the NPD Closure Project. CNL shared the current version of the AANTC Interests and Concerns Table (AANTC I&C) for AANTC verification. CNL also included a mapping table that indicates where/how the interest was received (AANTC Mapping). CNL requested AANTC verify its completeness and accuracy by 2023 June 20.									√	
June 01, 2023 Outgoing email	This email from a CNL Communications Officer to AANTC Consultation is to follow up on CNLs correspondence from 2023-05-16.									√	√
June 12, 2023 Outgoing email	This email from a CNL Communications Officer to AANTC Consultation is to request AANTC verification that CNL had accurately recorded the interests and concerns of your organization related to the NPD Closure Project. CNL welcomed feedback and offered to schedule a meeting to discuss.									√	√
July 05, 2023 Outgoing email	This email from a CNL Communications Officer to AANTC Consultation is to follow up on CNLs correspondence from 2023-05-16.									√	√
October 17, 2023 Outgoing Email	This email from CNL Manager of Communications and Engagement to AANTC FN is to provide an invite to the 2023 October 20 Career Fair being held In Pembroke.										√

AANTC - Mapping of Key Interests and Concerns

Table C-11 presents a mapping of how the key interests and concerns relate to detailed feedback and input from the AANTC, up to March 2024.

Table C-11 has 3 columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, why it is important to the Indigenous Nation, community or organization, and connects it to a project aspect or an Aboriginal or treaty right wherever possible. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 presents details of the key interest or concern that the Indigenous Nation, community or organization has identified formally in writing and/or verbally to CNL.

Table C-11 Mapping of AANTC Key Interests and Concerns

Topic	Key Interests and Concerns	Specific feedback provided by the AANTC on this interest/concern
1. Alternatives	(a) Concern that the alternative means assessment does not provide sufficient detail on each alternative, or assess all potential effects. It is important to the AANTC that they have enough information to be able to evaluate the alternatives in terms of potential impact to traditional land and resource use / AANTC rights. This is a project-specific concern.	In comments on the 2017 draft EIS, the AANTC expressed concern about the alternative means assessment (AMA). The AANTC indicated that the AMA needed to be expanded and rewritten to better present and articulate the relative advantages and disadvantages of each option.
2. Baseline Characterization	(a) Characterization of the bedrock groundwater flow system This is important to the AANTC because an understanding of current conditions and characteristics of the groundwater system surrounding the NPD facility is necessary in order to assess the potential impacts from the project to traditional land and resource use / AANTC rights. This is a project-specific concern.	In comments on the 2017 draft EIS, the AANTC raised concerns about the geological and hydrogeological characterization of the site. Specifically, the AANTC expressed that insufficient work has been done to characterize and understand the bedrock groundwater flow system.
3. Engagement	(a) Meaningful participation and consultation It is important to the AANTC that its members be engaged/consulted meaningfully, not just informed. This is both a project-specific concern and a concern for the Crown.	In 2021 correspondence, the AANTC and KFN expressed concern about meaningful Indigenous Participation and adequate Crown consultation in environmental assessments (EAs) for the NPD Closure Project and the NSDF Project.
	(b) Capacity for technical review of the EIS It is important to the AANTC that plans and agreements are in place with CNL, to support technical reviews and provide other opportunities for discussion to ensure that the AANTC's interests and values are taken into consideration with respect to the project.	The AANTC indicated an interest in financial support to participate in the EA process in 2020 May in response to CNL's offer of capacity.
4. EA Process and Methodology	(a) Relevant legislation It is important to the AANTC that the NPD Closure Project Environmental Assessment is carried out using up-to-date legislation (e.g., the *Impact Assessment Act*) as the new Act directly recognizes the need for reconciliation. This is not a project-specific interest.	In a May 2020 letter to the Prime Minister, the AANTC expressed concern about the continued use of *CEAA* (2012) for the NPD Closure Project rather than the new *Impact Assessment Act*.
	(b) Aggressive timelines for the project The AANTC want to understand the decision-making behind the NPD Closure Project timeframes as the AANTC believes there are potential impacts to traditional land and resource use and AANTC rights. This is a project specific concern.	In comments on the 2017 draft EIS, the AANTC raised a number of technical concerns, including general concern about the project timeline being too aggressive, given that the potential impacts are long term. With respect to the timeline of the project itself, the AANTC is particularly concerned with the 100-year Institutional Control period being arbitrary.
	(c) Availability of the EIS in both official languages. It is important to the AANTC that the EIS be available in English and in French, so that it is accessible to more community members for review to enable meaningful engagement. This is both a site-wide and project-specific concern.	In May 2017 the AANTC requested that the EIS be available in both official languages.

Topic	Key Interests and Concerns	Specific feedback provided by the AANTC on this interest/concern
5. Monitoring	(a) Timeline of the follow-up monitoring program It is important to the AANTC that CNL commit to monitoring the proposed disposal for as long as necessary to ensure the environment is protected, as the environment are of particular value to the AANTC. This is a project-specific concern.	In comments on the 2017 draft EIS, the AANTC raised concerns about the time frame of CNL's follow-up monitoring program: whether the duration is long enough and whether it will be updated over time. Specific comments include: • CNL should commit to monitoring "as long as required" (and at a minimum, for the desired period of at least 100 years), with no automatic termination at all. • CNL should prepare a "Check Point Report" outlining the results of a full final site investigation (including field studies and a future-risk analysis). This type of report should be required prior to any proposed termination of monitoring and Institutional Controls to confirm that it is safe to abandon the site. The "Check Point Report" should be submitted for regulatory consideration and circulated to the public and Aboriginal groups for review and comment beforehand. • CNL should commit to updating and improving the follow-up and monitoring program over time. A commitment from CNL to adaptively update the follow-up and monitoring program in concert with technological advances is essential, but is currently missing from the draft EIS.
	(b) Sharing monitoring program results with the public and Indigenous Nations, communities and organizations, and having them reviewed by independent researchers As long-term stewards and users of the land, it is important for the AANTC to be involved and informed of the monitoring program to confirm and build knowledge of any impacts to the environment. This is a project-specific concern	In comments on the 2017 draft EIS, the AANTC raised concerns about CNL sharing the results of the follow-up monitoring program. Specifically: • Rather than a commitment to provide results to the public and Indigenous Nations, communities and organizations, it states that this will be done "as required". • There is no actual commitment for CNL to have the results of the follow-up monitoring program reviewed by independent researchers – only that this "will also be assessed". • CNL should add a provision to the follow-up monitoring program to subject it to independent and proponent-funded review, make the full monitoring program results readily available to the public and Aboriginal communities, and as a result, ensure the programs remain relevant and up-to-date.
	(c) The proposed follow-up monitoring program for groundwater and surface water quality is missing details As long-term stewards and users of the land and waters, it is important to the AANTC that appropriate controls and plans are in place to protect the environment. This is a project-specific concern.	In comments on the 2017 draft EIS, the AANTC raised concerns about the lack of details provided in the EIS for CNL's proposed follow-up monitoring program for groundwater and surface water quality. The AANTC provided a list of components, including a map, parameter list, trigger levels and contingency plans) that should be included.
6. Protection of the Ottawa River	(a) Impacts on groundwater and surface water quality As stewards of lands and waters, it is important to the AANTC that the environment is protected and that potential impacts to traditional land and resource use / AANTC rights are examined. This is both a site-wide and project-specific concern.	In comments on the 2017 draft EIS, the AANTC raised several technical questions about the completeness of information on effluent discharges at the site, and plans for overall surface water management. Also in February 2018, CNL received a letter from the Grand Chief of the AANTC requesting that CNL cease liquid effluent releases from the NPD site. The AANTC raised concerns about the potential impacts of the project on water quality. Concerns included: • Releases from current NPD operations to the aquatic environment; • Liquid effluent releases from other CNL facilities along the Ottawa River, including CRL; • Potential merit of constructing a surface water management pond for site runoff during Decommissioning; • Inadequacy of the assessment of potential impacts on groundwater and surface water.

Topic	Key Interests and Concerns	Specific feedback provided by the AANTC on this interest/concern
7. Technical	(a) Concrete Cap and Engineered Barrier design details are missing. As long-term stewards and users of the land and waters, it is important to the AANTC that barriers are in place to protect the environment.	In comments on the 2017 draft EIS, the AANTC raised several technical questions about the concrete cap and engineered barrier. Specific details of interest included: • The proposed precise footprint, thickness, and other construction details for the reinforced concrete cap (designed to prevent intrusion into the concrete monolith). • The design longevity and permeability of the engineered barrier (designed to minimize infiltration into the concrete monolith). • Specific details on any inspection/monitoring program intended to verify that the engineered barrier is performing as intended, and specific details regarding what if anything would trigger replacement of the engineered barrier. • Detail(s) and thickness(es) of any material(s) which will separate the concrete cap from the overlying engineered barrier. • Details of the proposed grading below and above the engineered barrier.

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Algonquin Anishinabeg Nation Tribal Council (AANTC) – Summary of Interests and Concerns

Table C-12 below summarizes the key interests and concerns that the AANTC have raised on the NPD Closure Project, up to March 2024, through comments submitted on the 2017 draft EIS to the CNSC or through direct discussion and engagement between AANTC and CNL.

The full submission of AANTC comments on the 2017 draft EIS can also be found online: Comments on the 2017 draft EIS for NPD from Algonquin Anishinabeg Nation Tribal Council. These comments were summarized by CNSC and included as part of the CNL Table: Consolidated Public and Indigenous Groups' Comments on the Nuclear Power Demonstration Closure Project Draft EIS: IAA - NPD - Consolidated Public and Indigenous Comments (April 2018).

The AANTC includes two First Nations that CNL has communicated with on the NPD Closure Project: Kebaowek First Nation (see Section C.4.1) and Kitigan Zibi Anishinabeg First Nation (see Section C.4.2).

Table C-12 has five columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, why it is important to the Indigenous Nation, community or organization, and connects it to a project aspect or an Aboriginal or treaty right wherever possible. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 summarizes CNL's response or conclusions as well as CNL's efforts to address this key interest or concern
- Column 4 identifies where in the EIS the key interest or concern is addressed, and whether any changes were made to the EIS in response to the interest/concern. If these changes resulted in a different outcome in the EIS, this is also discussed;
  Column 5 summarizes the "Status" of the key interest or concern and the anticipated Next Steps towards achieving resolution of the key interest or concern. Not all concerns can be quickly or easily resolved, as some concerns go beyond the scope of the EA process, or there may divergent perspectives on certain interests or concerns. Note: this column does not, unless specifically confirmed by the Indigenous Nation, community or organization, mean that they have verified that the interest or concern has been dealt with to their satisfaction.

Table C-12 AANTC Key Interests and Concerns

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
1. Alternatives	(a) Concern that the alternative means assessment does not provide sufficient detail on each alternative, or assess all potential effects. It is important to the AANTC that they have enough information to be able to evaluate the alternatives in terms of potential impact to traditional land and resource use / AANTC rights**.** This is a project-specific concern.	In response to the AANTC request (and requests from other), CNL has added some quantitative assessments to the Alternative Means Assessment (AMA) technical support document (TSD); for example, the projected radiological dose and Industrial Safety risk to workers for each option were added. CNL also updated the alternatives considered to include an additional scenario where a new disposal facility, such as a geological repository for intermediate level waste becomes available during the Institutional Control period for all waste that is shipped back to the Chalk River site for storage. CNL incorporated additional information from the AMA TSD into the EIS to provide greater clarity on how the AMA was completed and what the results mean. As requested, CNL shared all TSDs, including the AMA TSD, to the AANTC in December 2017. CNL has responded in writing to AANTC comments on alternatives citing relevant sections of the EIS as part of the comment response. CNL has also offered to meet with the AANTC and AANTC consultants to understand and discuss this concern. CNL Response: CNL acknowledges that the AANTC has requested more details on the advantages and disadvantages of each alternative. The EIS provides a summary of the information in the AMA TSD. The TSD, which was made available to the AANTC in 2017, provides a thorough evaluation of the alternatives considered by CNL. With respect to the assessment of effects, the objective of the AMA is to provide a qualitative analysis of the environmental risks (including health) of alternative decommissioning techniques and select a preferred means. CNL followed the	Where is this topic discussed in the EIS? **Section 4.2** of the EIS contains a summary of the Alternative Means Assessment TSD. What changes have been made (and where)? CNL has included additional information from the AMA TSD in **Section 4.2** of the EIS, to provide greater clarity on how the AMA was completed and what the results mean. In addition, both the AMA TSD and **Section 4.2** of the EIS were updated to assess the projected radiological dose and industrial safety risk to workers for each option.	Status: Resolved. CNL believes that they have addressed this concern with the revisions to the EIS**.** CNL remains committed to ongoing engagement with the AANTC.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		framework laid out in the *Canadian Environmental Assessment Act (CEAA*) Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2015) for the evaluation of alternatives, which allows for a qualitative assessment. The potential impacts of each alternative on each Valued Component group developed as part of the EIS, were assessed and compared against the three timeframes of the project (i.e., Decommissioning Execution, Institutional Controls and Post-Institutional Controls).		
2. Baseline Characterization	(a) Characterization of the bedrock groundwater flow system This is important to the AANTC because an understanding of current conditions and characteristics of the groundwater system surrounding the NPD facility is necessary in order to assess the potential impacts from the project to traditional land and resource use / AANTC rights This is a project-specific concern.	In response to AANTC concern on the characterization of bedrock flow system, CNL has completed additional geoscientific characterization and updated its geosynthesis report to better understand the local geology and hydrogeology. CNL has also updated and calibrated the groundwater flow model used to define hydrogeological conditions into the future to support Postclosure Safety Analysis. As requested, CNL shared all TSDs, including the Geosynthesis and Groundwater Modelling TSD, to the AANTC in December 2017. CNL has responded in writing to AANTC comments on baseline characterization citing relevant section of the EIS as part of the comment response. CNL also met with the AANTC and AANTC's consultant in January 2018 to understand and discuss this concern. CNL Response: In 2018/2019, in response to AANTC concerns, CNL completed a fieldwork campaign to sample and characterize the bedrock around the NPD facility. The fieldwork included coring of 10 boreholes to a depth of 50 metres into bedrock and several overburden boreholes, with installation of wells for sampling and hydraulic property determinations. The Geoscientific Characterization Report was used to revise the Geosynthesis TSD and the various models (i.e., Groundwater Modelling TSD, Resaturation Modelling). The results of these reports were incorporated into the third iteration of the Postclosure Safety Assessment (PostSA) TSD, enabling CNL to assess potential effects to valued components (VC) in the aquatic and terrestrial ecosystems. The additional field investigations and updated models support the conclusion that the NPD Closure Project is protective of human health and the environment. The EIS has been updated to contain this new information.	Where is this topic discussed in the EIS? **Section 8.5** of the EIS presents information on geological and hydrogeological conditions around the NPD site and study areas. What changes have been made (and where)? **Section 8.5** of the EIS includes the improved understanding of baseline geological and hydrogeological conditions, resulting from completion of the additional geoscientific characterization work, groundwater flow modelling results as well as updates to the Geosynthesis report.	Status: Resolved. CNL believes that they have addressed this concern by conducting additional geoscientific characterization, groundwater modelling and subsequent revisions to the EIS. CNL remains committed to ongoing engagement with the AANTC.
3. Engagement	(a) Meaningful participation and consultation It is important to the AANTC that its members be engaged/consulted meaningfully, not just informed. This is both a project-specific concern and a concern for the Crown.	CNL heard the AANTC's concern about meaningful Indigenous participation in the EA for the NPD Closure Project, has sought feedback from and offered engagement opportunities for AATNC on numerous occasions since the beginning of the project. CNL and the AANTC have had several meetings and other correspondence related to the NPD Closure Project since initial discussions in 2016. Within its role as project proponent, CNL remains committed to ongoing engagement with the AANTC on the NPD Closure Project, and will continue to work towards an agreement with the AANTC to support engagement.	Where is this topic discussed in the EIS? **Section 6.2.4.5** of the EIS summarizes CNL engagement with AANTC to date. What changes have been made (and where)? CNL updated **Sections 6.2, 6.3, 8.9, 9.9, 12** of the EIS in response to comments from the AANTC (and other Indigenous Nations, communities and organizations), and to reflect developments in the relationship between the AANTC and CNL.	Status: Resolution is in progress. CNL remains committed to ongoing engagement with the AANTC.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		CNL Response: Note that this concern was raised with the federal government. For the NPD Closure Project the Crown's responsibility for consultation falls with the CNSC. CNL acknowledges the AANTC's request for meaningful two-way engagement on both the NPD Closure Project and the NSDF project and is committed to open, transparent and continuing engagement with the AANTC within its role as the project proponent. CNL continues to communicate with and provide engagement opportunities for the AANTC. Engagement Highlights: CNL first reached out to the AANTC in 2016 with two letters addressed to the Grand Chief; both letters shared information and one inquired on traditional land use. CNL and the AANTC met several times between 2016 and 2018, including a meeting at the NPD site with the AANTC's consultant. In June 2020, CNL and AANTC began a discussion on a contribution agreement to support the AANTC's participation in the EA process. Although CNL attempted further correspondence with the AANTC through July and August 2020, in September 2020, the AANTC informed CNL that they would not be willing to meet again until the latest letter sent to the Minister received a response. CNL sought feedback from the AANTC in 2021 on preliminary project commitments and on the summary of interests and concerns. CNL has and will continue to communicate with and provide engagement opportunities to the AANTC.		
3. Engagement	(b) Capacity for technical review of the EIS It is important to the AANTC that plans and agreements are in place with CNL, to support technical reviews and provide other opportunities for discussion to ensure that the AANTC's interests and values are taken into consideration with respect to the project. This is a project specific interest.	In May 2020, CNL initiated discussions with the AANTC to establish a contribution agreement for the NSDF and NPD Closure Project to ensure support of the AANTC's participation in the EA process. A first meeting occurred on 2020 June 17. Although CNL attempted further correspondence on the concern with the AANTC through July and August 2020, in September 2020, the AANTC informed CNL that they would not be willing to meet again until the latest letter sent to the Minister receives a response and requests are met. CNL followed up on this in January 2021 and responded to correspondence from the AANTC in April 2021 indicating interest in continuing discussions and a contribution agreement. CNL continues to follow-up with the AANTC. CNL reached out four times in 2021 with respect to verification of EIS information; each time CNL inquired whether the AANTC needed support for participation. CNL Response CNL agrees that it is important to provide support to the AANTC in conducting technical reviews. CNL and the AANTC have had initial discussions on the	Where is this topic discussed in the EIS? **Section 6.2.4.5** of the EIS summarizes CNL engagement with the AANTC to date. What changes have been made (and where)? No changes were made to the EIS in response to this comment.	Status: Resolution in Progress. CNL will continue to follow-up with the AANTC on provision of capacity through a contribution agreement or via another mechanism that is preferable to the AANTC.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		development of a contribution agreement that would support the AANTC's participation in the EA process for NPD.		
4. EA Process and Methodology	(a) Relevant legislation It is important to the AANTC that the NPD Closure Project Environmental Assessment is carried out using up-to-date legislation (e.g., the *Impact Assessment Act*) as the new Act directly recognizes the need for reconciliation. This is not a project-specific interest.	No actions - the NPD Closure Project EA will continue under *CEAA* (2012). CNL Response Note this concern was raised with the federal government. This interest is generally beyond the scope of the project. As per direction from the CNSC and transitional provisions of the *Impact Assessment Act*, CNL is continuing its EA for the NPD Closure Project under *CEAA* (2012). Letter to CNL - Changes to Federal Legislation. CNL recognizes that what AANTC is requesting is consistent with the new provisions and commitments under the *Impact Assessment Act (IAA*) but is beyond the scope of *CEAA* (2012) and this EA, and therefore is not required to be considered. The final NPD EIS will meet the requirements of *CEAA* (2012) but will also incorporate good practices consistent with the *IAA*.	Where is this topic discussed in the EIS? **Section 3.5** of the EIS discusses the regulatory framework of the project. What changes have been made (and where)? CNL added text to **Section 3.5** to the EIS, providing clarification on this issue. A reference was added to a letter received from the CNSC, which indicates that the NPD Closure Project will continue under *CEAA* (2012).	Status: Resolved. With respect to the NPD Closure Project, CNL believes that they have addressed this concern with the revisions to the EIS that provide the regulatory framework and outline CNL's approach and commitment to reconciliation. CNL understands that the AANTC may still prefer that the project is subject to the *Impact Assessment Act*. For the NPD Closure Project, the CNSC has determined that the project will be evaluated under *CEAA* (2012).
	(b) Aggressive timelines for the project The AANTC want to understand the decision-making behind the NPD Closure Project timeframes as the AANTC believes there are potential impacts to traditional land and resource use and AANTC rights. This is a project specific concern.	CNL has responded in writing to the AANTC comments on project timelines citing relevant section of the EIS as part of the comment response. CNL Response: Responsibly enacting solutions for Canada's legacy waste is part of CNL's commitment to Canadians. The timeline for the NPD Closure Project was developed with the goal of completing the project in a manner that allowed sufficient time for public engagement and participation in the regulatory process and was cost-effective to the Canadian public. This timeline is also taking into account CNL's effective management of legacy liabilities such as NPD to reduce uncertainty and increase control. The timeline for the NPD Closure Project was never static and has adapted to ensure applicable changes are incorporated based on regulatory, as well as Indigenous feedback. As it stands, the NPD Closure Project initiated engagements in 2015 October, and the two-part hearing with the CNSC is expected to take place in 2023, with the final decision on whether the project will go ahead later that same year. Within this roughly eight-year timeframe there is significant time and capacity for Indigenous participation and input into decisions on the project. It is important to note that the timeline of the NPD Closure Project is ultimately dependent on regulatory decisions made by the Canadian Nuclear Safety Commission. The Institutional Control period was set at 100 years to model the impacts to the environment in the case that features like the concrete cap and tile drains hypothetically start to fail at 100 years. In reality the Institutional Controls phase (and associated follow-up monitoring) will last as long as necessary, as determined by regulatory agencies.	Where is this topic discussed in the EIS? **Section 5.2.1.2** of the EIS discusses the project timeline. What changes have been made (and where)? CNL modified the text in **Section 5.2.1.2** of the EIS, to clarify that the Institutional Control period is to be a minimum of 100 years or as long as necessary, as determined by regulatory authorities.	Status: Resolved. CNL believes that they have addressed this concern, with the responses provided and the EIS updates. CNL remains committed to ongoing engagement with the AANTC.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
4. EA Process and Methodology	(c) Availability of the EIS in both official languages. It is important to the AANTC that the EIS be available in English and in French, so that it is accessible to more community members for review to enable meaningful engagement. This is both a site-wide and project-specific concern.	CNL continues to translate versions of the EIS into French. CNL has evolved in communication of the NPD Closure Project from hosting regular in-person information sessions to hosting quarterly and now bi-monthly webinars in English and French, which is a more accessible approach to disseminate information to individuals from all regions as well as the opportunity for their questions to be answered. CNL has offered simultaneous interpretation to accommodate meetings with the AANTC. CNL has provided the AANTC with draft responses to AANTC comments in English and French (May 2019, September 2020). CNL Response CNL agrees that it is important that the EIS be provided in both English and French. CNL submitted English and French versions of the 2017 Draft EIS and posted these publicly. CNL also shared French and English versions of CNL responses to the AANTC comments with the AANTC. The Final EIS will be available in both English and French. CNL has also provided communications, including presentation and handout material, with the AANTC in French and English.	Where is this topic discussed in the EIS? French translation is discussed in **Section 3.5** of the EIS in general, and in **Section 6.2.4.5.2** of the EIS with respect to AANTC concerns. What changes have been made (and where)? No changes were made to the EIS in response to this comment however CNL has evolved its overall communication efforts on the NPD Closure Project to offer webinars and meetings with simultaneous interpretation.	Status: Resolved. CNL believes that they have addressed this concern by providing translations and other communications in both English and French. CNL remains committed to ongoing engagement with the AANTC, with continued provision of French translation for the EIS as well as simultaneous interpretation to accommodate meetings in English and French.
5. Monitoring	(a) Timeline of the follow-up monitoring program It is important to the AANTC that CNL commit to monitoring the proposed disposal for as long as necessary to ensure the environment is protected. This is a project-specific concern.	CNL is seeking feedback on the draft monitoring plans. The follow-up monitoring reports were provided to the AANTC in 2019 December. CNL is interested in meeting with the AANTC to review these plans and receive feedback. CNL is open to working with the AANTC to ensure AANTC involvement in reviewing the draft follow-up monitoring plans during the Institutional Control period. CNL has responded in writing to AANTC comments on the timeframe of Institutional Control and monitoring citing relevant section of the EIS as part of the comment response. CNL has also offered to meet with the AANTC and AANTC consultants to understand and discuss this concern. CNL Response CNL wishes to clarify that follow-up monitoring will continue for as long as required. The Institutional Control period was set at 100 years to model the impacts to the environment in the case that features like the concrete cap and tile drains hypothetically start to fail at 100 years. In reality the Institutional Controls phase (and associated follow-up monitoring) will last as long as necessary, as determined by regulatory agencies. This is stated in **Section 5.2.1.2** of the EIS where the project phases are described: "**Institutional Controls**, or a period of at least 100 years, but lasting as long as necessary, as determined by regulatory agencies that follows the Decommissioning Execution phase, where long term care and maintenance, oversight, and environmental monitoring would be performed by CNL in order to ensure that the disposal system performs as expected, that human safety is ensured until the short lived nuclear wastes decay to below the acceptance	Where is this topic discussed in the EIS? **Section 5.2.1.2** of the EIS discusses the project timeline. **Section 12** of the EIS summarizes the follow-monitoring plans developed for the project. What changes have been made (and where)? CNL modified the text in **Section 5.2.1.2** of the EIS, to clarify that the Institutional Control period is to be a minimum of 100 years or as long as necessary, as determined by regulatory authorities.	Status: Resolution is in progress. CNL believes that they have addressed the AANTC's concern about the timeline of the follow-up monitoring program, with the responses provided and the EIS updates. CNL will propose meetings with the AANTC, to discuss and receive feedback on the monitoring program.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		criteria and that problems that may impact the long-term stability of the facility can be rectified…" CNL acknowledges the AANTC suggestion to prepare a "Check Point Report" prior to any proposed termination of monitoring and Institutional Controls. CNL would like to discuss this idea with the AANTC to ensure that this requirement is appropriately incorporated in the draft follow-up monitoring plans. With respect to updating the monitoring plans over time: The plans incorporate a requirement for periodic review of the monitoring plans and results, in order to determine if any modifications to monitoring are required (for example if new monitoring locations or additional parameters are required). Any changes to the monitoring plan would require a supporting rationale. Monitoring plans for the Chalk River Laboratories site currently undergo an annual review in order to ensure that the plans are modified as required to stay meaningful and that technological advances are incorporated where possible. The draft follow-up monitoring plans for the NPD Closure Project would also follow this system of annual review.		
5. Monitoring	(b) Sharing monitoring program results with the public and Indigenous Nations, communities and organizations, and having them reviewed by independent researchers As long-term stewards and users of the land, it is important for the AANTC to be involved and informed of the monitoring program to confirm and build knowledge of any impacts to the environment. . This is a project-specific concern	CNL is open to working with the AANTC to ensure AANTC involvement in reviewing the draft follow-up monitoring plans. In addition, CNL is interested in hearing more specific details on the AANTC's recommendation for independent review of the annual results and invites AANTC for further engagement with CNL on this topic. CNL has responded in writing to AANTC comments on sharing and review of monitoring program results, citing relevant section of the EIS as part of the comment response. CNL has also offered to meet with the AANTC and AANTC consultants to understand and discuss this concern. CNL Response CNL would like to clarify that results of the follow up monitoring program will be submitted annually to the Canadian Nuclear Safety Commission (CNSC) (as the Responsibly Authority) and will be made available to Indigenous Nations, communities and organizations and the public on the CNL website. At this time CNL does not commit to independent review of the results. The EA follow-up program is considered draft until the EA and license process is complete. As part of the development of the follow-up program expert federal authorities (such as Environment and Climate Change Canada) will be reviewing the draft follow-up monitoring plans. The CNSC will provide final direction on the program. In addition, the CNSC also performs occasional independent monitoring through their Independent Environmental Monitoring Program.	Where is this topic discussed in the EIS? **Section 6.2.4.5** of the EIS summarizes CNL engagement with AANTC to date, including discussions about AANTC feedback on the monitoring programs. **Section 12** of the EIS summarizes the follow-monitoring plans developed for the project. What changes have been made (and where)? No changes have been made to the EIS in response to this concern.	Status: Resolution is in progress. CNL believes that they have addressed the AANTC's concern about distribution and review of the follow-up monitoring program, with the responses to AANTC comments. CNL will propose meetings with the AANTC, to discuss and receive feedback on the monitoring program.
	(c) The proposed follow-up monitoring program for groundwater and surface water quality is missing details As long-term stewards and users of the land and waters, it is important to the AANTC that appropriate controls and plans are in place to protect the environment. This is a project-specific concern.	CNL has provided written responses to these AANTC comments, addressing each of the requested pieces of information. In response to these comments, CNL has revised the EIS to include more details about follow-up monitoring from the three draft monitoring plans. CNL is seeking feedback on the draft monitoring plans, which were provided to the AANTC in 2019 December. CNL proposes a workshop or meeting to discuss and obtain AANTC feedback. CNL Response CNL acknowledges the AANTC's concerns about the lack of detail in the EIS.	Where is this topic discussed in the EIS? **Section 9.5** of the EIS presents the proposed groundwater monitoring locations. **Section 12** of the EIS presents the proposed monitoring locations in the Ottawa River. What changes have been made (and where)? CNL has added more details to **Section 12** of the EIS, summarizing and/or referring to the details in the monitoring program documents.	Status: Resolution is in progress. CNL believes that they have addressed each of the AANTC's requests for detailed information on the follow-up monitoring programs, within the responses to AANTC comments. CNL will propose meetings with the AANTC, to discuss and receive feedback on the monitoring program.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
6. Protection of the Ottawa River	(a) Impacts on groundwater and surface water quality As stewards of lands and waters, it is important to the AANTC that the Ottawa River is protected. This is both a site-wide and project-specific concern.	CNL provided detailed responses to each individual technical question from the AANTC. CNL's responses included description of upcoming additional information-gathering (e.g., flow sampling), and reference to the detailed monitoring plans that have been developed for the NPD Closure Project. CNL has revised sections of the EIS to include more detail. CNL has responded in writing to AANTC comments on groundwater and surface water quality citing relevant section of the EIS as part of the comment response. CNL has also offered to meet with the AANTC and AANTC consultants to understand and discuss this concern. CNL Response In 2018, in response to public and Indigenous concerns, CNL ceased the practice of discharging liquid effluent from the NPD facility sumps to the Ottawa River, and arranged for water to be sent to the Waste Treatment Centre at the CRL site. This is CNL's plan for all collected water from the sump, including that water which will make up the final pump-out prior to grouting. Full details regarding liquid effluent releases from all CNL facilities are given in the Annual Compliance Monitoring Reports available at the following CNL webpage: https://www.cnl.ca/en/home/environmental-stewardship/performance-report/default.aspx. With respect to the need for constructing a stormwater pond: During the Decommissioning Execution phase of the project, existing drainage features at the site will be maintained and silt fencing will be placed in areas used for stockpiles of raw material (i.e., sand) to prevent runoff into the Ottawa River. For the Institutional Control period, the need for a storm water management pond was taken into consideration during the design of the cover system. The cover is designed to convey storm water to ditches on the south, east and western perimeters of the mound which then connect to the existing ditch systems which are on the east and west sides of the NPD facility. The ditch systems are lined with rock and would enable infiltration of storm water. Because of this design of water conveyance features, it was determined that a storm water management pond was not required. Since this design was developed after the draft EIS was prepared, CNL is willing to meet with the AANTC to discuss the design of the cover system with respect to storm water management, including design drawings illustrating the water conveyance features. CNL has assessed the potential impact of the NPD Closure Project on surface water and groundwater quality. The EIS concludes that no significant residual adverse environmental effects from the project are expected, including to surface and ground water. CNL has developed mitigation measures for the protection of surface water and groundwater during all phases of the project. This finding will be confirmed with the NPD Closure Project follow-up monitoring activities, which will include monitoring groundwater and surface water quality.	Where is this topic discussed in the EIS? **Section 4.3** of the EIS describes the project activities and presents CNL's plans with respect to surface drainage. **Section 4.5** of the EIS describes CNL's plans for handling project-related liquid releases. **Sections 9.3 and 9.5** of the EIS presents the assessment of potential impacts to surface water and groundwater respectively. Mitigation measures for the protection of surface water and groundwater are provided, including CNL's process for non-routine discharges. No un-assessed liquid effluent releases are permitted. The EIS does not predict any adverse residual effects on the surface water or groundwater environments. **Section 12** of the EIS summarizes the Monitoring Plans developed for the project. What changes have been made (and where)? CNL modified the text in **Sections 2.2 and 4.5** of the EIS to add details on liquid wastes (generation and handling) during the Decommissioning Execution phase. CNL provided additional explanation in **Section 8.3.3** of the EIS to clarify the history and basis for monitoring of the wells area sump. CNL added text about management of liquid waste to **Section 9.3.3.2** of the EIS (Mitigation Measure). CNL modified text in several sections of the EIS (**Sections 1, 2, 4, 5 and 6**) to clarify the duration of the Institutional Controls period. CNL has added substantial detail to the summary of the follow up monitoring program in **Section 12** of the EIS.	Status: Resolution in progress For the NPD Closure Project, CNL believes that they have mostly addressed this concern with the revisions to the EIS. CNL will follow up with the AANTC on the need for any additional discussion, such as a meeting to discuss the draft follow-up monitoring plans or the draft restoration plan.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
7. Technical	(a) Concrete Cap and Engineered Barrier design details are missing. As long-term stewards and users of the land and waters, it is important to the AANTC that barriers are in place to protect the environment. This is a project-specific concern.	CNL has provided written responses to these AANTC comments, addressing each of the requested pieces of information. CNL has revised sections of the EIS to include more detail. CNL has responded in writing to AANTC comments on the concrete cap and engineered barrier citing relevant section of the EIS as part of the comment response. In 2019 December, CNL shared high-level information about the concrete cap and engineered barrier and Institutional Control Surveillance Plan to the AANTC and offered to meet to further discuss this topic. CNL Response The reinforced concrete cap will be placed over the Nuclear Area of the NPD Waste Facility (NPDWF), as a barrier against inadvertent human intrusion. The concrete cap is designed to support the loads of the Engineered Barrier and its construction. The cap will be present only over the Nuclear Area because of the long-lived radionuclides present here, within the irradiated reactor components and Reactor Vault, and consequences of intrusion are higher than elsewhere in the facility. The design life of the Engineered Cover (and the concrete cap) is 100 years. The concrete cap will be placed on the Reactor Hall Floor, following completion of grouting. The cap has a thickness of 0.40 metres (1'-4") at the edge, and rises to a thickness of 0.71 metres (2'-4") at the centre. The area of the cap is approximately 600 m^2 (6430 ft^2), and it is dowelled to the foundation walls of the existing structure for anchorage. A multi-layered engineered cover will be placed over the grouted facility, following placement of the concrete cap. The engineered cover consists of a compacted layer of select fill at the bottom a minimum of 1.2 m thick. This bottom layer is overlain by a very low permeability membrane called a geosynthetic clay liner (GCL) and a geogrid, and covered by a 0.15 m thick sand cushion supporting a 0.15 m thick layer of clear stone. The GCL is designed to intercept water percolating through the top of the engineered cover and direct the water to the outside of the engineered cover where it can drain away. The clear stone serves as a drainage layer while the sand cushion also provides some drainage capability and acts as a protective layer to the GCL. Over the clear stone, a geotextile will be placed and covered by a 0.3 m thick layer of select fill, upon which 0.15 m of topsoil is placed and seeded, to form a shallow-rooted vegetative cover at the top of the engineered cover. The geotextile allows water to drain through the select fill to the drainage layer below, while preventing the select fill from being washed into and clogging the drainage layer. Permeability through the barrier is projected to be 0.96 mm/yr based on total precipitation of 870 mm/year. The engineered barrier is designed to limit the infiltration of surface water into the facility to slow resaturation and thus limit releases of tritium. Groundwater monitoring around the site would indicate the release rate of tritium.	Where is this topic discussed in the EIS? **Section 4.3.1** of the EIS describes the Concrete Cap and Engineered Cover and Long Term Care and Maintenance. What changes have been made (and where)? CNL modified the text in **Section 4.3.1.9** of the EIS to provide additional details for the concrete cap and engineered barrier, CNL added **Section 4.3.1.10** of the EIS to provide a summary of long term care and maintenance activities.	Status: Resolution in progress For the NPD Closure Project, CNL believes that they have mostly addressed this concern with the revisions to the EIS. CNL will follow up with the AANTC on the need for any additional discussion, such as a meeting to discuss the design of the concrete cap and plans for long term care and maintenance.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		The Institutional Control Surveillance Plan (provided to the AANTC in 2019 December) has been developed to verify the integrity of accessible passive barriers and support structures, and to enable the prompt identification of conditions that may lead to a migration or release of radionuclides or other contaminants to the environment. The plan outlines the maintenance program to be executed to ensure accessible features of the new disposal facility are maintained (e.g. periodic inspection of the cover and maintenance when required) over the Institutional Control period. The only mechanism that would require the replacement of the cover would be a catastrophic failure of both the geosynthetic clay liner and the geotextile membrane in conjunction with levels of tritium released in excess of acceptance criteria.		

Appendix C.4.1 – Record of Engagement and Tables of Interests and Concerns for Kebaowek First Nation

This appendix provides a complete record of all engagement between CNL and Kebaowek First Nation (a member nation of AANTC) from June 2016 to June 2024 (Table C-13). Table C-13 includes the date and method of the communication/engagement, the topics discussed and participants. This table also highlights engagements where key EA topics were discussed. The key EA topics align with "Generic Guidelines for Preparation of an Environmental Impact Statement Pursuant to the *Canadian Environmental Assessment Act*, 2012" as well as the requirements of REGDOC 3.2.2 "Indigenous Engagement" and guidance specific to NPD provided by the CNSC in January 2021 (e-doc # 6467843).

Following the record of engagement is a mapping of how the summary of interests and concerns were compiled (Table C-14), as well as a summary of interests and concerns raised by Kebaowek First Nation (Table C-15).

Section 6.2.4.6.1. of the EIS summarizes the engagement activities that have taken place to date between CNL and the KFN.

Table C-13 Record of Engagement with the Kebaowek First Nation

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Kebaowek (then Eagle Village) First Nation (FN) Chief introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5(1)(c), the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* • *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	
October 24, 2016 Outgoing telephone call	This call from a communications officer with CNL to the office of the Kebaowek FN Chief was to follow up on the July letter.									√	
November 10, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Kebaowek (then Eagle Village) FN Chief inquired about asserted rights and traditional activities in the region around CRL. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested a better understanding of Kebaowek FN's historic and/or modern day use of lands in and/or near both of the projects and asked the following questions: • *Does Eagle Village First Nation have traditional territory or reserve lands near the NSDF and/or NPD Closure Project?* • *What is the history of Eagle Village First Nation using the areas around the two projects?* • *Do you have any members of Eagle Village First Nation that currently live in close or reasonable proximity to either of the projects?* • *Does Eagle Village First Nation have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects?* • *Does Eagle Village First Nation, or any members, have sites of ceremonial significance in close proximity to either of the two sites, or more generally, any cultural activities near either of the two sites?* CNL also indicated interested in learning more about the FN and any asserted rights, interests or activities members might undertake in the local or regional areas in proximity to the project.				√	√				√	

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 26, 2017 Meeting	This meeting occurred in Maniwaki, Quebec with representatives from the AANTC (including the Grand Chief and the Director General), CNL (including the Director of Corporate Communications and the Director of Environmental Protection), the CNSC (including the Participant Funding Program Administrator) and representatives from two member First Nations of the AANTC – KZA and KFN. CNL shared information in English and French and heard some interests and concerns from the AANTC. Information shared on the NPD Closure Project included: • Site location; • Project components; • Timeline; • Species at risk; • Proposed end state; • Safety barriers (how the environment will remain protected).			√	√					√	
November 15, 2017 Outgoing email	This email from a CNL communications officer to the Kebaowek FN Chief enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and environmental assessment, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	
November 17, 2017 Outgoing email	This email from a CNL communications officer to the Kebaowek FN Chief enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: *"CNL would be pleased to update information in this current draft with input from your community."*	√	√	√	√	√	√	√	√	√	
In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
May 06, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Kebaowek FN Chief enclosed a preliminary version of the 2020 EIS and an updated IER. This letter also asked for feedback in the following seven areas: • *Does Kebaowek First Nation have additional information that they would like to provide in the context of traditional territory near the NPD site?* • *Does Kebaowek First Nation have any members who currently live close or in reasonable proximity to the NPD site?* • *Does Kebaowek First Nation have historical and/or current traditional practices near the NPD site, specifically we are interested in members' traditional uses such as trapping (traditional or commercial), hunting, fishing (traditional or commercial), gathering and practicing cultural ceremonies?* • *Does Kebaowek First Nation have sites of ceremonial significance in close proximity or more generally any cultural activities near the NPD site?* • *Tell us about any important resources, uses, activities, values and interests to Kebaowek First Nation near the NPD site.* • *If there is use in close proximity to the NPD site, is current community use different than historic use and can a description of those difference be provided?* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights.* This letter also indicated an interest in meeting with Kebaowek FN to discuss any interests or concerns.	√	√		√	√	√	√	√	√	

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 14, 2020 Incoming letter	This letter from Kebaowek First Nation Chief and the AANTC Grand Chief was addressed to Prime Minister Trudeau outlining concerns with inconsistencies in the EA processes which included the NPD Closure Project. CNL's Director of Corporate Communications was copied on the letter.					√					
May 26, 2020 Outgoing email	This email from a communications officer with CNL to the Kebaowek FN Chief was to follow up on the May letter.									√	
June 17, 2020 Virtual meeting	This meeting between eight CNL representatives (including the Director of the NPD Closure Project, the Manager of Regulatory Approvals and the Manager of Stakeholder Relations) and five representatives of the AANTC (including the Grand Chief, the Director General, a policy consultant with KFN, an economic development officer and a consultation coordinator with the AANTC) was not considered engagement or consultation by the AANTC. It focused on how CNL could support AANTC participation in the environmental assessment process through a contribution agreement or other formal mechanism.									√	
June 24, 2020 Outgoing email	This email from a communications officer with CNL to the KFN representatives, including the economic development officer, was to follow-up on items from the virtual meeting in June.										√
July 16, 2020 Outgoing email	This email from a communications officer with CNL to the AANTC Director General and the KFN representatives, including the economic development officer, shared an overview presentation on the NPD Closure Project and inquired on a follow-up meeting with respect to the contribution agreement discussions.			√							√
August 26, 2020 Incoming letter	This letter from the AANTC and Kebaowek First Nation to the Minister of Natural Resources, copying the Director of Corporate Communications with CNL, indicated dissatisfaction with the regulatory process for a number of projects including the NPD Closure Project.					√					
November 05, 2020 Incoming letter	This letter was from the Minister of Natural Resources to the Grand Chief of the AANTC and Kebaowek First Nation Chief (copying the Director of Corporate Communications with CNL) responding to the letter of August 2020.					√					
January 11, 2021 Incoming letter	This letter from the AANTC's Grand Chief and Kebaowek FN Chief to the Minister of Natural Resources (copying CNL's Director of Corporate Communications) outlined concerns with the resolution of problems regarding supporting Indigenous participation for CNL and CRL-based projects. The letter requested a meeting to discuss issues in detail and arrive at mutually satisfactory conditions supporting Indigenous consultation and engagement.					√					
January 19, 2021 Outgoing email	This was an email from a communications officer with CNL to the Director General of the AANTC copying the Kebaowek FN Chief, which offered a meeting and further discussion on a contribution agreement.										√
April 12, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Director General of the AANTC enclosed a preliminary list of commitments and indicated interest in meeting to discuss.										√
April 22, 2021 Incoming letter	This letter from the Grand Chief of the AANTC and the Chief of KFN to CNL's Manager of Stakeholder Relations indicated that neither was in agreement with the list of commitments and indicated that engagement with the AANTC and KFN was essential.									√	
April 30, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Grand Chief of the AANTC and the Chief of KFN shared that the letter was not intended to provide a final set of commitments and CNL was interested in engaging with the AANTC and KFN to determine a mutually agreed upon set of commitments.									√	

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 06, 2021 Outgoing email	This email from a communications officer with CNL to a consultation coordinator with KFN followed up on the previous letter.										√
June 21, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the KFN Chief enclosed a draft summary of KFN's interests and concerns for the NPD Closure Project for the KFN's review and verification.									√	√
July 5, 2021 Outgoing email	This email from a Communications Officer with CNL to the Chief of KFN was to follow-up on the June 21, 2021 letter.										√
July 14, 2021 Incoming email	This email from the Consultation Coordinator with KFN to a communications officer with CNL was to confirm they would be responding.										√
July 15, 2021 Incoming letter	This letter from the KFN Chief to the Manager of ERM Stakeholder Relations described a number of issues with Crown consultation and the duty to consult, asked for a pause on the EA process and an agreement with the government on consultation. The letter also stated an interest in an LOI and process agreement with CNL.					√				√	√
July 15, 2021 Outgoing email	This email from the ERM Stakeholder Relations Manager to the KFN Chief was to confirm receipt of the July 15, 2021 letter.										√
August 12, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the KFN Chief and AANTC Grand Chief enclosed CNL's response to the July 15, 2021 letter from AANTC's Grand Chief and the KFN Chief. CNL's response included information on the role of CNL in the EA process, how CNL documents comments from the AANTC and KFN on the NSDF and NPD Closure Project, CNL's willingness to a draft letter of Intent and draft process Agreement for AATNC and KFN, information on a regional assessment, the opportunity to provide into follow-up monitoring, and CNL's response to the request to include the letter of July 15, 2021 in the IAA registry. This letter also indicated a need for any additional feedback on the Summary of Interests and Concerns to be brought forward by August 31, 2021 in order to be reflected in the NPD revised draft EIS.									√	√
August 26, 2021 Incoming email	This email from the KFN Consultation Coordinator to CNL's Manager of Stakeholder Relations and communications officer expressed that KFN would share a draft LOI towards the development of a Process Agreement(s) for the NSDF Project and NPD Closure Project.									√	√
September 8, 2021 Incoming letter	This letter from the KFN Consultation Coordinator to CNL's Manager of Stakeholder Relations enclosed a draft LOI for project consultation agreement(s) with CNL.									√	√
September 24, 2021 Incoming email	This email from the KFN Consultation Coordinator to a CNL communications officer was to inquire whether CNL had reviewed the LOI yet and proposed to set up an October meeting on the LOI.									√	√
September 24, 2021 Outgoing email	This email from an ERM Communications Officer to the KFN Consultation Coordinator informed KFN FN that CNL's legal team was currently reviewing the LOI, and that CNL will touch base internally and prioritize having the draft LOI back in advance of the next meeting. CNL asked KFN FN what dates would work for a meeting.									√	√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 20, 2021 Outgoing letter	This email from a Senior Communications Officer to the KFN Consultation Coordinator enclosed a covering letter and CNL's revisions to the LOI.									√	√
October 28, 2021 Outgoing email	This email from a CNL Communications Officer to the KFN Consultation Coordinator proposed several meeting dates to further discuss the LOI and informed KFN of the decision to delay the EIS submission for the NPD Closure Project. CNL welcomed KFN FN to provide further feedback on the updated summary table of interest and concerns (attached) by November 26, 2021.									√	√
November 12, 2021 Incoming email	This email from a consultant for KFN to a Senior Communications Officer at CNL responded to the email from CNL, seeking to coordinate a meeting date on the LOI.									√	√
November 15, 2021 Emails	These emails between a consultant for KFN and a Senior Communications Officer at CNL coordinated a meeting to discuss the LOI on December 8, 2021.									√	√
December 8, 2021	This meeting between representatives of KFN (including a councillor for KFN, a consultant and a consultation coordinator) and CNL (the Manager of ERM Stakeholder Relations and a Senior Communications Officer) and AECL (the Director of Communications and Government Reporting was to discuss a draft LOI to progress with a relationship.									√	
December 8, 2021 Incoming email	This email from KFN to CNL attached KFN's revisions to CNL's last LOI draft. KFN requested that CNL coordinate complete the revisions.									√	
December 9, 2021 Outgoing email	This email from a CNL Senior Communications Officer to KFN noted that CNL had shared the revisions and KFN's contact information to CNL's legal team. CNL noted that they will connect again soon to coordinate next steps once KFN and CNL had clarified the draft LOI.									√	
December 9, 2021 Outgoing email	This email from CNL's legal department (articling student) was to get an understanding of KFN's thoughts on the purpose of the LOI. CNL noted that they were open to covering KFN's costs to reach a Framework Agreement. CNL attached a copy of the draft LOI to that effect. For a more comprehensive commitment regarding all of KFN's costs for engagement, CNL noted that a Framework Agreement would be more suited for purpose instead of an LOI. CNL noted that they could accelerate the process and go directly into negotiations regarding capacity funding and the Framework Agreement at the next meeting if KFN would like.									√	
December 14, 2021 Incoming email	This email from KFN to CNL's legal department noted that KFN would do a close review and consideration of the proposed path forward and get back to CNL soon.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
January 26, 2022 Incoming email	This email from KFN's legal contact to CNL's legal department confirmed that KFN is agreeable with the proposed changes to the LOI and to the approach to covering KFN costs that CNL had outlined. KFN's legal contact included a suggested limit on costs and attached to the email. KFN's legal contact noted that if this is agreeable to CNL, they would propose that the LOI is signed as soon as possible so that both parties could move into Framework Agreement discussions.									√	
January 26, 2022 Outgoing email	This email from the ERM Communications Manager to KFN Consultation to confirm with legal what next steps are, but safe to say we can all do a review of edits to make sure we are ok with the attached.										√
February 8, 2022 Incoming email	This email from KFN informed CNL that the KFN negotiation team will be KFN legal counsel supported by Leadership. KFN and CNL coordinated the next meeting.										√
February 8, 2022 Incoming email	This email from the KFN economic development officer to CNL asked CNL to share a copy of the LOI signed by both parties.										√
February 18, 2022 Outgoing email	This email from a CNL Senior Communications Officer to KFN included a poll to determine the next meeting date to discuss the LOI.										√
March 8, 2022 Outgoing email	This email from a CNL Senior Communications Officer to KFN was to inform KFN that CNL had included a revised column to link each of KFN's interests and concerns to a specific aspect of the project, and/or an Aboriginal and treaty right, where possible. The interest and concerns previously identified will remain unchanged as part of the Environmental Impact Statement (EIS) and Indigenous Engagement Report that is submitted alongside the EIS. CNL asked KFN to confirm whether you would like to verify that the revised table reflects your interests and concerns, focusing on the new column that ties your interest/concern to the project or Aboriginal and treaty right, and identify why it is of concern to your community. CNL requested that KFN confirm whether they would like to review the updated interest and concerns table before submission.										√
March 9, 2022 Incoming email	This email from KFN to CNL confirmed KFN's interest to review the table and requested CNL to add a consultation request as it relates to a broader discussion on completing the consultation Framework Agreement and actions on CNL's various projects at CRL and NPD.										√
March 9, 2022 Meeting invitation	Email invitation sent to Kebaowek First Nation for a Thursday, March, 10, 2022 meeting to discuss project consultation on the NSDF and NPD Projects, the Framework Agreement and next steps.										√
March 10, 2022 Virtual Meeting	This meeting between Kebaowek First Nation (including KFN consultation staff, Councillor and legal counsel) and CNL (including a Senior Communications Officer and Manager of ERM Stakeholder Relations) was to discuss the project consultation opportunities and requests related to the NSDF Project and NPD Closure Project and the next steps to develop a Framework Agreement.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
March 10, 2022 Incoming email	This email from Kebaowek First Nation's consultation consultant to a CNL Senior Communications Officer sharing a news story about Combining Malacology and Underwater Cave Diving in the Ottawa River and a video about the Algonquin Aki Sibi Project. Both items were mentioned during the Thursday, March, 10, 2022 meeting.										√
April 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to KFN attached the repackaged summary table of interests and concerns. This repackaging is based on feedback from the Canadian Nuclear Safety Commission (CNSC) on our December 2021 draft EIS submission package. To meet the CNSC needs, CNL added a column called 'Project Aspects of Interest/Concern.' CNL requested KFN review the updated table and offered to provide time and capacity for the review.									√	
April 14, 2022 Outgoing email	Email invitation sent to Kebaowek First Nation for the Thursday, April, 14, 2022 meeting to discuss project consultation on the NSDF and NPD Projects, the Framework Agreement and next steps.										√
April 14, 2022 Virtual Meeting	This meeting between Kebaowek First Nation (including KFN consultation staff, Councillor and legal counsel) and CNL (including a Senior Communications Officer and Manager of ERM Stakeholder Relations) was to discuss the project consultation opportunities and requests related to the NSDF Project and NPD Closure Project.										√
April 18, 2022 Outgoing email	This email invitation a CNL Senior Communications Officer to Kebaowek First Nation's consultation consultant to the CNL Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.										√
May 09, 2022 Outgoing email	This email from a CNL Senior Communications Officer to KFN to follow up on the April 01, 2022 email requesting CNL to review the repackaged summary table of interests and concerns.									√	
May 10, 2022 Incoming email	This email from Kebaowek First Nation's consultation consultant to a CNL Senior Communications Officer confirmed KFN would send CNL comments on the repackaged summary table of interests and concerns. KFN indicated this working would be billed against the framework agreement negotiations budget until a separate study budget is established.									√	
May 10, 11 & 12, 2022 Incoming/Outgoing email	These emails from Kebaowek First Nation's consultation consultant to a CNL Senior Communications Officer discussed the availability of the EIS revision history. CNL sent the most recent EIS submission.										√
May 20, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kebaowek First Nation's consultation consultant shared the proposed Framework Agreement, to be discussed at the next meeting. Kebaowek First Nation requested to postpone the Tuesday, May, 24, 2022 meeting. The meeting was cancelled due to scheduling conflicts.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 06, 2022 Incoming email	This email from Kebaowek First Nation's consultation consultant to a CNL Senior Communications Officer provided CNL KFN's comments on the repackaged summary table of interests and concerns. CNL confirmed receipt and committed to sharing an updated copy back to KFN.									√	
June 08, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kebaowek First Nation's consultation consultant shared a draft agenda for the Thursday, June 9, 2022 meeting. The agenda included: 1. Opportunity to open in a good way; 2. Reflections from KFN and CNL on the NSDF hearing; 3. Discussion on the draft Framework Agreement provided by KFN; 4. Next steps – principles for engagement and alignment with Framework Agreement. CNL also asked if Kebaowek First Nation's legal counsel will be present at the meeting.										√
June 08, 2022 Incoming email	This email from Kebaowek First Nation's consultation consultant to a CNL Senior Communications Officer confirmed Kebaowek First Nation's legal counsel will be present at the Thursday, June 9, 2022 meeting.										√
June 09, 2022 Virtual meeting	Meeting between Kebaowek First Nation (including KFN consultation staff, Councillor and legal counsel) and CNL (including a Senior Communications Officer and Manager of ERM Stakeholder Relations) to discuss the Framework Agreement.										√
July 17, 2022 Outgoing email	Email invitation from a CNL Senior Communications Officer to Kebaowek First Nation's consultation consultant to register and attend the Chalk River Open House on Saturday, August 6, 2022.										√
July 18, 2022 Incoming email	This email from Kebaowek First Nation's consultation consultant to a CNL Senior Communications Officer proposed a meeting and requesting a marked-up version of the Framework Agreement in advance. CNL sent a meeting invitation and agree to send a marked-up version of the Framework Agreement in advance.										√
July 21, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kebaowek First Nation's consultation consultant sent the updated summary tables of interests and concerns for Kebaowek First Nation. CNL offered a meeting to discuss and additional feedback on the table.									√	
July 25, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kebaowek First Nation's consultation consultant shared a revised draft of the Framework Agreement, in both clean and blackline versions, for consideration in advance of the Tuesday, July 26, 2022 meeting. The meeting was rescheduled for July 29, 2022 due to a network outage.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 29, 2022 Virtual Meeting	Meeting between Kebaowek First Nation (including KFN consultation staff, Councillor and legal counsel) and CNL (including a Senior Communications Officer and Manager of ERM Stakeholder Relations) to discuss the Framework Agreement.										√
August 6, 2022 Open House	Kebaowek First Nation (including the Chief and consultation consultant) attended CNL's 2022 Open House at the Chalk River Laboratories site. The open house included a NPD project booth.										√
August 9, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kebaowek First Nation's legal counsel to shared Kebaowek First Nation's revisions to the latest draft Framework Agreement.										√
August 11, 2022 Meeting	Meeting between Kebaowek First Nation (including KFN consultation staff, Councillor and legal counsel) and CNL (including a Senior Communications Officer, CNL legal counsel and Manager of ERM Stakeholder Relations) to discuss legal update on Framework Agreement and further plan a leadership meeting.										√
August 18, 2022 Incoming email	This email from Kebaowek First Nation's consultation consultant to a Senior Communications Officer proposed a leadership meeting for CNL, AECL and KFN to Tuesday, August, 31, 2022 at Fitzpatrick Island. CNL accepted the invitation.										√
August 31, 2022 Meeting	Meeting between Kebaowek First Nation leadership (including KFN consultation staff, Councillor and Chief) and CNL (including the Manager of ERM Stakeholder Relations, AECL President and CEO and CNL President and CEO) at Fitzpatrick Island.										√
September 07, 2022 Incoming email	This email from Kebaowek First Nation's legal counsel to legal counsel for CNL requested CNL's changes or comments to the draft agreement that KFN sent on Tuesday, August, 9th, 2022. KFN requested a copy before the planned September 8th, 2022 meeting. The meeting was rescheduled.										√
September 13, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kebaowek First Nation's legal counsel shared the revised draft of the Framework Agreement for review.										√
September 13, 2022 Incoming email	This email from Kebaowek First Nation's legal counsel to legal counsel for CNL requesting a Word version of the "Compare" PDF of the Framework Agreement. CNL sent the version requested.										√
September 15, 2022 Meeting	Meeting between Kebaowek First Nation (including KFN consultation staff, Councillor and legal counsel) and CNL (including a Senior Communications Officer and Manager of ERM Stakeholder Relations) to discuss legal update on Framework Agreement, provide updates on an activities schedule and further plan a leadership meeting.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
September 29, 2022 Outgoing email	This email from legal counsel for CNL to Kebaowek First Nation's legal counsel asking KFN to confirm whether CNL can expect to hear back from KFN on the draft agreement after the Thursday, October, 6th, 2022 meeting? CNL offered a separate to discuss the framework if needed.										√
October 03, 2022 Outgoing letter	This letter addressed to Kebaowek First Nation's Chief from CNL's Director of Indigenous Relations provided a project update and the engagement status with KFN. CNL stated it is committed to incorporating KFN's interests and concerns into the EIS. CNL provided an engagement status and next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for KFN's review. CNL acknowledge the work done to date including the signature of a Letter of Intent and the progression towards a Framework Agreement. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that KFN respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.									√	
October 06, 2022 Incoming email	This email from Kebaowek First Nation's legal counsel to legal counsel for CNL shared the latest edits to the Framework Agreement. KFN requested a separate meeting Tuesday, October, 11th, 2022 to discuss the edits. CNL proposed an alternative date to discuss edits.										√
October 07, 2022 Meeting	Meeting between Kebaowek First Nation (legal counsel) and CNL (including legal counsel) to discuss the Framework Agreement.										√
October 07, 2022 Incoming email	This email from Kebaowek First Nation's legal counsel to legal counsel for CNL shared the latest edits to the Framework Agreement.										√
October 12, 2022 Meeting	Meeting between Kebaowek First Nation (including KFN consultation staff, Councillor and legal counsel) and CNL (including a Senior Communications Officer, CNL legal counsel and Manager of ERM Stakeholder Relations) to discuss legal update on Framework Agreement and further plan a leadership meeting.										√
October 24, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kebaowek First Nation's legal counsel shared the revised draft of the Framework Agreement for review. CNL offered to meeting with Kebaowek First Nation Legal Counsel to discuss the framework.										√
October 25, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kebaowek First Nation's consultation consultant sent date options for a leadership meeting. CNL requested KFN vote on the date options. CNL later revised the dates based on CNL's President and CEO is availability. KFN confirmed receipt.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
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October 07, 2022 Meeting	Meeting between CNL (including CNL legal counsel) and Kebaowek First Nation (legal counsel) to discuss the Framework Agreement.										√
October 27, 2022 Meeting	Meeting between Kebaowek First Nation (including KFN consultation staff, Councillor and legal counsel) and CNL (including a Senior Communications Officer, CNL legal counsel and Manager of ERM Stakeholder Relations) to discuss legal update on Framework Agreement and further plan a leadership meeting.										√
October 31, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kebaowek First Nation's legal counsel shared a revised draft of the Framework Agreement in clean and compare. CNL offered to coordinate a meeting to discuss if needed.										√
November, 2022 Outgoing/incoming email	This email from a CNL Senior Communications Officer to a Kebaowek First Nation councillor was to coordinate a date for the leadership meeting to sign the Framework Agreement.										√
November 07, 2022 Meeting	Meeting between CNL (including CNL legal counsel) and Kebaowek First Nation (legal counsel) to discuss the Framework Agreement.										√
November 18, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kebaowek First Nation's consultation consultant shared the revised draft of the Framework Agreement as well as Schedules B and C to the Agreement.										√
November 23, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kebaowek First Nation's consultation consultant was to follow up on the status of the KFN review of the revised draft of the Framework Agreement as well as Schedules B and C to the Agreement shared Thursday, November 17th, 2022. CNL offered to coordinate a separate meeting before the Thursday, December, 8th, 2022 working group meeting.										√
November 24, 2022 Incoming email	This email from Kebaowek First Nation's legal counsel to CNL's legal counsel provided comments on the Framework Agreement as well as Schedules B and C. KFN Legal Counsel requested a clean version once CNL had time to review the changes. CNL confirmed receipt of the comments on the Framework Agreement as well as Schedules B and C.										√
November 29, 2022 Telephone call	CNL's legal counsel telephoned Kebaowek First Nation's legal counsel to discuss comments on the Framework Agreement as well as Schedules B and C.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
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December 05, 2022 Incoming email	This email from Kebaowek First Nation's consultation consultant to a CNL Senior Communications Officer shared that December 16th Leadership Meeting was set for 10:00 a.m. or 11:00 a.m. CNL confirmed that 11:00 a.m. works for both CNL and AECL. CNL asked KFN to confirm if the intent is to sign the Framework Agreement on this date.										√
December 06, 2022 Telephone call	CNL's Senior Communications Officer telephoned Kebaowek First Nation's consultation consultant to confirm logistics for the Friday, December, 16th 2022 leadership meeting.										√
December 07, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kebaowek First Nation's consultation consultant sent the proposed agenda for the Thursday, December, 8th 2022 working group meeting. Proposed agenda: • Land acknowledge; • Opening / introductions; • Framework Agreement; • Leadership Meeting Logistics; • Waste Management Tour Logistics; • Extension letter.										√
December 07, 2022 Outgoing email	This email from CNL's legal counsel to Kebaowek First Nation's legal counsel shared the Framework Agreement, Engagement Schedule and CNL's proposal to address the outstanding points. CNL offered a meeting separate of the working group meeting to discuss the edits.										√
December 08, 2022 Meeting	Meeting between Kebaowek First Nation (including KFN legal counsel) and CNL (including CNL legal counsel) to discuss outstanding issues of the Framework Agreement.										√
December 12, 2022 Outgoing email	This email from CNL's legal counsel to Kebaowek First Nation's legal sent the updated Agreement. CNL proposed that if no further edits were need CNL would prepare the execution version for execution at the December 15th 2022 meeting.										√
December 15, 2022 Meeting	Meeting between Kebaowek First Nation leadership (including KFN consultation staff, Councillor and Chief) and CNL (including the Manager of ERM Stakeholder Relations, AECL President and CEO and CNL President and CEO) in person at KFN's band office to discuss the ongoing relationship between CNL and KFN. The Framework Agreement was not signed.										√
January 20, 2023 Outgoing Email	Email correspondence from a CNL Communications Officer to a KFN Consultant with information and update on the NPD Closure Project. CNL updated KFN on the new submission date of 2023 May. CNL proposed the next steps would be to coordinate a meeting to discuss the NPD project to ensure KFN's interest and concerns are reflected in the NPD EIS.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
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April 03, 2023 Incoming Email	This email from a KFN Consultant to a CNL Communications Officer with KFN's comments on **Section 6.2.4.6.1** of the EIS prepared for CNL on 2022 June 6, and request to coordinate a meeting to discuss KFN's key interests in consultation and the next steps in the EA and CNL's EIS submission. CNL thanked KFN for their feedback, KFN requested a meeting to move towards the next steps for NPD.										√
April 04, 2023 Incoming	Email correspondence from the KFN Consultant to a CNL Communications Officer asking that prior to the meeting on 2023 April 19, CNL confirm what legacy materials, and soils from the NPD reactor are as well going into the NSDF mound.			√							√
April 05, 2023 Emails	Email correspondence between a CNL Communications Officer to the KFN Consultant to coordinate a meeting in 2023 April to discuss NPD Closure Project and the Federal Environmental Assessments and NSDF Project.										√
April 13, 2023 Virtual Meeting	This Meeting was between CNL representatives (Including Communications Officers, the Manager of ERM Stakeholder Relations, Director of Corporate Environmental Projects, Manager of NPD Regulatory Approvals, Manager of ERM Licensing Support, CNL Legal Counsel) AECL (including the Manager of Engagement and Communications), and Kebaowek First Nation (including the KFN Consultant and Councillor). CNL and KFN reviewed the I&C table, discussed next steps and planned a tour for the next week.									√	√
April 19, 2023 Outgoing Email	Email correspondence from CNL Communications Officer to the KFN Consultant with follow-up to the 2023 April 29 NPD Closure Project meeting and information on the NPD Swift Night Count and the Federal Environmental Assessments and NSDF Project.										√
April 21, 2023 This email from CNL to Kebaowek First Nation (3 Emails).	This email from CNL Communications Officer to the KFN Consultant with information (including agenda) to prepare for KFN's tour of the Nuclear Power Demonstration (NPD) Closure Project site on 2023 April 26.										√
April 26, 2023 Site Tour of NPD	CNL welcome KFN members to the NPD site for a tour. Following the days pre-job CNL answered questions from KFN. The areas of interest were monitoring, operational history and the similarities between the NPD and WR-1 Projects. KFN has a tour of the NPD facility and walked to the River with CNL staff.										√
May 01, 2023 Outgoing email	This email from a CNL Communications Officer to KFN sharing the invitation to attend the NPD Chimney Swift Count Night on 2023 May 24.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 11, 2023 Meeting	This meeting was held between CNL (including Manager, Stakeholder Relations, Communications Officer, Indigenous Engagement Coordinator, Manager NPD Regulatory Approvals, CNL Legal Counsel, Manager, ERM licencing support) and KFN (Including KFN council member, legal counsel, and Consultation) and next steps of the NPD Closure Project. CNL and KFN addressed the concern felt by the community remembers who tested for radon at the April 26 tour. KFN and CNL agreed to develop a site access protocol for future visits.										√
May 16, 2023 Outgoing email	This email from a CNL Communications Officer to KFN provided the updated Interests and Concerns Table. CNL is seeking verification from KFN that the interests and concerns of KFN have been recorded. CNL respectfully requested KFN response by 2023 June 20.									√	
June 01, 2023 Outgoing email	This email from a CNL Communications Officer to KFN is to follow up on an email sent on 2023-May-16.										√
June 01, 2023 Incoming email	This email from KFN to a CNL Communications Officer noted that KFN has limited capacity to work on the NPD project. In the interim KFN requested CNL draft the LOI for the framework agreement and arrange funding resources. CNL confirmed receipt of the email.										√
June 05, 2023 Outgoing email	This email from CNL legal counsel to KFN attached a draft Letter of Intent (LOI) in respect of the NPD closure project.										√
June 09, 2023 Outgoing email	This email from CNL Indigenous Engagement Coordinator to KFN provided KFN with an updated actions list from the 2023 June 08 Monthly Meeting and a first draft of the site access protocol for KFN's feedback.										√
June 29, 2023 Outgoing email	This email from a CNL Communications Officer to KFN following up on the draft LOI sent June 5 and the Table of Interest and Concerns.										√
June 29, 2023 Incoming email	This email from KFN to a CNL Communications Officer provided KFN"s comments on the Proposed and Requested Commitments between Kebaowek First Nation and CNL for the NPD Closure Project as of September 2022 and a previous version of the Interests and Concerns table. KFN requested Section 6.2.4.6.1 of the EIS for review.						√			√	
July 04, 2023 Outgoing Email	This email from CNL Communications Officer to KFN is to provide KFN with Section 6.2 4.6.1 of the Revised Draft EIS. CNL has made our best efforts to record and document the engagement with KFN to date, while acknowledging that KFN may articulate their position and perspective somewhat differently. CNL also shared updated I&C and Mapping tables based on KFN feedback.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 06, 2023 Incoming Email	This email from KFN to CNL provided KFN's comments on NPD EIS Section 6.2.4.6.1. CNL confirmed receipt.									√	
July 06, 2023 Outgoing Email	This email from CNL Communications Officer to KFN sharing the updates to EIS Section 6.2.4.6.1 based on KFN's feedback.									√	√
August 02, 2023 Outgoing	This email from CNL Communications Officer to KFN is to provide KFN with an updated list of Commitments between Kebaowek First Nation and CNL for the NPD Closure Project as of August 2023, for KFN review and comments. CNL updated the table based on KFN comments from June 29, 2023.						√			√	
August 29, 2023 Outgoing Email	This email from CNL Communications Officer to KFN is to express CNL commitment to incorporating KFN's interests and concerns into the EIS, as KFN input is essential to the environmental assessment process. CNL also captured KFN's interest and concerns, CNL proposes this as the topic for the upcoming monthly meeting on September 14, 2023.									√	
August 29, 2023 Incoming Email	This email from KFN to CNL Manager, Communications and Engagement is in response to the email from CNL Communications Officer sent on 2023 August 29; KFN asked CNL to add NPD Letter of intent to the next monthly meeting draft agenda. CNL confirmed.										√
September 20, 2023 Meeting	This meeting between CNL (Including, Manager, ERM Licensing Support, Environmental and Decommissioning Specialist, Manager, NPD, Indigenous Engagement Coordinator, Director, Communications and Engagement, Manager, Communications and Engagement, Communications Officer, CNL Legal Counsel, Acting Section Head, Impact Assessment), AECL (Including, Manager of Engagement and Communications) and KFN (including, KFN Consultant, Legal Counsels, KFN Engineering Advisor, and Councillor). This meeting was to discuss Chalk River Section 82 project AECL follow-up, Confirm KFN staff and KFN Legal staff email and meeting distribution, Kebaowek - NSDF Project final billing, Photo pick up at Wolf den, NPD Letter of Intent (LOI), and NPD EIS review and capacity support.									√	√
September 20, 2023 Outgoing email	This email from CNL Communications Officer to KFN is to provide NPD Letter of Intent, and NPD EIS Chapter 6 and NPD EIS.						√			√	√
September 20, 2023 Outgoing email	This email from CNL Indigenous Engagement Coordinator to KFN is to provide a copy of the Actions from the 2023 KFN - AECL- CNL monthly meeting.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 19, 2023 Meeting	This meeting between CNL (Including the acting Director NPD Closure Project, Director, Communications and Engagement, Manager, Communications and Engagement, Communications Officer, CNL Legal Counsel), and KFN (including, KFN Consultant, Legal Counsels, KFN Engineering Advisor, Councillor). This meeting was to discuss other areas of interest to KFN and the NPD Closure Project Letter of Intent (LOI). CNL and KFN legal counsel discussed language in the LOI. CNL asked if KFN had an update on their EIS review.										√
October 26, 2023 Outgoing Email	This email from CNL Communications Officer to KFN is to provide an action list from the 2023 October 19 NSDF/NPD KFN-CNL monthly meeting.										√
December 19, 2023 Emails	This email from CNL Director of Communications and Engagement to KFN is to follow-up on their capacity to work with us and review the NPD materials. CNL noted the existing framework agreement in place that we can add additional schedules and funding to by a simple amendment. CNL has and will provide capacity for KFN and CNL to effectively work together, we know through dialogue at our last meeting that there is an immediate need for this funding so we are hopeful that we can get clarity in the very near term and move forward with the work and corresponding invoicing to meet both parties' objectives. KFN confirmed they will proceed with the funding schedules for the NPD under the existing CNL KFN consultation and engagement funding agreement. KFN noted sending costs over by the 2024 January 11 meeting.										√
January 11, 2024 Meeting	This meeting between CNL (Including the Indigenous Engagement Coordinator, Communications Officers, Senior Communications Officer, Manager, and Director of Communications and Engagement, and Manager of Environmental Protection, and Environmental Specialist, Acting director of NPD, and Decommissioning Specialist), and KFN (Including Councillor, Legal Counsels, and Consultant) is to act as the January monthly meeting. Discussion included next steps for Section 82 projects, work details for NPD Closure Project (adding "Schedule D" to existing Framework Agreement), and NSDF Project update (if required).										√
January 12, 2024 Outgoing Email	This email from CNL Legal Counsel to KFN is to provide a draft amendment to the Consultation and Engagement Framework Agreement between KFN, CNL and AECL in order to incorporate a new Schedule to the Agreement which will provide the work plan and budget for the NPD Project as a Project-Specific Agreement. KFN Confirmed receipt of the draft agreement.										√
January 19, 2024 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to KFN is to follow-up from the actions from the 2024 January 11 KFN - CNL January Working Group meeting. CNL requested dates to discuss the MCECE, and the NPE EIS review.										√
January 31, 2024 Incoming Email	This email from KFN Legal Counsel to CNL Legal Counsel provided an update on the NPD amendment to the Consultation and Engagement Framework Agreement. KFN noted they were still working to prepare a workplan and budget. CNL confirmed receipt.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
February 21, 2024 Outgoing Email	This email from a CNL Communications Officer to KFN requested KFN provide CNL with their review of the NPD EIS and other activities that KFN may identify related to the NPD Project. CNL noted the timeline for submitting the revised draft EIS and asked that the NPD Project-Specific Agreement and associated engagement schedule and initial EIS review be completed by March 15, 2024, to allow for inclusion in the revised draft EIS submission.										√
February 24, 2024 Incoming Email	This email from KFN to a CNL Communications Officer offered availability to meet with CNL to go over KFN's NPD work plan and budget on February 26, 2024.										√
February 24, 2024 Incoming Email	This email from a CNL Communications Officer to KFM confirmed meeting on February 26, 2024, to discuss NPD work plan and budget. CNL requested KFN provide the draft NPD work plan and budget in advance of the meeting.										√
February 26, 2024 Meeting	This in-person meeting was held on site between CNL (including, Communications Officer, Acting Director, NPD, Manager of Communications and Engagement, Director of Communications and Engagement and Indigenous Engagement Officer) AECL (including Manager of Engagement and Communications) and, KFN (including Consultants) to discuss the proposed NPD Work Plan and Budget and amendment to the consultation framework agreement to include work on the NPD EIS. KFN presented the draft workplan to CNL.										√
March 07, 2024 Outgoing Email	This email from CNL Manager of Communications and Engagement to KFN is to request that the 2024 March monthly meeting be postponed due to the March break. KFN confirmed, and CNL proposed a new meeting date of 2024 March 19, or 20.										√
March 08, 2024 Outgoing Email	This email from CNL Communications Officer to KFN provided KFN with the draft Schedule D for the NPD work as an amendment to the Consultation and Engagement Framework Agreement. CNL also noted having material that will assist in KFN's technical review (line item 4 in Schedule D). CNL provided KFN with NPD documents and WR-1 related information. CNL followed-up on 2024 March 13 to confirm KFN received the email from CNL. CNL sent • Postclosure Safety Assessment 3rd Iteration • Chimney Swift Studies Technical Supporting Document • Comment Table on the Draft Environmental Impact Statement for the Nuclear Power Demonstration Closure Project • Federal and Provincial Technical Review with Quebec Comments – Revision 2 (2021 December) • Alternative Means Presentation.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
March 13, 2024 Incoming Email	This email from KFN to CNL Communications Officer requested the drafted Schedule D (this was sent March 08, 2024).										√
March 13, 2024 Outgoing Email	This email from a CNL Communications Officer to KFN is to resend KFN the work plan and budget presented at the 26th meeting and the amendment to Schedule D. The document also included proposed timelines for deliverables. KFN confirmed receipt of Schedule D.										√
March 19, 2024 Outgoing Email	This email from a CNL Communications Officer to KFN requested KFN input on the outstanding item to include in the Framework Agreement Schedule D. CNL stated that once KFN is ready to sign off then the amendment will be executed.										√
March 19, 2024 Incoming Email	This email from KFN to CNL Communications Officer noted that they would follow up after a meeting with their legal counsel.										√
April 02, 2024 Outgoing email	This email from CNL Communications Officer to KFN to follow up from CNL's email sent on 2024 March 19 looking to confirm if KFN had the opportunity to discuss the NPD costs to date so CNL and KFN can work towards finalizing the agreement amendment for NPD. KFN confirmed they are waiting on outstanding invoices, and will get back to CNL as soon as possible.										√
April 09, 2024 Emails	This email from KFN to CNL Manager of Communications and Engagement is to request the draft agenda for the 2024 April 11 KFN- AECL- CNL monthly meeting. CNL noted they would provide a draft agenda before the end of the day on April 09. CNL provided an agenda.										√
April 10, 2024 Meeting	This virtual meeting between CNL (including, Communications Officers, Director of Communications and Engagement, Indigenous Engagement Officer, Legal Counsel, Senior Communications Officer, Director NPD Closure Project, NPD Decommissioning Specialist) AECL (including Manager of Engagement and Communications, and Senior Indigenous Relations Advisor and, KFN (including Consultants, and legal counsel) is to act as the 2024 April KFN - AECL - CNL monthly meeting. Discussion included updates on the NPD Work Plan and Budget, EIS feedback and review timeline.									√	√
April 18, 2024 Outgoing Email	This email from CNL Communications Officer to KFN Consultant is to follow up with KFN on their review of the NPD EIS material. KFN noted that they will provide a timeline for their review to CNL.									√	√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 29, 2024 Outgoing Email	This email from CNL Director of Communications and Engagement to KFN is to follow-up on the KFN timeline for review for the NPD EIS. CNL noted the desire to have KFN's comments such that concerns of the community can be included the upcoming revised draft EIS submission. CNL looked to confirm when KFNs review of the EIS can be completed.									√	√
May 01, 2024 Outgoing Email	This email from CNL Indigenous Engagement Officer to KFN is to invite KFN to the 2024 May 22 Chimney Swift night count night being held at the NPD site.										√
May 09, 2024 Meeting	This virtual meeting between CNL (including, Communications Officer, Director and Manager of Communications and Engagement, Indigenous Engagement Officer, Legal Counsel, Senior Communications Officer, Director NPD Closure Project, NPD Decommissioning Specialist and Director of Corporate Environmental Protection) AECL (including Manager of Engagement and Communications, and Senior Indigenous Relations Advisor) and, KFN (including Councillor, KFN Consultants, and legal counsel) is to act as the 2024 May KFN - AECL - CNL monthly meeting. Discussion included, the KFN letter to the CNSC on the NPD Project and the NPD EIS.									√	√
May 09, 2024 Incoming Email	This email from KFN Legal Counsel to CNL Director of Communications and Engagement is to provide CNL with a copy of the letter KFN sent to the CNSC, requesting a Procedural Order. CNL acknowledged receipt of the referenced letter.									√	
May 23, 2024 Event at NPD	KFN members attended the Chimney Swift Count Night at the NPD site.										√
May 23, 2024 Incoming Email	This email from KFN Consultant to CNL Indigenous Engagement Officer is to provide CNL with KFN's Information Requests (IR's) on the NPD Project. CNL confirmed receipt and noted further follow-up.									√	

KFN - Mapping of Key Interests and Concerns

Table C-14 presents a mapping of how the key interests and concerns relate to detailed feedback and input from KFN, as of June 2024.

Table C-14 has 3 columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, why it is important to the Indigenous Nation, community or organization, and connects it to a project aspect or an Aboriginal or treaty right wherever possible. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 presents details of the key interest or concern that the Indigenous Nation, community or organization has identified formally in writing and/or verbally to CNL.

Table C-14 Mapping of KFN Key Interests and Concerns

Topic	Project Aspects of Interest/Concern	Specific feedback provided by KFN on this interest/concern
1. Alternatives	a) Alternative project options and technologies It is important that KFN and CNL collaborate on the evaluation of alternatives and that alternatives are evaluated using a balance of land use, social and cultural aspects important to KFN, because the approach selected has implications for the Algonquin people's future use of the site. This is a project-specific concern.	In June 2022, KFN provided feedback to CNL on the interests and concerns recorded for their community. KFN identified the need to collaborate on alternative project options and technologies taking into account land use, social, and cultural impacts. KFN has concerns that internationally, the practice of "in situ" decommissioning is only permitted in the case of an emergency or an accident which does not apply in the case of the NPD Closure Project (TBD by KFN third party review).
	b) Emphasis on financial costs in determining preferred alternative means. KFN is interested in understanding more fully NPD's financial guarantee. This is a project-specific concern.	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS. KFN is interested in the detailed cost break down for each alternative option for NPD. KFN understands that the current proposal for decommissioning the NPD site would replace the preliminary decommissioning plans that informed the basis for the NPD's financial guarantee.
	c) Technical suitability of the ISD concept KFN is inquiring about CNL's approach to applying relevant IAEA standards. This is a project-specific concern.	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS. KFN understands that the in-situ disposal option is not a method that has been employed yet at a Canadian-regulated nuclear facility. KFN is also interested in obtaining more information on CNL's consideration and application of IAEA standards for decommissioning and their application to the in-situ option.
2. Baseline Characterization	a) Geological site characterization It is important to KFN that baseline geological conditions are accurate and well understood, so that the long-term impacts of the NPD Closure Project can be accurately assessed. This is a project-specific interest.	During a site visit in April 2023, a Kebaowek community member asked questions about the quality of the bedrock around the facility and CNL's characterization work. The community member was also interested in how the facility will resaturate.
3. Engagement	a) Meaningful Indigenous participation and adequate Crown consultation in environmental assessments for the NPD Closure Project and the NSDF Project; Meeting the requirements of CEAA 2012 Section 5 (c) and United Nations Declaration on the Rights of Indigenous peoples Act (UNDA) 2021. This is both a project-specific concern and a concern for the Crown.	Meaningful Indigenous participation and adequate Crown consultation in environmental assessments (EAs) for the NPD Closure Project and the NSDF Project. AANTC and KFN sent a letter to the Prime Minister (May 14, 2020), which expressed consultation process concerns and a second letter was sent to the Minister of Natural Resources (August 26, 2020). This concern was reiterated in KFN's April 2021 response to CNL's letter outlining a preliminary commitment list for the NPD Closure Project and in KFN's July 2021 response to CNL's letter enclosing a summary of interests and concerns on the NPD Closure Project. KFN expressed their interest via a letter to CNL in summer 2021 to develop a Framework Agreement with CNL. KFN is looking for Algonquin engagement protocols to be established and recognized. In June 2022, KFN reiterated that it is seeking a fair legislative opportunity to engage. KFN highlighted that Section 19 (3) *CEAA*

Topic	Project Aspects of Interest/Concern	Specific feedback provided by KFN on this interest/concern
		(2012) provides for meaningful consultation, early engagement, and consideration of Indigenous Knowledge in EA. KFN must be provided adequate notice, relevant information, and opportunity to comment on Project Description, EIS, and draft EA as per *CEAA* (2012). KFN is seeking a fair legislative opportunity to engage and does not agree with CNL's assessment of "lack of participation" by KFN. The time period of no comments was in keeping with KFN correspondence with the Federal government seeking the opportunity to engage using the evolved legislative environment (Impact Assessment Act) and UNDA 2021 and 2023 Action Plan items.
3. Engagement	b) KFN wants to ensure that consultation and/or accommodation occurs with the Algonquin Anishinaabeg rights holders. This is both a project-specific concern and a concern for the Crown.	KFN takes issue that CNL has established project "Relationship Agreements" with umbrella organizations. KFN wants to ensure that non-Indigenous or non-Section 35 rights holders' participation in engagement with CNL and consultation with the CNSC, and Canada does not negatively impact human rights of true Algonquin Anishinaabeg rights holders. KFN has highlighted the non-Section 35 Rights holders are only entitled to engagement. KFN seeks collective clarity from CNL and CNSC as to how the NPD assessment distinguishes engagement from consultation with non-Section 35 Rights holders. KFN seeks definition and distinction in the CNL EIS between Section 35 Rights holders and non-Section 35 Rights holders.
	c) Funding for Participation in NPD EA process including review of existing studies and the EIS and community consultation. It is important to KFN that they have an opportunity to review the NPD Closure Project assessment and supporting documents and that there is meaningful engagement because the project is located within the traditional territory of KFN. This is a project-specific interest.	KFN has requested an opportunity to review the existing studies and NPD Closure Project EIS. As of June 6, 2022, KFN has only reviewed the Indigenous Engagement Section of the EIS. CNL and KFN have not established a budget that will support review of the entirety of the EIS. KFN highlighted that Section 19 (3) *CEAA* (2012)provides for meaningful consultation, early engagement, and consideration of Indigenous Knowledge in EA. KFN is seeking, with adequate notice, the relevant information, and an opportunity to comment on the Project Description, EIS, and draft EA. Through the negotiation of the Framework Agreement, CNL understands that KFN wants to ensure that information is disseminated to, and perspectives are heard from, community members through a Community Consultation Process. The objectives of a Community Consultation Process are: • to inform the people of the First Nation regarding CNL`s designated projects. • to learn what members of the First Nation think about (i) CNL`s designated projects, (ii) how the CNL`s designated projects may affect their Aboriginal rights and interests, (iii) how they would like to participate in the review of the EIS for the NPD Closure Project and community-led studies. • to provide additional information supporting community led assessment studies relevant to the EIS.
4. EA Process and Methodology	a) Continued use of *CEAA,* 2012 for the NPD Closure Project rather than the new *Impact Assessment Act*. It is important to KFN that the environmental assessment be carried out using the more recent *Impact Assessment Act* because it expressly recognizes the need for reconciliation. This is not a project-specific interest.	Continued use of *CEAA* (2012)for the NPD Closure Project rather than the new Impact Assessment Act (May 2020 Letter to Prime Minister). KFN has communicated on numerous occasions that *CEAA* (2012)legislation is not in parallel with the evolving EA landscape. KFN is seeking a fair legislative opportunity to engage and does not agree with CNL's assessment of "lack of participation" by KFN. The time period of no comments was in keeping with KFN correspondence with the Federal government seeking the opportunity to engage using the evolved legislative environment (Impact Assessment Act).

Topic	Project Aspects of Interest/Concern	Specific feedback provided by KFN on this interest/concern
		Further, KFN is seeking clarity from CNL and CNSC to distinguish consultation and engagement between non-Section 35 and Section 35 Rights holders as it applies to the NPD Assessment. In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS. KFN has asked how or if CNL has considered environmental justice within its assessment highlighting that Indigenous Nations, communities and organizations are disproportionately impacted by environmental harms and underrepresented in applicable decision-making processes.
4. EA Process and Methodology	b) Concern about the methodology of the cumulative effects assessment KFN is inquiring about CNL's assessment of cumulative effects, including CNL's assertion that only a high-level assessment is required due to its assertions of no residual effects associated with its preferred option for the NPD Closure Project. This is a project-specific interest.	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS that highlights topics of interests and concerns for KFN that KFN would like additional information on. KFN is inquiring about CNL's assertion that an absence of residual effects should allow only a high-level consideration of possible cumulative effects. KFN is interested in obtaining more information on work that CNL has done on the identification, assessment, and analysis of potential cumulative effects.
5. End State, Site Restoration and Future Use of the Land	a) Preparation of on-site landfills for the post-closure period KFN is inquiring into plans for managing the on-site landfills for all project alternatives. This is a project-specific interest.	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS. KFN is looking for additional information on the two legacy landfills on the NPD site including management of the land area and continuation of monitoring, if required. Closure plans for the on-site landfills are important to KFN because it wants to ensure that the environment around the site of the NPD Closure Project is protected.
6. Environmental Effects and Mitigation Measures	a) Implementation of appropriate measures to prevent or mitigate any negative impacts from the project. KFN would like provide input on mitigation to ensure reduction and elimination of potential effects. It is important to KFN that the mitigation measures address the potential impacts on KFN, taking into consideration the importance of and balancing of interrelationships among cultural, environmental, and social elements. This is a project-specific interest.	In June 2022, KFN provided feedback to CNL on the interests and concerns recorded for their community. KFN expressed concern that appropriate measures are not being taken to prevent or mitigate any negative impacts of proposed studies, developments, or monitoring. This evaluation is to properly consider the importance of balancing interrelationships among cultural, environmental, and social elements, including Trauma Informed Impact Assessment. As of 2023 June, KFN has communicated that researching and defining *CEAA* (2012) project impact pathways is a priority area of interest for Kebaowek.
	b) Potential impacts to aquatic species from NPD decommissioning activities The Kichi-Sibì and aquatic species are of particular importance to KFN. KFN would like additional information on plans, protocols, or strategies for Indigenous engagement/consultation on potential impacts to the aquatic environment. This is a project-specific concern	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS. KFN is seeking information relating to any aquatic *Species at Risk Act* and *Fisheries Act* permitting assessments for the NPD Closure Project and how consultation activities required by those Act, relevant agencies and MOU agreements are being undertaken. KFN is seeking more information relating to historical practices at the NPD site whereby contaminated water was released into the Kichi-Sibì. KFN is seeking more information that comprehensively assesses all potential sources of contamination from the NPD site to Kichi-Sibì as this is not clearly delineated in the most recent EIS.
7. Free Prior and Informed Consent (FPIC)	a) United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and UNDA 2021. KFN is seeking incorporation and advancement of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) including the principle of Free Prior and Informed Consent (FPIC) prior to proceeding with the proposed ISD Project. This is a project-specific concern.	KFN is seeking recognition of Algonquin jurisdiction within the context of FPIC and UNDRIP. In June 2022, KFN provided feedback to CNL on the interests and concerns recorded for their community. KFN is seeking to incorporate UN guiding Principles for Human Rights and Business and UNDRIP. Additionally, KFN highlights that the *IAA* works to advance UNDRIP, endorsed and enacted by the Government of Canada, including FPIC. KFN has identified a pilot Impact Assessment for the Temiskaming Dam Replacement Project under *CEAA* (2012) that takes into consideration historic rights and UNDRIP.
8. Indigenous Health	a) Methodology for conducting the Indigenous health assessment, receptors, and diet. KFN is interested in how Indigenous receptors have been defined in CNL's assessment and how CNL meets the requirements under CSA N288.1. This is a project-specific concern.	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD revised draft EIS. KFN is looking for additional information on the definitions for "Indigenous People" and "Indigenous Worker" which are identified as specific receptors for calculating exposure to potential health risks.

Topic	Project Aspects of Interest/Concern	Specific feedback provided by KFN on this interest/concern
9. Inventory	a) Inventory of the NPD disposal facility KFN is seeking further information about the nuclear waste that may remain on site and the radiological inventory of the proposed NPD disposal facility. This is a project-specific concern.	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS. KFN wants to better understand the nuclear waste/contamination that is expected to be present at the NPD site, and requests more information on the radiological inventory (quantities and radioactivity) of the proposed NPD disposal facility.
10. Long-term Safety	a) Technical suitability of In-Situ Disposal concept It is important to KFN that CNL demonstrate the design is appropriate in terms of waste inventory, containment, grouting of the NPD structure, and international best practice, because the NPD site is located within KFN traditional territory, and it is important that future users of the land at the NPD site are protected. This is a project-specific concern.	In June 2022, KFN provided feedback to CNL on the interests and concerns recorded for their community. KFN identified the need to incorporate long-term nuclear waste effect-related concerns into the evaluation of the NPD Closure Project. This evaluation should properly account for cultural, environmental, and social concerns and interests of the community, including gender-based analysis. In April 2023 KFN asked questions about the waste inventory, radionuclides and their half-lives.
	b) Long term site integrity KFN is interested in seeing examples of in-situ disposal used elsewhere and the performance of this concept. KFN wants confidence in the performance of the facility over the long-term to protect humans and the environment. This is a project-specific concern.	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS. KFN is inquiring about the comparative studies and assessments for in-situ disposal used by CNL and how they account for the significant differences in surface ecology and climate at NPD, as well as impacts to subsurface conditions and behaviour at less than 5m depth. KFN is inquiring about social and cultural considerations in CNL's comparisons between analogous sites for their proposed NPD in-situ disposal.
	c) Potential effects of the environment on the facility KFN is seeking more information about how CNL determines whether or to what extent environmental events may affect the long-term safety of the facility. This is a project-specific concern.	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS. KFN seeks more information about potential impacts of extreme weather or natural hazards on the NPD facility. KFN is interested to understand how the effects of extreme weather, climate change including storm projections and severe forest fires are considered in the NPD Closure Project's assessment. KFN is also interested in the effect of seismic events on long term safety.
11. Monitoring	a) Current monitoring and impacts from site operation. KFN is interested to understand CNL's past environmental performance at the NPD site via access to environmental monitoring plans and data. This is a project-specific concern.	In April 2023 KFN asked questions about the operational history, accidents, and details of the NPD intake/outfall. KFN was interested to know if there was a sediment plume at the outfall for NPD similar to the contaminated Ottawa riverbed sediments near the Chalk River site. In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS. KFN is interested in learning more about the current routine environmental monitoring at NPD. KFN is concerned that there is no publicly accessible Environmental Risk Assessment (ERA) or other publicly accessible source of monitoring data or monitoring plan descriptions for the NPD Closure Project. KFN requires a more comprehensive list and description of routine monitoring activities.
	b) EA Follow-up Monitoring KFN is interested in the proposed EA follow-up monitoring plans, especially comprehensive descriptions of monitoring pathways, locations, and frequencies. This is a project-specific concern.	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS.

Topic	Project Aspects of Interest/Concern	Specific feedback provided by KFN on this interest/concern
12. Protection of Flora and Fauna	a) Biota and Species at Risk KFN is inquiring about the potential impacts to Chimney Swifts from remedial and closure activities for the NPD ventilation stack. This is a project-specific concern	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS. KFN is inquiring about potential impacts to the chimney swift. KFN is interested in current contaminant levels present in the stack, specifically frequency of stack monitoring, sampling methodologies, and disaggregated monitoring results.
	b) Species at Risk permits. KFN is inquiring about a lack of engagement/consultation during the SAR permitting process. This is a project-specific concern.	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS. KFN is interested in the constitutional and regulatory aspects of species at risk permitting assessments. Specifically, KFN is looking for actions taken and status on CNL's plans, protocols, or strategies for Indigenous engagement/consultation on species at risk.
13. Protection of the Ottawa River	a) KFN expressed concern about watershed sustainability. As stewards of the lands and waters, it is important to KFN that the environment around the site of the NPD Closure Project including the Ottawa River is protected. KFN exercises rights and carries out traditional and contemporary activities, many of which rely on the health and well-being of the Ottawa River to maintain the health of the Anishnabeg Peoples. This is a project-specific concern.	In June 2022, KFN provided feedback to CNL on the interests and concerns recorded for their community. KFN identified the need to incorporate watershed sustainability concerns into the NPD EIS. This evaluation should properly account for cultural, environmental, and social concerns and interests of the community, including gender-based analysis.
	b) Impacts on groundwater and surface water quality KFN is inquiring about contamination releases to surface water during proposed decommissioning activities on the NPD site. As stewards of the lands and waters, it is important to KFN that the Ottawa River is protected. This is a project-specific concern.	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS. KFN is concerned that the Ottawa River is protected. KFN is interested in both historic liquid effluent discharge practices for the NPD facility sumps to the Ottawa River, as well as the current process involved in transferring the wastewater to the CRL site. KFN is also inquiring about the additional potential sources or pathways of liquid emissions from the NPD site during proposed decommissioning: the two tile drainage systems on site; stormwater channels (surface ditches); an equipment washout pit, and potential wastewater generated by the proposed grout mixing plant for the NPD decommissioning activities. It is unclear to KFN from the EIS how all these potential sources of water contamination will be addressed in proposed decommissioning activities. Further, KFN is also interested in any studies, assessments, or documents specifically relating to whether expected releases to surface water may require a *Fisheries Act* authorization.
14. Technical	a) Technical details for the batch mixing plant. It is important for KFN to understand CNL's plans for the proposed batch mixing plant to ensure that potential effects on the aquatic environment are properly assessed. This is a project-specific concern.	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS. KFN is interested in the technical details of the batch mixing plant including additional information on the water source, volume, or intake rate required for the grout mixing plant.

Topic	Project Aspects of Interest/Concern	Specific feedback provided by KFN on this interest/concern
15. Traditional Land and Resource Use and Cultural Impacts	a) Algonquin traditional knowledge should be collected and incorporated into the EIS. It is important to KFN that CNL solicit and use KFN's community-specific knowledge in order to properly characterize current site conditions, develop scenarios that accurately represent potential future uses of the site, and ensure that species and traditional uses are properly considered by the project. This is a project-specific concern.	KFN is seeking recognition and support of Algonquin community-led assessment. In June 2022, KFN provided feedback to CNL on the interests and concerns recorded for their community. KFN identified that traditional knowledge needed to be properly incorporated and considered within the EIS. KFN also identified their capacity to carry out independent studies as part of environmental, social, and cultural impact-assessment processes, with due regard to ownership of and the need for the protection and safeguarding of traditional knowledge. KFN is seeking to collaborate with CNL on appropriate land use, social, and cultural impact study methodologies with suitable timeframes to implement studies. As noted through the Framework Agreement, KFN was interested in several studies for the NSDF project that may be applicable to NPD. These supplemental Indigenous-led studies are related to Indigenous land and resource use, occupancy, socio-economic conditions, health and well-being and knowledge verification, applicable for CNL's designated projects: • Terrestrial animals' displacement, engineering and resettlement effects and traditional use assessment • Historical overview, displacement and resettlement effects, spatial and temporal boundaries, ceremonial jurisdiction • Baseline overview, historical effects, cumulative effects of CNL`s sites
16. Valued Components	a) Selection of valued components KFN is interested in the identification, selection, and assessment of "candidate species" (i.e., VCs) This is a project-specific concern.	In May 2024, KFN provided an Information Request (IR) to CNL as part of KFN's technical review of the NPD EIS. KFN is interested to understand how VCs at all trophic levels were selected for the project, as well as the frequency and duration of any field studies to confirm the selection of VCs, and any further assessments relating to CNL's application of an "ecosystem approach" to the identification and representativeness of VCs for the project.

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Kebaowek First Nation (KFN) – Summary of Interests and Concerns

Table C-15 below summarizes the key interests and concerns that Kebaowek First Nation (KFN) have raised on the NPD Closure Project, up to June 2024. CNL also includes engagement beyond this cut-off date in order to capture receiving KFN's preliminary EIS review comments. KFN is part of the AANTC and did not submit separately comments on the 2017 draft EIS. As noted above, the full submission of AANTC comments on the 2017 draft EIS can be found online: Comments on the 2017 draft EIS for NPD from Algonquin Anishinabeg Nation Tribal Council.

Table C-15 has five columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, and why it is important to the Indigenous Nation, community or organization. This interest or concern is also connected to a project aspect or an Aboriginal or treaty right wherever possible. This column may present a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 summarizes CNL's response or conclusions as well as CNL's efforts to address this key interest or concern.
- Column 4 identifies where in the EIS the key interest or concern is addressed, and whether any changes were made to the EIS in response to the interest/concern. If these changes resulted in a different outcome in the EIS, this is also discussed;
- Column 5 summarizes the "Status" of the key interest or concern and the anticipated Next Steps towards achieving resolution of the key interest or concern. Not all concerns can be quickly or easily resolved, as some concerns go beyond the scope of the EA process, or there may divergent perspectives on certain interests or concerns. Note: this column does not, unless specifically confirmed by the Indigenous Nation, community or organization, mean that they have verified that the interest or concern has been dealt with to their satisfaction.

The summary of KFN *Key Interests and Concerns* are derived from CNL's various engagements with KFN, including oral and written correspondence since 2016 when CNL introduced the NPD Closure Project proposal. Of note, KFN submitted information requests (IRs) to CNL on May 23, 2024, for specific topic areas where more information and data is required (as indicated below), based on KFN's technical review of the EIS. It is understood that the specific topic areas identified through the IRs are based on KFN's preliminary review of the EIS and does not constitute specific issues of concern for KFN as it remains too early in the review process for KFN to make this determination. CNL recognizes that KFN's review and assessment of the draft EIS remains underway, and therefore, the interests and concerns of KFN as described may change once the review and studies are completed and such changes will be captured in the final EIS.

Table C-15 Kebaowek First Nation Interests and Concerns

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
1. Alternatives	a) Alternative project options and technologies It is important that KFN and CNL collaborate on the evaluation of alternatives and that alternatives are evaluated using a balance of land use, social and cultural aspects important to KFN, because the approach selected has implications for the Algonquin people's future use of the site. This is a project-specific concern.	CNL would be happy to provide an overview of the in-situ disposal concept to KFN, including how CNL conducted the alternative means assessment (AMA) and why in-situ disposal is the preferred approach. KFN has requested further information from CNL on this issue as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL shared with KFN the requested supplemental reference documents in July 2024. Further discussions may proceed after CNL responds to KFN's requests (planned for Fall 2024). CNL Response: When conducting the AMA, CNL followed the regulatory framework laid out in the Canadian Environmental Assessment Agency (CEAA) Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2015) for the evaluation. of alternatives. The level of analysis conducted for each alternative is consistent with the *CEAA* requirements. The NPD site has been safely managed for over 55 years. CNL is reducing the waste liability by converting the waste into a form that provides safe, permanent waste disposal. CNL agrees that protection of future land users is an important concern and has addressed this subject. CNL has assessed the suitability of in-situ disposal for the NPD site, and the EIS shows that such a disposal	Where is this topic discussed in the EIS? Alternative means are discussed in the **AMA TSD** (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received June 2022).	Status: Outstanding CNL understands that project alternatives are an area of interest for KFN, and respects that KFN has a different opinion on the most suitable decommissioning approach for NPD. CNL maintains that the proposed in-situ disposal is the preferred option to undergo an environmental assessment (EA) and will await the outcome of the CNSC's decision on the Project. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. Next Steps: KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue. Through engagement, CNL hopes that the parties are able to find common ground on

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		option is safe for human health and the environment in the short term and long term. Based on its consideration of national and international standards and guidelines, CNL continues to believe that the NPD facility has characteristics that support in-situ disposal. CNL is committed to meeting with KFN to hear community perspectives on alternatives.		this topic, including the development of commitments to build confidence and trust in the in-situ disposal concept.
1. Alternatives	b) Emphasis on financial costs in determining preferred alternative means. KFN is interested in understanding more fully NPD's financial guarantee. This is a project-specific concern.	CNL would be happy to provide an overview of the in-situ disposal concept to KFN, including how CNL conducted the AMA and why in-situ disposal is the preferred approach. KFN has requested further information from CNL on this issue as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL shared with KFN the requested supplemental reference documents in July 2024. Further discussions may proceed after CNL responds to KFN's requests (planned for Fall 2024). <u>CNL Response:</u> CNL's role is to determine the most effective method to safely and securely manage the nuclear liabilities at the NPD site. In alignment with the CEAA Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" under the *CEAA*, 2012, an AMA was completed. According to the AMA, in-situ disposal was not determined to be the fastest and cheapest of all the options, however in-situ disposal was the most preferable based on several factors such as technical feasibility (proven technology and compliance with regulatory requirements), financial feasibility and effects on the people and the environment. CNL evaluated the various options based on an analysis of not only the technical possibilities, but also of their costs to lead to a decision that is in the best interests of Canada. In-situ disposal was found to be the preferred means for completing the NPD Closure Project, an option which was supported by AECL to undergo an EA.	<u>Where is this topic discussed in the EIS?</u> Alternative means are discussed in the **Alternative Means Assessment TSD** (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS. <u>What changes have been made (and where)?</u> No changes have been made to the EIS in response to this feedback (received May 2024).	<u>Status:</u> Outstanding CNL understands that project alternatives are an area of interest for KFN, and respects that KFN has a different opinion on the most suitable decommissioning approach for NPD. CNL maintains that the proposed in-situ disposal is the preferred option to undergo an EA and will await the outcome of the CNSC's decision on the Project. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. <u>Next Steps:</u> KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue. Through engagement, CNL hopes that the parties are able to find common ground on this topic, including the development of commitments to build confidence and trust in the in-situ disposal concept.
1. Alternatives	c) Technical suitability of the ISD concept KFN s inquiring about CNL's approach to applying relevant IAEA standards. This is a project-specific concern.	CNL would be happy to provide an overview of the in-situ disposal concept to KFN, including how CNL conducted the AMA and why in-situ disposal is the preferred approach. KFN has requested further information from CNL on this issue as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL shared with KFN the requested supplemental reference documents in July 2024. Further	<u>Where is this topic discussed in the EIS?</u> Alternative means are discussed in the **Alternative Means Assessment TSD** (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS. <u>What changes have been made (and where)?</u> No changes have been made to the EIS in response to this feedback (received May 2024).	<u>Status:</u> Outstanding CNL understands that project alternatives are an area of interest for KFN, and respects that KFN has a different opinion on the most suitable decommissioning approach for NPD. CNL maintains that the proposed in-situ disposal is the preferred option to undergo

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		discussions may proceed after CNL responds to KFN's requests (planned for Fall 2024). CNL Response: The proposal to create a disposal facility on the NPD reactor site through in-situ decommissioning has been chosen as a safe and immediate decommissioning option for the NPD reactor with respect to the environment, workers, and the public. It is important to highlight that this closure will reduce historic nuclear liabilities for Canada and, at the same time, reduce the footprint of the NPD site. The risks associated with in-situ disposal are lower than other options. In-situ disposal is a well-known technique used since the 1960's at many nuclear sites worldwide. Sites contaminated with toxic and hazardous wastes are also remediated using this technique. This approach requires the project to apply for a license as a disposal facility, and hence the facility must also meet the regulations for a disposal facility. In the case of the NPD reactor, the decommissioning strategy is to incorporate the reactor into a new disposal facility, which is in accordance with the IAEA definition of decommissioning, IAEA Safety Glossary (IAEA 2019). This strategy also meets the Canadian regulatory requirements, in particular the requirements of Section 5.1 of REGDOC-2.11.2, Decommissioning. Therefore, entombment is not being used as a decommissioning strategy for the decommissioning of the NPD reactor. The NPD reactor has a low inventory. Tritium is the major radionuclide and will decay to low levels during the Institutional Control period. The longer-lived Intermediate Level Waste (ILW) consists of small quantities of low energy beta emitters. The beta emitters have low radiotoxicity and do not generate heat. These are activation products inside the metal of the calandria in the reactor vault. The reactor vault is reinforced concrete with walls 3 m thick located around 10 m below grade in bedrock. The location of the reactor vault isolates the wastes making it hard to access. These are all features that are consistent with IAEA Safety Standard SSR-5, Disposal of Radioactive Waste, regarding cavern or vault disposal for ILW. CNL has written a report summarizing facilities worldwide that use in-situ disposal, (Aikens 2019b). The report is not limited to nuclear reactors or processing facilities and includes mines and hazardous waste sites. The report also describes what each of the facilities have in common, why in-situ disposal is the preferred approach and how it applies to NPD. In summary, in-situ disposal is a viable option for NPD. It is CNL's belief that the NPD facility has characteristics that support in-situ disposal. CNL is committed to ongoing engagement with KFN to gain a greater understanding of their concerns about the long-term safety of nuclear waste.		an EA and will await the outcome of the CNSC's decision on the Project. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. Next Steps: KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue. Through engagement, CNL hopes that the parties are able to find common ground on this topic, including the development of commitments to build confidence and trust in the in-situ disposal concept.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
2. Baseline Characterization	a) Geological site characterization It is important to KFN that baseline geological conditions are accurate and well understood, so that the long-term impacts of the NPD Closure Project can be accurately assessed. This is a project-specific interest	During the April 2023 site visit CNL summarized verbally some of the geologic and site investigation undertaken to support the project. As a follow-up, CNL shared the Geosynthesis report. CNL Response: In 2018/19 CNL undertook a geoscientific fieldwork campaign to sample and characterize the bedrock around the NPD facility. The fieldwork included coring of 10 boreholes to a depth of 50 metres into bedrock and several overburden boreholes, with installation of wells for sampling and hydraulic property determinations. The Geoscientific Characterization Report was used to revise the Geosynthesis report and the various models (i.e., Groundwater Model, Resaturation Model). The results of these reports were incorporated into the Postclosure Safety Assessment (PostSA) technical supporting document (TSD), enabling CNL to assess potential effects to valued components (VC) in the aquatic and terrestrial ecosystems. The additional field investigations and updated models support the conclusion that the NPD Closure Project is protective of human health and the environment.	Where is this topic discussed in the EIS? **Section 8.5** of the EIS presents the geological baseline data. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received June 2022).	Status: Resolution in Progress The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement.
3. Engagement	a) Meaningful Indigenous participation and adequate Crown consultation in environmental assessments for the NPD Closure Project and the NSDF Project; Meeting the requirements of CEAA 2012 Section 5 (c) and United Nations Declaration on the Rights of Indigenous peoples Act (UNDA) 2021. This is both a project-specific concern and a concern for the Crown.	CNL heard KFN's concern about meaningful Indigenous participation in the EA for the NPD Closure Project. CNL has sought feedback from, and offered engagement opportunities for, KFN on numerous occasions since the beginning of the project and signed a Letter of Intent for the development of a Framework Agreement. The Framework Agreement was signed in January 2023 detailing how CNL and KFN engage on CNL activities and projects, including the NPD Closure Project. CNL Response: For the NPD Closure Project, the responsibility for assessing that adequate Crown consultation has been undertaken falls with the CNSC. CNL recognizes that the number of emails, meetings, and phone calls does not equate to meaningful consultation. At its core, meaningful consultation is demonstrating integrity through a purposeful attempt to understand and address concerns through the context of reconciliation. CNL is committed to open, transparent, and continuing engagement with KFN within its role as the project proponent. CNL continues to communicate with, and provide engagement opportunities for, KFN. In April 2023, KFN visited the NPD site and had initial discussions about the project. CNL is looking forward to building an NPD specific work plan under the Framework Agreement to work on addressing areas of interest and concern from KFN. Engagement Highlights: CNL first reached out to KFN in 2016 with two letters addressed to the Chief; both letters shared information and one inquired on traditional land use.	Where is this topic discussed in the EIS? **Section 6.2 4.6.1** of the EIS summarizes CNL engagement with KFN including signing a Letter of Intent and a Framework Agreement that details how CNL and KFN engage on CNL activities and projects, including the NPD Closure Project. What changes have been made (and where)? CNL has updated **Section 6.2.4.6.1** of the EIS to reflect new and planned engagement activities to support KFN's meaningful participation in the EA process.	Status: Resolution in Progress CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. It is noted that this topic extends beyond the scope of the NPD Closure Project. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		As a part of the AANTC, KFN attended an introductory project meeting between the AANTC and CNL in 2017 April to share project information and hear feedback from the AANTC leadership. The CNL presentation included: site location, project components and timeline, species at risk, proposed end state, and safety barriers for the protection of the environment. In June 2020, CNL and AANTC, including KFN began a discussion on a contribution agreement to support KFN's participation in the EA process. Although CNL attempted further correspondence with KFN through July and August 2020, in September 2020, the AANTC informed CNL that they would not be willing to meet again until the latest letter, sent to the Minister, received a response. CNL sought feedback from KFN in 2021 on preliminary project commitments and on the summary of interests and concerns. In July 2021 CNL and KFN agreed to move forward with the development of a framework agreement with CNL, with the first step being a Letter of Intent. Two-way communication (correspondence and meetings) in the second half of 2021 resulted in a signed Letter of Intent between CNL and KFN in January 2022. CNL and KFN signed a framework agreement in January 2023. The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024.		
3. Engagement	b) KFN wants to ensure that consultation and/or accommodation occurs with the Algonquin Anishinaabeg rights holders. This is both a project-specific concern and a concern for the Crown.	<u>CNL Response:</u> CNL appreciates and understands the feedback that as a rights holding Indigenous Nation, KFN needs to be consulted with and engaged directly, and through the right processes with the right representatives. CNL understands the importance of establishing a unique relationship with KFN to ensure that they may bring forward any concerns or interest they have specific to the rights held collectively by the Nation. CNL is committed to building positive long-term relationships with Indigenous Nations and communities who have treaty and Aboriginal rights on the lands for the proposed NPD disposal facility, as well as working with other interested Indigenous Nations, communities and organizations. CNL will continue to directly build a relationship with KFN in a way that KFN wants to be engaged.	<u>Where is this topic discussed in the EIS?</u> CNL presents its record of engagement with all Indigenous Nations, communities and organizations in **Section 6.2.4** of the EIS. <u>What changes have been made (and where)?</u> No changes have been made to the EIS in response to this feedback.	<u>Status:</u> Outstanding The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL understands that this concern remains outstanding for KFN until CNL and CNSC provide clarity on how the NPD assessment distinguishes engagement from consultation with non-Section 35 Rights holders. CNL remains committed to ongoing engagement with KFN within its role as the project proponent. It is noted that this topic extends beyond the scope of the NPD Closure Project. <u>Next Steps:</u> CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
3. Engagement	c) Funding for Participation in NPD EA process including review of existing studies and the EIS and community consultation. It is important to KFN that they have an opportunity to review the NPD Closure Project assessment and supporting documents and that there is meaningful engagement because the project is located within the traditional territory of KFN. This is a project-specific interest.	CNL Response: CNL is committed to open, transparent, and continuing engagement with KFN. CNL and KFN have entered into a Framework Agreement, which provides for engagement directly between the parties on the NPD Closure Project as well as capacity funding to support KFN's participation in the EA process. As the engagement has deepened, it is expected that work on NPD will include disseminating communications materials and capturing community members' perspectives on the NPD Closure Project. CNL looks forward to meaningful engagement with KFN accomplished in good faith by all to understand KFN's concerns and work towards addressing them together.	Where is this topic discussed in the EIS? **Section 6.2 4.6.1** of the EIS summarizes CNL engagement with KFN to date. What changes have been made (and where)? CNL has updated **Section 6.2.4.6.1** of the EIS to reflect new and planned engagement activities to support KFN's meaningful participation in the EA process.	Status: Resolution in Progress The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. A work plan is being developed which will identify, amongst other things, capacity to support review of existing studies and the EIS. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement.
4. EA Process and Methodology	a) Continued use of *CEAA*, 2012 for the NPD Closure Project rather than the new *Impact Assessment Act*. It is important to KFN that the environmental assessment be carried out using the more recent *Impact Assessment Act* because it expressly recognizes the need for reconciliation. This is not a project-specific interest.	No actions – the NPD Closure Project EA will continue under *CEAA* (2012). CNL Response: Note this concern was raised with the Federal Government. While the topic of regulatory requirements for an EA process is broad and not specific to the NPD Closure Project, KFN's comments were directed at the regulatory regime under which the NPD Closure Project should be assessed. As per direction from the CNSC and transitional provisions of the *Impact Assessment Act*, CNL is continuing its EA for the NPD Closure Project under *CEAA* (2012). Letter to CNL - Changes to Federal Legislation. CNL recognizes that what KFN is requesting is consistent with the new provisions and commitments under the *Impact Assessment Act* (*IAA*), but is beyond the scope of *CEAA* (2012) and therefore is not required to be considered. The final NPD EIS will meet the requirements of *CEAA* (2012) but will also incorporate good practices consistent with the *IAA*.	Where is this topic discussed in the EIS? **Section 3.5** of the EIS summarizes the regulatory framework for the NPD Closure Project. **Section 6.4** outlines CNL's approach and commitment to reconciliation. What changes have been made (and where)? **Section 3.5** of the EIS reflects the provisions in subsection 182 of the *IAA* for continuation of ongoing projects under *CEAA* (2012).	Status: Resolved For the NPD Closure Project, CNL considers this concern addressed by the revisions to the EIS that provide the regulatory framework and outline CNL's approach and commitment to reconciliation. While KFN may still prefer that the project is subject to the *IAA*, the CNSC has determined that the project will be evaluated under *CEAA* (2012). CNL understands that this concern remains outstanding for KFN until CNL and CNSC provide clarity on how the NPD assessment distinguishes engagement from consultation with non-Section 35 Rights holders. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement. KFN has requested further information from CNL on the environmental justice issue as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to KFN's queries on this issue.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
4. EA Process and Methodology	b) Concern about the methodology of the cumulative effects assessment KFN is inquiring about CNL's assessment of cumulative effects, including CNL's assertion that only a high-level assessment is required due to its assertions of no residual effects associated with its preferred option for the NPD Closure Project. This is a project-specific interest.	CNL Response: CNL's view is that a cumulative effects assessment is required only where adverse residual effects have been identified, a position consistent with *CEAA* (2012). The EIS identified no adverse residual effects are expected to occur from the NPD Closure Project. According to *CEAA* (2012), cumulative effects assessment is not required for negligible potential effects. Therefore, conducting a cumulative effects assessment would be beyond the scope of *CEAA* (2012) and this EA.	Where is this topic discussed in the EIS? **Section 9.13** of the EIS provides the process for evaluating cumulative effects and the assessment of cumulative effects for the NPD Closure Project. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received May 2024).	Status: Resolution in Progress CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012). CNL understands that assessment of cumulative effects is an area of concern for KFN. The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement. KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue.
5. End State, Site Restoration and Future Use of the Land	a) Preparation of on-site landfills for the post-closure period KFN is inquiring about plans for managing the on-site landfills for all project alternatives. This is a project-specific interest.	CNL Response: CNL acknowledges KFN's request for more information on the landfill areas at the NPD site. Groundwater near the landfills has been assessed through comprehensive campaigns in 2014 and 2017 and no groundwater impacts were noted related to the landfills. Landfill #1 was used for conventional purposes (e.g., office and cafeteria waste) during the operation of the facility and has a certificate of approval (A413107) from the Ontario MOECC acknowledging closure of the landfill. The certificate of approval includes conditions for regular inspections of Landfill #1. An annual inspection takes place which includes inspecting the landfill for settlement or fallen trees, ensuring survey markers and sign posts are not damaged and ensuring the general aesthetics are maintained. In terms of the impact to the environment from Landfill #1, minor greenhouse gases are emitted from the decomposition of organic matter (wood, cafeteria waste). These emissions are insignificant - approximately 128 tonnes of CO_2 equivalent per year, which is much lower than the reporting threshold to Environment and Climate Change Canada of 10,000 tons of CO_2 equivalent per year. Groundwater quality around Landfill #1 has been evaluated several times over the years (summarized in Section 8.5.6.1 of the Environmental Impact Statement (EIS)). The campaigns assessed	Where is this topic discussed in the EIS? The former landfills are introduced in **Section 3.3.1** of the EIS (Structures at the NPD Site). General plans for restoration and end state are described in **Section 4.3.1.9** of the EIS. **Section 8.5** describes the geology and baseline characterization near the former landfills. Landfill monitoring activities are discussed in **Section 12** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received May 2024).	Status: Resolution in Progress CNL understands that ensuring that lands on and in the vicinity of the NPD site are responsibly managed is an area of concern for KFN. The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement. KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough

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		radiological, inorganic, and organic water quality and concluded that there was no contaminant concentrations in groundwater that exceeds available federal water quality guidelines for drinking water. Landfill #1 will undergo annual inspections indefinitely. No other assessment or preparation of Landfill #1 is required. Landfill #2 was used as a laydown area during construction of the site and contains mainly construction rubble. An assessment of groundwater quality around Landfill 2 was undertaken in 2014 (see Section 8.5.6.1 of the EIS). One of the sample locations north-east of Landfill 2 showed manganese concentrations in exceedance of the Health Canada Drinking Water standards, but the study concluded that this value is likely not due to contamination, and that no groundwater issues were noted for NPD. Manganese is a naturally occurring metal and is abundant. For example, wells in background areas of the Chalk River Laboratories Site (unaffected by site operations) have natural Manganese concentrations up to 800 ug/L. Because it is not a registered landfill, no annual inspections will be required for Landfill #2. No other assessment or preparation of Landfill #2 is required.		information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue.
6. Environmental Effects and Mitigation Measures	a) Implementation of appropriate measures to prevent or mitigate any negative impacts from the project. KFN would like to provide input on mitigation to ensure reduction and elimination of potential effects. It is important to KFN that the mitigation measures address the potential impacts on KFN, taking into consideration the importance of and balancing of interrelationships among cultural, environmental, and social elements. This is a project-specific interest.	<u>CNL Response:</u> The EIS identified no adverse residual effects as a result of the project. CNL is continuing its efforts to address concerns related to potential effects and mitigation measures by offering an opportunity to all Indigenous Nations, communities and organizations to be involved in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help build confidence that the decommissioning strategy and mitigation measures are effective. CNL stands by its conclusion that the project will not interfere with traditional activities nor impact biological resources upon which they are dependent. However, CNL is open to increased engagement, education, and participatory involvement in monitoring activities at CNL operated to help alleviate any concerns.	<u>Where is this topic discussed in the EIS?</u> **Section 10** of the EIS, specifically **Table 10.3-1** summarized the mitigation measures identified for the various environmental components assessed under this EIS. <u>What changes have been made (and where)?</u> No changes have been made to the EIS in response to this feedback (received June 2022).	<u>Status:</u> Resolution in Progress CNL understands that further discussions are needed with KFN to help address this concern, based on feedback received in May 2024. The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL understands that researching and defining *CEAA* (2012) project impact pathways is a priority area of interest for KFN. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. <u>Next Steps:</u> CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement. Forward engagement between CNL and KFN may result in specific project commitments on additional mitigations measures that will enhance confidence and trust that negative impacts are minimized.

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6. Environmental Effects and Mitigation Measures	b) Potential impacts to aquatic species from NPD decommissioning activities The Kichi-Sibì and aquatic species are of particular importance to KFN. KFN would like additional information on plans, protocols, or strategies for Indigenous engagement/consultation on potential impacts to the aquatic environment. This is a project-specific concern	CNL Response: CNL agrees that protection of aquatic species in the Ottawa is important. The EIS demonstrated there are no predicted adverse impacts from the project on aquatic species. To supplement baseline data, a study of sediment, benthic invertebrates and fish habitat features was undertaken upstream, adjacent to and downstream of the NPD site in 2020. The study determined that the Ottawa River benthic invertebrate community near NPD is healthy and typical of what is observed in many large, soft-bottomed, relatively deep river systems. This study can be repeated when decommissioning is complete, to verify if the project has had an impact. CNL is planning to regularly monitor the Ottawa River water quality before the project begins. CNL is willing to discuss fish tissue sampling with KFN and review past studies of fish tissue in the NPD area. Follow-up monitoring for the NPD Closure Project will include monitoring of the Ottawa River to verify that there are no effects.	Where is this topic discussed in the EIS? The EIS does not predict any adverse residual effects on the Surface Water Environment (**Section 9.3.3.5**) or the aquatic environment (**Section 9.4.3.5**). CNL has developed mitigation measures and draft follow-up monitoring plans for the protection of the Kichi-Sibì (**Sections 9.3.3.2** and **12.3** of the EIS). What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received May 2024).	Status: Resolution in Progress CNL understands that further discussions are needed with KFN to help address this concern, based on feedback received in May 2024. The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024.CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement. KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue.
7. Free, Prior, and Informed Consent (FPIC)	a) United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and UNDA 2021. KFN is seeking incorporation and advancement of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) including the principle of Free Prior and Informed Consent (FPIC) prior to proceeding with the proposed ISD Project. This is a project-specific concern.	CNL Response: It is the position of KFN that their consent is required for the creation of a permanent hazardous waste disposal facility in its traditional territory, per Section 29.2 of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). CNL will work with KFN towards the achievement of that principle to the extent possible. CNL is committed to ensuring meaningful participation of Indigenous peoples in decisions that affect their nations, communities, and territories. CNL, as the licensee, is committed to work towards consensus and consent, with an understanding that UNDRIP does not necessitate a veto in decision-making. We recognize that we must learn from each other and work together to strengthen relationships and enable fulsome Indigenous participation in CNL's designated projects. The regulatory decision-making process considers UNDRIP and the extent to which its principles are met.	Where is this topic discussed in the EIS? **Section 6.2 4.6.3** of the EIS summarizes KFN's interests and concerns including governance. What changes have been made (and where)? No changes have been made to the EIS in response to this concern.	Status: Outstanding The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL understands that UN guiding principles for human rights and UNDRIP are areas of importance for KFN. CNL remains committed to seeking common ground with KFN in the interest of moving closer towards consent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement.

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8. Indigenous Health	a) Methodology for conducting the Indigenous health assessment, receptors, and diet. KFN is interested in how Indigenous receptors have been defined in CNL's assessment and how CNL meets the requirements under CSA N288.1. This is a project-specific concern.	CNL Response: CNL acknowledges KFN's concerns about the methodology used to assess Indigenous health effects from the NPD Closure Project. CNL has added an Indigenous receptor group to the PostSA TSD. In the third iteration of the PostSA TSD issued in March 2020, CNL included a Potential Exposure Group consisting of a family of self-sufficient Indigenous receptors in the NPD Area. The exposure profile in the postclosure period was developed based on a traditional Indigenous lifestyle pre-European contact (SENES 2014). This lifestyle results in a more cautious dose estimate than that based on current-day lifestyle, where some food is store-bought. The predicted peak dose to an Indigenous receptor (from the 3rd iteration PostSA) is 0.0004 mSv/yr, which is 500 times less than the dose criterion. The analysis demonstrates that the impact on the public, Indigenous peoples and the environment is negligible under all scenarios. To instill confidence in the EIS findings and the effectiveness of the follow-up monitoring, CNL is open and willing for KFN and other Indigenous Nations, communities, and organizations to be involved in the monitoring program, which aims to confirm the predictions of the EIS. CNL maintains that human health has been conservatively assessed for Indigenous Nations, communities, and organizations within the EIS and looks forward to discussing this topic further with KFN.	Where is this topic discussed in the EIS? The EIS presents the PostSA results for the Indigenous receptor group in **Section 9.10.2**. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received May 2024).	Status: Resolution in Progress CNL's technical assessment shows that there are no predicted impacts to Indigenous biophysical health resulting from the NPD Closure Project. CNL understands that further discussions are needed with KFN to help address this concern, based on feedback received in May 2024. The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement. KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue.
9. Inventory	a) Inventory of the NPD disposal facility KFN is seeking further information about the nuclear waste that may remain on site and the radiological inventory of the proposed NPD disposal facility. This is a project-specific concern.	CNL shared the waste inventory report as a follow-up to the 2023 April site visit. CNL Response: The NPD reactor has a low radionuclide inventory. Tritium is the major radionuclide and will decay to low levels during the Institutional Control period (~100 years). The proposed waste disposal facility barriers have a design life consistent with that timeframe. The longer-lived ILW consists of small quantities of low energy beta emitters. The beta emitters have low radiotoxicity. The main barrier to containing the radioactivity on long timescales is that 83% of the initial inventory (mostly activation products) is embedded within steels and Zircaloy which corrode very slowly, particularly in an alkaline environment. The metals used in the reactor vault are corrosion-resistant alloys, with stainless steel taking approximately 30,000 years to fully corrode and zircaloy up to 300,000 years to fully corrode. The low corrosion rates allow the radioactivity to decay before it is released into the reactor vault. Once in the reactor	Where is this topic discussed in the EIS? **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received May 2024).	Status: Resolution in Progress CNL understands that further discussions are needed with KFN to help address this concern, based on feedback received in May 2024. The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on

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		vault the radioactive contaminants sorb onto the grout which further delays its diffusion out of the facility. Based on its consideration of national and international standards and guidelines, CNL continues to believe that the NPD facility has characteristics that support in-situ disposal. CNL is committed to ongoing engagement with KFN to gain a greater understanding of their concerns about the long-term safety of nuclear waste.		key topics of interest for KFN, enabled through the Framework Agreement. KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue.
10. Long-term Safety	a) Technical suitability of in-situ disposal concept It is important to KFN that CNL demonstrate the design is appropriate in terms of waste inventory, containment, grouting of the NPD structure, and international best practice, because the NPD site is located within Kebaowek traditional territory, and it is important that future users of the land at the NPD site are protected. This is a project-specific concern.	CNL shared the waste inventory report as a follow-up to the 2023 April site visit. <u>CNL Response:</u> CNL agrees that protection of future land users is an important concern and has addressed this subject. CNL has assessed the suitability of ISD for NPD, and the resulting EIS shows that such disposal is safe for human health and the environment in the short term and long term. Design features of the NPD facility make it conducive to disposing of the material in place. The proposed project involves a long-term solution to ensure the waste that currently resides at the NPD site is effectively contained and isolated from the environment, ensuring public safety. CNL includes an Indigenous receptor group in its assessment of long-term safety. The predicted peak dose to an Indigenous receptor is 0.0004 mSv/yr which is 500 times less than the dose criterion. The analysis demonstrates that the impact on Indigenous Peoples and the environment is negligible. The proposed NPD Closure Project conforms with all applicable Canadian codes and standards as well as international best practices to ensure protection of the environment and safety throughout the life of the facility. CNL is committed to ongoing engagement with KFN to gain a greater understanding of their concerns about the long-term safety of nuclear waste.	<u>Where is this topic discussed in the EIS?</u> **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment. <u>What changes have been made (and where)?</u> No changes have been made to the EIS in response to this feedback (received June 2022).	<u>Status:</u> Outstanding The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL understands that the long-term management and safety of nuclear waste is a concern for KFN, and respects that KFN has a different opinion on the most suitable decommissioning approach for NPD. CNL maintains that the proposed in-situ disposal is the preferred option to undergo an EA and will await the outcome of the CNSC's decision on the Project. CNL remains committed to ongoing engagement with KFN within its role as the project proponent. <u>Next Steps:</u> CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement.
10. Long-term Safety	b) Long term site integrity KFN is interested in seeing examples of in-situ disposal used elsewhere and the performance of this concept. KFN wants confidence in the performance of the facility over the long-term to protect humans and the environment. This is a project-specific concern.	<u>CNL Response:</u> CNL has written a report that summarizes facilities worldwide that use in-situ disposal. The report is not limited to nuclear reactors or processing facilities but includes mines and hazardous waste sites. The report also describes what each of the facilities have in common, why in-situ disposal is the preferred approach and how it applies to NPD. 16 projects are described, the majority of the examples are reactors, and all are permanent disposal solutions. CNL has assessed the suitability of in-situ disposal for NPD, and the EIS demonstrates that such disposal is safe for human health and the environment in the short term and long term.	<u>Where is this topic discussed in the EIS?</u> **Section 11.2** of the EIS confirms that in-situ disposal is a proven technology in use for over 50 years. <u>What changes have been made (and where)?</u> No changes have been made to the EIS in response to this feedback (received May 2024).	<u>Status:</u> Outstanding CNL understands that project alternatives are an area of interest for KFN, and respects that KFN has a different opinion on the most suitable decommissioning approach for NPD. CNL maintains that the proposed in-situ disposal is the preferred option to undergo an EA and will await the outcome of the CNSC's decision on the Project.

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		CNL has considered national and international standards and guidelines and continues to believe that the NPD facility has characteristics that support in-situ disposal.		CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement. KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue. Through engagement, CNL hopes that the parties are able to find common ground on this topic, including the development of commitments to build confidence and trust in the in-situ disposal concept.
10. Long-term Safety	c) Potential effects of the environment on the facility KFN is seeking more information about how CNL determines whether or to what extent environmental events may affect the long-term safety of the facility. This is a project-specific concern.	CNL Response: CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above-ground natural hazards and extreme temperature change, and has concluded that these events will have no undue effects on people or the environment around the site. The NPD site has an Emergency Procedure that will remain in place and be updated as required throughout the Decommissioning Execution and Institutional Controls phases of this project. This procedure focuses on the prevention, mitigation of, preparedness for, response to, and recovery from a wide range of abnormal and emergency conditions including fires, floods, hazardous spills, loss of power; earthquakes, and tornados. The Emergency Procedure also defines the actions of specific staff/roles in such events. Following any of these emergency events, as soon as it is safe for staff to do so, site and facility condition are evaluated, and any necessary actions will be taken to make repairs. The NPD Emergency Procedure is developed and maintained in accordance with CNL's company-wide Emergency Preparedness Program that has been accepted to meet the CNSC's requirements (under REGDOC 2.10.1 - Nuclear Emergency Preparedness and Response). Further, throughout all project phases (Decommissioning Execution, Institutional Controls and Post-Institutional Controls) CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above-ground natural hazards and extreme temperature change, and has concluded that these events will have no undue effects on people or the environment around the site.	Where is this topic discussed in the EIS? **Section 8.12** of the EIS discusses the relevant natural disasters to which NPD may be exposed. **Section 9.14** of the EIS discusses the potential effects on the project of climate change, forest fires, floods, earthquakes, severe weather such as tornados, lightning strikes, ice storms, and changes to the Ottawa River. Additional details and a range of scenarios that encompass the potential impacts from extreme weather and natural hazards are examined in the DecomSA TSD and the PostSA TSD. What changes have been made (and where)? No changes have been made to the EIS in response to this concern (from feedback received May 2024).	Status: Resolution in Progress CNL's technical assessment shows that accidents and natural hazards which could affect the facility will not result in undue effects on people and the environment around the site. CNL understands that further discussions are needed with KFN to help address this concern, based on feedback received in May 2024. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement. KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue.

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11. Monitoring	a) Current monitoring and impacts from site operation KFN is interested to understand CNL's past environmental performance at the NPD site via access to environmental monitoring plans and data. This is a project-specific concern.	CNL shared a link to the annual summary or environmental performance as a follow-up to the 2023 April site visit. CNL would be pleased to share any other historic environmental monitoring data as requested by KFN. CNL Response: CNL conducts a rigorous monitoring program and is committed to ensuring that the environment around the NPD site, including the Ottawa River, is protected. Monitoring of the environment (a) Ottawa River water: Radioactivity measured in the Ottawa River upstream and downstream of the NPD site are very low (<0.01% of the derived release limit). (b) Surface soil and Vegetation: Tritium in soil and vegetation on the NPD site is very low (< 0.01% of the derived release limit). The results demonstrate that the public and the environment around the NPD site continues to be protected. In addition to the CNL monitoring program, the CNSC leads an Independent Environmental Monitoring Program (IEMP) designed to verify that the public and the environment around licensed nuclear facilities are protected. As part of its IEMP, the CNSC samples and analyzes surface water upstream and downstream of the NPD site (including sampling for non-radiological parameters). The CNSC IEMP results confirm that the public and the environment around the NPD site are protected and that there are no expected health impacts.	Where is this topic discussed in the EIS? Historic environmental monitoring is summarized in the description of the existing environment (**Section 8**) of the EIS. Specifically, **Sections 8.2** – Atmospheric Environment, **8.3** Surface Water Environment, **8.5.6** Groundwater Quality and **8.7** Ambient Radioactivity. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received May 2024).	Status: Resolution in progress CNL considers this interest has been addressed with the information shared to KFN. CNL notes that impacts from past operations are out of scope of this EA. CNL remains committed to ongoing engagement with KFN within its role as the project proponent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement. KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue.
11. Monitoring	b) EA Follow-up Monitoring KFN is interested in the proposed EA follow-up monitoring plans, especially comprehensive descriptions of monitoring pathways, locations, and frequencies. This is a project-specific concern.	CNL Response: CNL conducts a rigorous environmental monitoring program and is committed to ensuring that the environment around the NPD site, including the Ottawa River, is protected. CNL is seeking to work together with Indigenous Nations, communities, and organizations, the public and stakeholders regarding their feedback before finalizing the EA Follow-up Program (**Section 12** of the EIS). The monitoring of the environment will be undertaken to verify the EIS predictions of no significant adverse effect and to confirm that mitigation measures are effective. Groundwater wells will be located between the NPD facility and the Ottawa River to monitor groundwater quality after it interacts with the facility and before it reaches the Ottawa River. A dedicated Indigenous-led, Indigenous Knowledge driven component integrated into the site environmental monitoring at NPD can help build confidence and trust in CNL's assessment. CNL has indicated that it is willing to involve all Indigenous Nations, communities, and organizations in its environmental monitoring programs and is willing to explore	Where is this topic discussed in the EIS? The draft follow-up monitoring plans for the NPD Closure project are included in **Section 12** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received May 2024).	Status: Resolution in Progress CNL understands that ensuring that lands on and in the vicinity of the NPD site are responsibly managed and monitored is an area of concern for KFN. The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement.

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		involvement in environmental monitoring work with KFN, if desired. CNL is also open and willing to share the draft follow-up monitoring plans with KFN for review, if desired. CNL will conduct environmental monitoring for as long as necessary to verify the results of the assessment in the EIS. The results demonstrate that the public and the environment around the NPD site continues to be protected.		CNL is open and willing to have a dedicated discussion with KFN on the follow-up monitoring program for the NPD site and is willing to discuss involvement in environmental monitoring by KFN, if desired. KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue. Once responses are received and reviewed by KFN experts, discussions may resume.
12. Protection of Flora and Fauna	a) Biota and Species at Risk KFN is inquiring about the potential impacts to Chimney Swifts from remedial and closure activities for the NPD ventilation stack. This is a project-specific concern	<u>CNL Response:</u> The ventilation stack at NPD is 46 m in height. Chimney Swifts spend the spring and summer months in the area. They arrive in early May and migrate south at the end of August. At the NPD site, swifts roost in the top few metres of the stack. The swifts don't build nests in the stack; swifts that are ready to nest leave the stack and live in the forest during the breeding season (June-July) The level of contamination in the concrete at the top of the stack (where the swifts roost) was measured in 2014 using thermoluminescent dosimeters and the dose was at background levels. CNL is planning to empty water/sludge from the base of the stack to enable inspection of the stack base. This work is planned to take place within the next few months. Pumping out of the water/sludge will take place at a time when swifts are not in the stack. The sludge is composed of rainwater and biological waste from the swifts. It contains tritium and gross beta radioactivity due to contact with the stack concrete. CNL will prepare an “environmental review” document for this activity which will outline the timing restrictions to the work to ensure minimal impact to chimney swifts and outline other measures that must be taken to prevent adverse impacts to the environment (e.g. preventing spills from vehicles). This waste will be managed at the Sewage Treatment Plant at the Chalk River Laboratories site. Once the proposed in-situ decommissioning is complete, the ground level around the ventilation stack will be higher due to the engineered barrier that is proposed to cover the facility. CNL plans to grout the base of the ventilation stack up to a level approximately 8-10 feet above the current ground level. This will isolate the ventilation stack from the rest of the NPD facility and create a new higher “bottom” of the ventilation stack. Several holes will be cored in the stack at the level of the new base to allow the draining of any rain and melt water that might enter the stack from the opening at the top, and to allow for periodic camera inspections of the interior, if required. The holes will also help induce an airflow up	<u>Where is this topic discussed in the EIS?</u> General plans for the ventilation stack are described in **Section 4.3.1.6** of the EIS. **Section 9.6.3.2** of the EIS includes comprehensive mitigations to ensure effects on Chimney Swifts are minimized. <u>What changes have been made (and where)?</u> No changes have been made to the EIS in response to this feedback (received May 2024).	<u>Status:</u> Resolution in Progress CNL understands that ensuring that lands on and in the vicinity of the NPD site are responsibly managed and monitored is an area of concern for KFN. The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL remains committed to ongoing engagement with KFN within CNL’s role as the project proponent. <u>Next Steps:</u> CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement. CNL is open and willing to have a dedicated discussion with KFN on environmental monitoring activities at the NPD site and is willing to discuss involvement in monitoring by KFN, if desired. KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue. Once responses are received and

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		the ventilation stack, due to stack effect that is intended to mimic the current passive airflow present in the ventilation stack. Animal-resistant louvers are proposed to be placed over the drain holes, to ensure free drainage of water while denying animals access to the stack interior. The ventilation stack will be inspected periodically for signs of degradation and will be removed when no longer structurally suitable for continued use as a chimney swift roost. For planning purposes, this is assumed to be 50 years following completion of decommissioning.		reviewed by KFN experts, discussions may resume.
12. Protection of Flora and Fauna	b) Species at Risk permits. KFN is inquiring about a lack of engagement/consultation during the SAR permitting process. This is a project-specific concern.	<u>CNL Response:</u> CNL is committed to the protection of species at risk and has and will apply for any necessary permits from ECCC. In its effects assessment, when considering species at risk, CNL considers impacts to an individual and not just the overall population. Several species at risk have been identified at the NPD site and key aspects of CNL's plan to protect these species are included below. Early in the NPD Closure Project, CNL undertook investigation of the viability of ventilation stack removal. It was decided that ventilation stack retention would mitigate the risk of abandonment by the Chimney Swift. CNL has applied for a species at risk permit from ECCC for the potential harm and harassment of chimney swifts during decommissioning activities. The draft conditions of that permit (mitigations for the protection of the Chimney Swift) are included in the EIS. In response to observations of milkweed at the NPD site, monarch butterfly has been added as a valued component to the EIS and mitigations are in place to preserve and reseed with milkweed (critical habitat). CNL does not predict any adverse residual effects to the chimney swift, monarch and other species at risk.	<u>Where is this topic discussed in the EIS?</u> Collectively, mitigation measures for the protection of flora and fauna, specifically species at risk are outlined in **Section 9.6.3.2** (Terrestrial Environment). <u>What changes have been made (and where)?</u> No changes have been made to the EIS in response to this feedback (received May 2024).	<u>Status:</u> Resolution in Progress CNL understands that further discussions are needed with KFN to help address this concern, based on feedback received in May 2024. The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. <u>Next Steps:</u> CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement. KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue.
13. Protection of the Ottawa River	a) KFN expressed concern about watershed sustainability. As stewards of the lands and waters, it is important to KFN that the environment around the site of the NPD Closure Project including the Ottawa River is protected. KFN exercises rights and carries out traditional and contemporary activities, many of which rely on the health and well-being of the Ottawa River to maintain the health of the Anishnabeg Peoples. This is a project-specific concern.	<u>CNL Response:</u> The potential for contamination to reach the Ottawa river is assessed in the EIS and is supported by long term modelling and detailed groundwater modelling. The EIS predicts no effects to surface water (including the Ottawa River), and follow-up monitoring will be implemented to confirm these predictions. To verify that the engineered barriers are performing as expected/designed, CNL will monitor groundwater. Groundwater wells will be located between the NPD facility and the Ottawa River in order to monitor groundwater quality after it interacts with the facility and before it	<u>Where is this topic discussed in the EIS?</u> **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment including the Ottawa River Mitigation measures for the protection of surface water (**Section 9.3.3.2**) (including the Ottawa River) have been updated and expanded from the 2017 draft EIS.	<u>Status:</u> Outstanding The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL understands that watershed sustainability is an area of concern for KFN. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. <u>Next Steps:</u>

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		reaches the Ottawa River. CNL will conduct monitoring for as long as necessary to verify the results of the assessment in the EIS. CNL is committed to ongoing engagement with KFN to gain a greater understanding of their concerns about watershed sustainability related to the NPD Closure Project.	The EIS does not predict any adverse residual effects on the surface water environment (**Section 9.3.3.5**). What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received June 2022).	CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement.
13. Protection of the Ottawa River	b) Impacts on groundwater and surface water quality KFN is inquiring about contamination releases to surface water during proposed decommissioning activities on the NPD site. As stewards of the lands and waters, it is important to KFN that the Ottawa River is protected. This is a project-specific concern.	CNL Response: In 2018, in response to public and Indigenous concerns, CNL ceased the practice of discharging liquid effluent from the NPD facility sumps to the Ottawa River and arranged for water to be sent to the Waste Treatment Centre at the CRL site. This is CNL's plan for all collected water from the sump, including that water which will make up the final pump-out prior to grouting. Full details regarding liquid effluent releases from all CNL facilities are given in the Annual Compliance Monitoring Reports available at the following CNL webpage: https://www.cnl.ca/en/home/environmental-stewardship/performancereport/default.aspx. CNL has assessed the potential impact of the NPD Closure Project on surface water and groundwater quality. The EIS concludes that no significant residual adverse environmental effects from the project are expected, including to surface water and groundwater. CNL has developed mitigation measures for the protection of surface water and groundwater during all phases of the project. This finding will be confirmed with the NPD Closure Project follow-up monitoring activities, which will include monitoring groundwater and surface water quality. With respect to the need for constructing a stormwater pond: During the Decommissioning Execution phase of the project, existing drainage features at the site will be maintained and silt fencing will be placed in areas used for stockpiles of raw material (i.e., sand) to prevent runoff into the Ottawa River. For the Institutional Control period, the need for a storm water management pond was taken into consideration during the design of the cover system. The cover is designed to convey storm water to ditches on the south, east and western perimeters of the mound which then connect to the existing ditch systems which are on the east and west sides of the NPD facility. The ditch systems are lined with rock and would enable infiltration of storm water. Because of this design of water conveyance features, it was determined that a storm water management pond was not required. Since this design was developed after the draft EIS was prepared, CNL is willing to meet with the AANTC to discuss the design of the cover system with respect to storm water management, including design drawings illustrating the water conveyance features. CNL is committed to the protection of the Kichi-Sìbì (Ottawa River) and looks forward to continuing discussions on this topic with KFN.	Where is this topic discussed in the EIS? **Section 4.3** of the EIS describes the project activities and presents CNL's plans with respect to surface drainage. **Section 4.5** of the EIS describes CNL's plans for handling project-related liquid releases. **Sections 9.3 and 9.5** of the EIS presents the assessment of potential impacts to surface water and groundwater respectively. Mitigation measures for the protection of surface water and groundwater are provided, including CNL's process for non-routine discharges. No un-assessed liquid effluent releases are permitted. The EIS does not predict any adverse residual effects on the surface water or groundwater environments. **Section 12** of the EIS summarizes the Monitoring Plans developed for the project. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received May 2024).	Status: Resolution in Progress CNL understands that ensuring that the lands and waters on and in the vicinity of the NPD site are responsibly managed and monitored is an area of concern for KFN. The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement. CNL is open and willing to have a dedicated discussion with KFN on monitoring activities at the NPD site and is willing to discuss involvement in monitoring by KFN, if desired. KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue. Once responses are received and reviewed by KFN discussions can resume.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
14. Technical	a) Technical details for the batch mixing plant. It is important for KFN to understand CNL's plans for the proposed batch mixing plant to ensure that potential effects on the aquatic environment are properly assessed. This is a project-specific concern.	CNL Response: CNL acknowledges that KFN is interested in the final details for the batch mixing plant. The final design of the mixing plant and items such as a wash out pit will be dependent on the contractor awarded the work. The technical requirements of the work imposed by CNL will include the recycle of wash waters used, back into the grout mix. No release of water will be allowed without first being tested and approved for disposition by the CNL Environmental Program. Typical wash out pits are shallow excavations with polymer liners. Others use large poly sacs to retain the grout debris and allow water to filter through and be collected. CNL has done additional research in the operations of batch plants, and we do not believe that a washout pit will be required. If it is determined one is required, CNL will provide these details to review together to understand any concerns.	Where is this topic discussed in the EIS? Batch plant construction details are discussed in **Section 4.3.1.2** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received May 2024).	Status: Resolution in Progress The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement. KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue.
15. Traditional Land and Resource Use and Cultural Impacts	a) Algonquin traditional knowledge should be collected and incorporated into the EIS. It is important to KFN that CNL solicit and use KFN's community-specific knowledge in order to properly characterize current site conditions, develop scenarios that accurately represent potential future uses of the site, and ensure that species and traditional uses are properly considered by the project. This is a project-specific concern.	CNL Response: CNL agrees that KFN-specific information and traditional knowledge from the KFN and other Indigenous nations should be integrated into the EIS. Prior to the June 2022 feedback, CNL sent two letters asking specific questions of KFN to align with the requirements of *CEAA* (2012) Section 5(1)(c). These questions included: • Do you have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects? • Does [Kebaowek], or any members, have sites of ceremonial significance in close proximity [of NPD], or more generally, any cultural activities near [the NPD site]? The EIS and supporting studies have assumed that traditional uses do occur adjacent to the NPD site, whether on the Ottawa River or outside the restricted/fenced area. CNL has also assumed that in the future there is an interest to re-establish traditional use activities on the NPD site. CNL includes an Indigenous receptor group in its PostSA. The predicted peak dose to an Indigenous receptor is 0.0004 mSv/yr which is 500 times less than the dose criterion. The analysis demonstrates that the impact on Indigenous Peoples and the environment is negligible.	Where is this topic discussed in the EIS? **Section 8.9** of the EIS presents information about traditional land and resource use, including limited information about KFN (**Section 8.9.2.2.6**). In lieu of more comprehensive community specific knowledge, CNL includes its assumptions (**Section 8.9.2.1**). The assessment of effects to traditional land and resource use VCs is discussed in **Section 9.9** of the EIS. The EIS and supporting studies have assumed that traditional uses do occur adjacent to the NPD site, whether on the Ottawa River or outside the restricted/fenced area. CNL has also assumed that there will be future interest in re-establishing traditional use activities on the NPD site. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received June 2022).	Status: Outstanding The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024, which will enable specific studies. CNL understands that project incorporation of traditional knowledge and community capacity for independent studies as part of the EA process is an area of concern for KFN. CNL recognizes that traditional knowledge, culture, and ceremony will have much to offer the Project as it moves forward. CNL remains committed to ongoing engagement with KFN within CNL's role as the project proponent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
16. Valued Components	a) Selection of valued components and application of an ecosystem approach KFN is interested in the identification, selection, and assessment of “candidate species” (i.e., VCs). This is a project-specific concern.	CNL Response: CNL initially created a Master List of Candidate Valued Components by reviewing relevant reference documents and applying EA process and site knowledge. These candidate VCs include biota such as fish or birds, as well as abiotic qualities such as cultural and heritage sites, or socioeconomic entities such as fishing. CNL provides rationale for including or not including species as a VC. The VCs selected for the NPD Closure Project reflect a wide range of Indigenous interests. Many of the interests and concerns raised by Indigenous Nations, communities and organizations, correspond directly or indirectly to the VCs selected for the project. Based on Indigenous feedback received during engagement activities, CNL has added several human and nonhuman VCs that were identified as being of importance to Indigenous Nations, communities and organizations. Berries, mushrooms, mink, river otter, weasel, red fox, moose, and monarch butterflies were added as VCs, as well as soil quality, groundwater quality, groundwater flow and several Indigenous socioeconomic and Indigenous health VCs. In some cases, no new VCs were added, because direct, representative, or related VCs that encompass the value or interest of the Indigenous Nation, community or organization were already included in the assessment. CNL has also updated the draft EIS to include a mapping of Indigenous VCs to the effects assessment.	Where is this topic discussed in the EIS? A complete listing of VCs assessed by the project can be found in **Table 5.2-3** of the EIS while **Appendix B** provides a Master List of Candidate Valued Components, providing a rationale for including or not including the species as a VC. **Section 6.3** of the EIS captures VCs identified by Indigenous Nations, communities and organizations. CNL has developed a detailed table (**Table 6.3-1**) for **Section 6.3** of the EIS that captures VCs of Indigenous Nations, communities and organizations and demonstrates how they are either directly or indirectly assessed in the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received May 2024).	Status: Resolution in Progress The amendment to the Framework Agreement was executed by the parties and came into effect as of July 2024. CNL remains committed to ongoing engagement with KFN within CNL’s role as the project proponent. Next Steps: CNL and KFN continue to work together towards the development of a work plan on key topics of interest for KFN, enabled through the Framework Agreement. KFN has requested further information from CNL on topics of importance to KFN as the most recent EIS does not contain enough information for its third party experts to conduct their assessments. CNL will provide responses in writing to its queries on this issue.

Appendix C.4.2 – Record of Engagement and Tables of Interests and Concerns for the Kitigan Zibi Anishinabeg First Nation (KZA)

This appendix provides a complete record of all engagement between CNL and Kitigan Zibi Anishinabeg First Nation (KZA, a member nation of AANTC) from June 2016 to May 2024 (Table C-16). Table C-16 includes the date and method of the communication/engagement, the topics discussed and participants. The table also highlights engagements where key EA topics were discussed. The key EA topics align with "Generic Guidelines for Preparation of an Environmental Impact Statement Pursuant to the *Canadian Environmental Assessment Act*, 2012" as well as the requirements of REGDOC 3.2.2 "Indigenous Engagement" and guidance specific to NPD provided by the CNSC in January 2021 (e-doc # 6467843).

Following the record of engagement is a mapping of how the summary of interests and concerns were compiled (Table C-17), as well as a summary of interests and concerns raised by Kitigan Zibi Anishinabeg First Nation (Table C-18).

Section 6.2.4.7.1 of the EIS summarizes the engagement activities that have taken place to date between CNL and the KZA.

Table C-16 Record of Engagement with Kitigan Zibi Anishinabeg First Nation (KZA)

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 17, 2016 Incoming letter	This letter from the Kitigan Zibi Anishinabeg First Nation (KZA) Chief to the CNSC's Director of the Environmental Assessment Division raised interests and concerns on the NPD Closure Project related to the following: • Protection of the Ottawa River; • Interest in viewing the Environmental Impact Statement; • Indigenous rights.				√	√				√	
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the KZA Chief introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5(1)(c), the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* • *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	
October 24 Outgoing telephone call	This telephone call from a communications officer with CNL to the KZA staff in the Department of Natural Resources and Wildlife to follow-up on the July letters. CNL offered a presentation and meeting or to send poster information. KZA stated that they would be interested in poster information and CNL shared the posters for the NPD Closure Project via email.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 10, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the KZA Chief inquired about asserted rights and traditional activities in the region around CRL. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested a better understanding of KZA's historic and/or modern day use of lands in and/or near both of the projects and asked the following questions: • *Does Kitigan Zibi Anishinabeg First Nation have traditional territory or reserve lands near the NSDF and/or NPD Closure Project?* • *What is the history of Kitigan Zibi Anishinabeg First Nation using the areas around the two projects?* • *Do you have any members of Kitigan Zibi Anishinabeg First Nation that currently live in close or reasonable proximity to either of the projects?* • *Does Kitigan Zibi Anishinabeg First Nation have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects?* • *Does Kitigan Zibi Anishinabeg First Nation, or any members, have sites of ceremonial significance in close proximity to either of the two sites, or more generally, any cultural activities near either of the two sites?* CNL also indicated interested in learning more about the KZA and any asserted rights, interests or activities members might undertake in the local or regional areas in proximity to the project.				√	√				√	
November 14, 2016 Outgoing email	This email to the KZA staff in the Department of Natural Resources and Wildlife and the Forestry Department from a communications officer with CNL was to follow-up on the November letter.										√
April 26, 2017 Meeting	This meeting occurred in Maniwaki, Quebec with representatives from the AANTC (including the Grand Chief and the Director General), CNL (including the Director of Corporate Communications and the Director of Environmental Protection), the CNSC (including the Participant Funding Program Administrator) and representatives from two member First Nations of the AANTC – KZA and KFN. CNL shared information in English and French and heard some interests and concerns from the AANTC. Information shared on the NPD Closure Project included: • Site location; • Project components; • Timeline; • Species at risk; • Proposed end state; • Safety barriers (how the environment will remain protected).			√	√					√	

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 03, 2017 Meeting	This meeting, between three representatives of KZA, including two specialists in biology and forestry and one Councilor, and four representatives of CNL, including one environmental specialist and the Manager of Decommissioning) It was an opportunity for open discussion on the project with and to discuss KZA's comments on the project description. The presentation focused on: • Environmental assessment and environmental monitoring; • Indigenous requirements in an EIS; • A project overview; • Timeline; • End state. Interests raised during this meeting included the following: • Species at risk (Chimney Swift and turtles); • Interest in a visit to the NPD site.	√		√	√						
July 19, 2017 Outgoing email	This email from a communications officer with CNL to the KZA staff in the Department of Natural Resources and Wildlife and the Forestry Department was to follow-up on a number of items from the May meeting. The email indicated that hard copies of requested information including CNL's species at risk handbook and environmental monitoring reports would be made available for collection on July 20, when the KZA came for the site visit at NPD.	√			√					√	
July 20, 2017 Meeting	This meeting between representatives from CNL (including the Manager of Decommissioning, a communications officer and an environmental specialist) and the KZA staff in the Department of Natural Resources and Wildlife and the Forestry Department included a visit to the NPD site. One of CNL's environmental specialists discussed ecological and archeological studies. The KZA representatives had the opportunity to ask questions or offer feedback on the project, including feedback on species at risk. Interests discussed included species at risk (Chimney Swift, Monarch butterflies). All questions were addressed verbally.				√					√	
November 15, 2017 Outgoing email	This email from a communications officer with CNL to the KZA Chief enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and EA, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	
November 17, 2017 Outgoing email	This email from a communications officer with CNL to the KZA Chief enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: *"CNL would be pleased to update information in this current draft with input from your community."* Note that this had been a requested document and CNL had indicated in their email of July 19 that it would be shared with KZA, once it was complete.	√	√	√	√	√	√	√	√	√	
January 17, 2020 Outgoing telephone call	This call from a CNL communications officer to from a communications officer with CNL to the KZA staff in the Department of Natural Resources and Wildlife and the Forestry Department was to confirm that Chief Whiteduck was still the current KZA Chief. CNL was informed that he was on indefinite leave.										√
January 17, 2020 Outgoing email	This email from a communications officer with CNL to the KZA staff in the Forestry Department was to confirm new contact name for Biologist.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
January 17, 2020 Incoming email	This email from the KZA staff in the Forestry Department to CNL communications staff was to confirm that the Forestry Management email address was to be used and a new biologist was being recruited.										√
In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
May 06, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the KZA Chief enclosed a preliminary version of the 2020 EIS and an updated IER. This letter also asked for feedback in the following seven areas: • *Does Kitigan Zibi Anishinabeg First Nation have additional information that they would like to provide in the context of traditional territory near the NPD site?* • *Does Kitigan Zibi Anishinabeg First Nation have any members who currently live close or in reasonable proximity to the NPD site?* • *Does Kitigan Zibi Anishinabeg First Nation have historical and/or current traditional practices near the NPD site, specifically we are interested in members' traditional uses such as trapping (traditional or commercial), hunting, fishing (traditional or commercial), gathering and practicing cultural ceremonies?* • *Does Kitigan Zibi Anishinabeg First Nation have sites of ceremonial significance in close proximity or more generally any cultural activities near the NPD site?* • *Tell us about any important resources, uses, activities, values and interests to Kitigan Zibi Anishinabeg First Nation near the NPD site.* • *If there is use in close proximity to the NPD site, is current community use different than historic use and can a description of those difference be provided?* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights.* This letter also indicated an interest in meeting with KZA to discuss any interests or concerns.	√	√		√	√	√	√	√	√	
May 26, 2020 Outgoing email	This email from a communications officer with CNL to the KZA staff in the Forestry Department was to follow up on the May 6 letter.										√
April 12, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the KZA Chief enclosed a preliminary list of commitments and indicated interest in meeting to discuss.										√
April 22, 2021 Incoming letter	This letter from the Grand Chief of the AANTC and the Chief of KFN to CNL's Manager of Stakeholder Relations (copying the KZA Chief) indicated that neither was in agreement with the list of commitments and indicated that engagement with the AANTC and KFN was essential.									√	
April 30, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Grand Chief of the AANTC and the Chief of KFN (copying the KZA Chief) shared that the letter was not intended to provide a final set of commitments and CNL was interested in engaging with the AANTC and KFN to determine a mutually agreed upon set of commitments.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 15, 2021 Outgoing email	This email from a communications officer with CNL to the KZA staff in the Department of Forestry was to follow-up on the April letter.										√
June 21, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Chief of KZA enclosed a draft summary of KZA's interests and concerns for the NPD Closure Project for the KZA's review and verification.									√	√
July 5, 2021 Outgoing email	This email from a communications officer with CNL to the KZA Chief was to follow-up on the June 21, 2021 letter.										√
July 13, 2021 Outgoing email	This email from a communications officer with CNL to the KZA staff in the Department of Forestry was to follow-up on the June 21, 2021 letter.										√
July 14, 2021 Incoming email	This email from the KZA staff in the Forestry Department to a CNL communications officer was in response to follow-up emails on the June 21 letter. This email stated that CNL could expect a response to the June 21 letter from KZA soon.										√
August 3, 2021 Outgoing email	This email from a communications officer with CNL to the KZA staff in the Department of Forestry was to follow-up on the June letter and inquire if CNL had the correct contact with KZA.										√
August 4, 2021 Incoming email	This email from the KZA staff in the Forestry Department to a CNL communications officer was to confirm the contact and reiterate that KZA would have a general consultation email to CNL soon.										√
August 17, 2021 Outgoing letter	This email from a communications officer with CNL to the KZA staff in the Department of Forestry resent the June 21, 2021 letter from CNL's Manager of Stakeholder Relations to the Chief of KZA enclosing a draft summary of KZA's interests and concerns for the NPD Closure Project for the KZA's review and verification. CNL requested feedback by August 31, 2021.									√	
September 28, 2021 Outgoing Email	This email from a senior communications officer to KZA staff in the Forestry Department who had been identified as the new KZA primary contact moving forward. CNL suggested that a meeting be set up with this new KZA primary contact to inform them of the NPD Closure Project and NSDF Closure Project in detail in order to familiarize the KZA consultant with the projects. CNL also provided the most recent correspondence between CNL and the former KZA contact regarding the *Table of Interests and Concerns* for the NPD Closure Project.										√
October 18, 2021 Outgoing Email	This email was sent by a senior communications officer with CNL to the new KZA primary contact, in the Forestry Department, upon not receiving a response to the previous email.										√
October 19, 2021 Incoming Email	This email from KZA staff in the Forestry Department (identified as the new primary contact) to a senior communications officer with CNL was to apologize for not responding sooner and informing CNL that the KZA team were in the process of reviewing the Appendix A table. KZA let CNL know they were in a transitional period with key staff members and proposed a meeting for mid-November to review with CNL.										√
October 19, 2021 Outgoing Email	This email from a senior communications officer from CNL to KZA staff in the Forestry Department was to propose three dates in mid-November for a meeting for review.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 20, 2021 Incoming Email	This email from KZA staff in the Forestry Department to a senior communications officer with CNL was to confirm November 17, 2021 as a meeting date and asked CNL to add another KZA staff member onto the meeting list.										√
October 28, 2021 Outgoing email	This email from a Senior Communications Officer with CNL to KZA staff in the Forestry Department included an attachment of a rough agenda for the meeting on November 17, 2021. This email also informed KZA of the decision to delay the revised draft EIS Submission and invited KZA to provide any further feedback that KZA may have on the updated summary table of interests and concerns, which would need to be received by November 26, 2021 in order to be included in the 2021 submission of the revised draft EIS.										√
November 17, 2021 Virtual Meeting	This email between CNL representatives (including the Manager of ERM Stakeholder Relations and Communications Officers) and KZA staff in the Forestry Department was a general overview of the NPD Closure Project and NSDF Project. The KZA representatives had a number of questions related to the environmental assessment timeline for the NPD Closure Project, baseline environmental studies that had been done so far and the waste inventory at the NPD facility. No new interests were raised.	√		√						√	√
November 22, 2021 Outgoing Email	This email from a Senior Communications Officer with CNL to KZA staff in the Forestry Department was to follow-up on some items that were discussed at the previous meeting, some of which were related to the NPD Closure Project. CNL provided some attached slides to address some of KZA's questions on waste inventory and shared links to a number of studies where baseline environmental information for the NPD Closure Project could be found. As requested by KZA, CNL also provided all interests and concerns that had been raised to date by Indigenous Nations, communities and organizations. CNL informed KZA of the timeline to submit the revised version of the draft EIS for NPD in December 2021. CNL informed KZA that they will need any information to be included in this revision by November 26, 2021. CNL noted there was interest in looking at an example of a contribution agreement, which CNL agreed to provide.	√		√						√	√
December 09, 2021 Outgoing Email	This email from a Senior Communications Officer with CNL to KZA staff in the Forestry Department was to share a template of a contribution agreement in follow-up to the meeting on November 17, 2021.									√	√
January 11, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to KZA staff in the Forestry Department was to follow-up to confirm that they had received the example of a contribution agreement and the other information that was shared in November.										√
March 08, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to KZA staff in the Forestry Department was to inform KZA that CNL is revising how they present the summary table of interests and concerns to address a request from the Canadian Nuclear Safety Commission (CNSC). CNL requested that KZA confirm whether they would like to verify that the revised table still reflects their interests and concerns, focusing on the new column that ties their interest/concern to the project or Aboriginal and treaty right, and identify why it is of concern to your community.									√	
April 01, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to KZA staff in the Forestry Department provided the repackaged summary table of interests and concerns referenced in the March 8, 2022 email. CNL offered capacity for KZA's review of the table.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 08, 2022 Incoming Email	This email from KZA staff in the Forestry Department to a CNL Senior Communications Officer acknowledging receipt of the repackaged summary table of interests and concerns and provided CNL a timeline for their review. KZA indicated the need to hire experts to assist in understanding how the NPD Project will impact the environment and therefore their traditional rights. KZA request a meeting to specifically go over what funding is available to hire experts and what is a reasonable timeframe to have this work carried out.									√	
April 08, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to KZA staff in the Forestry Department thanked KZ FN for their willingness to the review the interests and concerns table and acknowledged KZA's interest in expert technical reviews of the project at a broader level. CNL suggest dates for a meeting.									√	
April 18, 2022 Outgoing email	Email invitation to Kitigan Zibi Anishinabeg First Nation to the CNL Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.										√
April 25, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to KZA staff in the Forestry Department to follow-up on the dates suggested for a meeting discuss funding.									√	
May 09, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to KZA staff in the Forestry Department to follow-up on the dates suggested for a meeting discuss funding.									√	
May 24, 2022 Outgoing telephone call	This telephone call from a CNL Senior Communications Officer to KZA staff in the Forestry Department discussed the timeline for review of the interests and concerns table. CNL offered capacity to fund the review and offered a meeting to discuss engagement needs.									√	√
May 27, 2022 Incoming Email	This email from KZA staff in the Forestry Department to a CNL Senior Communications Officer provided Kitigan Zibi Anishinabeg First Nation's comments on the interests and concerns table. KZA offered a meeting to discuss the edits. CNL acknowledged receipt and confirmed a 'clean copy' would be shared.									√	
June 23, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to KZA staff in the Forestry Department sent the updated interests and concerns table (and a version with tracked changes). CNL offered a meeting to discuss KZA's interest in greater participation in the environmental assessment process for the NPD Closure Project.									√	
July 15, 2022 Incoming Email	This email from KZA staff in the Forestry Department to a CNL request to participate in the July 28, 2022 Environmental Stewardship meeting. The NPD Closure Project provides updates at the ESC meetings.										√
July 26, 2022 Incoming Email	This email from KZA staff in the Forestry Department to a CNL Senior Communications Officer requested a tour of the Chalk River Laboratories site. CNL asked KZA to confirm if they would also be interested in a tour of the NPD site.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
August 05, 2022 Outgoing telephone call	This email from KZA Consultation Coordinator to a CNL Senior Communications Officer confirmed that KZA's priority was touring the Chalk River site.										√
October 03, 2022 Outgoing Letter	This letter addressed to Kitigan Zibi Anishinabeg First Nation's Chief from CNL's Director of Indigenous Relations provided a project update and the engagement status with KZA. CNL stated it is committed to incorporating KZA's interests and concerns into the EIS. CNL provided an engagement status and next steps, including offering capacity through a contribution agreement and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for KZA's review. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that KZA respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.									√	
October 04, 2022 Outgoing telephone call	This telephone call from CNL's Director of Indigenous Engagement to KZA staff in the Forestry Department discussed coordinating a meeting with a KZA Councillor. CNL followed up October 06, 2022.										√
October 11, 2022 Incoming email	This email from KZA staff in the Forestry Department to CNL's Director of Indigenous Relations proposed a date for a meeting to discuss engagement related to the NSDF project, suggestions from CNL on how to improve the relationship between CNL and KZA, developing a long-term framework agreement and funding for related activities. CNL acknowledged receipt and provided availability for a meeting.										√
October 12, 2022 Outgoing email	This email from a CNL Senior Communications Officer to KZA staff in the Forestry Department shared that CNL has posted a position for an Indigenous Engagement Coordinator.										√
October 19, 2022 Incoming email	This email from KZA staff in the Forestry Department to a CNL Senior Communications Officer requested more information on the Indigenous Engagement Coordinator position posted.										√
October 24, 2022 Outgoing email	This email from a CNL Senior Communications Officer to KZA staff in the Forestry Department shared more information about the Indigenous Engagement Coordinator position posted.										√
October 24, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to KZA staff in the Forestry Department to followed up on the October 12, 2022 email offering to coordinate a meeting.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 25, 2022 Incoming email	This email from KZA's Consultation Coordinator to CNL's Director of Indigenous Relations confirmed a meeting with CNL, CNSC and KZA's Councillor on October 27, 2022. KZA confirmed the agenda: 1. A meeting to go over the commitments list that CNL has submitted as part of the impact assessment; 2. Schedule a community outreach session where representatives from CNL come to the community, present the NSDF Project and answer questions that community members may have about NSDF and Chalk River; 3. Suggestions from CNL on how to improve the relationship between CNL and KZA; 4. Developing a long-term framework agreement; 5. Funding for related activities.										√
October 25, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to KZA's Consultation Coordinator asking if an AECL representative should be invited to the October 27, 2022 meeting. CNL ask KZA to confirm whether this joint, multi-party meeting was meeting KFN's expectations for a meeting with CNL as the CNSC was invited.										√
October 25, 2022 Incoming email	This email from KZA's Consultation Coordinator to CNL's Director of Indigenous Relations indicated the interest in meeting with CNL, AECL and the CNSC at the same to be more efficient for communication. KZA agreed to only meeting with CNL October 27, 2022.										√
October 26, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kitigan Zibi Anishinabeg First Nation's Chief followed-up on the letter sent October 03, 2022.										√
October 27, 2022 Virtual Meeting	Meeting between Kitigan Zibi Anishinabeg First Nation (KZA Nation Consultation and Councillor) and CNL (including CNL, Director Indigenous Relations and ERM Stakeholder Relations). CNL and Kitigan Zibi Anishinabeg First Nation discussed the NSDF commitments list and next steps for the list, CNL's support for a community outreach session specific to the NPSDF project, the development of a contribution agreement and a framework agreement. CNL and Kitigan Zibi Anishinabeg First Nation discussed at length the relationship and how it can be improved.										√
October 28, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to KZA's Consultation Coordinator, Councillor and KZA staff in the Forestry Department thanked the First Nation for the meeting on Thursday, October, 27, 2022 and sharing a template for a Capacity Agreement. CNL also confirmed the interest in planning a leadership meeting.										√
November 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to KZA's Consultation Coordinator and KZA staff in the Forestry Department suggested dates for a leadership meeting in December 2022. The leadership meeting would discuss the relationship between CNL and KZA. CNL sent a follow up email November 08, 2022.										√
November 08, 2022 Incoming email	This email from a Kitigan Zibi Anishinabeg First Nation Councillor to a CNL Senior Communications Officer confirmed that KZA will follow up with Chief and Council about a leadership meeting date.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 14, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kitigan Zibi Anishinabeg First Nation's Consultation Coordinator asked if there had been a decision on the leadership meeting yet. KZA replied that there was no decision on a date yet.										√
November 28, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kitigan Zibi Anishinabeg First Nation's Consultation Coordinator to a meeting discuss to confirm a leadership meeting date and next steps on contribution agreement and engagement activities.										√
November 30, 2022 Incoming email	This email from Kitigan Zibi Anishinabeg First Nation's Councillor to a CNL Senior Communications Officer informed CNL that no council or chief representation from KZA was available for the Wednesday, November, 30, 2022 meeting. KZA asked that CNL continue to share information as it does with other First Nations and municipalities but noted that information sharing is not considered consultation.										√
November 30, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kitigan Zibi Anishinabeg First Nation's Councillor proposed to move the Wednesday, November, 30, 2022 meeting to Thursday, December, 1, 2022.										√
November 30, 2022 Incoming email	This email from Kitigan Zibi Anishinabeg First Nation's Councillor to a CNL Senior Communications Officer informed CNL that Chief and Council were busy and could not meet. KZA asked to be distributed information on activities. CNL cancelled the meeting.										√
November 30, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Kitigan Zibi Anishinabeg First Nation's Councillor and Consultation Coordinator confirmed receipt of the information shared about Chief and Councils availability. CNL noted that the leadership meeting and contribution agreement discussion can wait until the new year.										√
January 20, 2023 Outgoing Email	This email from CNL's Director Indigenous Relations to KZA Consultation to follow up on the several unanswered emails sent to KZA.										√
January 20, 2023 Outgoing Email	This email from a CNL Communications Officer to the KZA Consultation Coordinator to inform of the decision to postpone the submission of the NPD Closure Project's draft Environmental Impact Statement (EIS) until 2023 May to allow for additional Indigenous input. CNL proposed the next steps would be to continue working together to ensure the KFN's interests and concerns are reflected in the EIS by CNL sending KFN a draft set of commitments for KFN review on 2022 October 03.										√
February 16, 2023 Outgoing Email	This email from CNL Communications Officer to KZA Consultation with follow-up email concerning the email sent on 2023 January 20 in which no answer was received.										√
February 21, 2023 Webinar	Representatives from KZA participated in the NPD webinar. The webinar topic was *Changes to the EIS Resulting from Feedback*.										√
May 05, 2023 Incoming email	This email from KZA a CNL Communications Senior Officer requesting the addition of a presentation on the NPD project and CNL's Commitments list to the agenda for the newly establish monthly meeting planned for May 10.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 05, 2023 Outgoing email	This email from CNL Communications Senior Officer to KZA suggesting dedicating the June 14 monthly meeting to discussing the NPD project. KZA confirmed.										√
May 16, 2023 Outgoing email	This email from a CNL Communications Officer to KZA provided the updated Interests and Concerns Table. CNL is seeking verification from KZA that the interests and concerns of KZA have been recorded. CNL respectfully requested KZA response by 2023 June 20.									√	
June 13, 2023 Incoming email	This email from KZA a CNL Communications Senior Officer requesting to cancel the June 14 monthly meeting due to conflicts.										√
June 29, 2023 Outgoing email	This email from a CNL Communications Officer to KZA to follow up on the May 16 email.									√	√
June 29, 2023 Incoming email	This email from KZA a CNL Communications Senior Officer acknowledging the May 16 email and suggesting the Interests and Concerns Table as a topic for the July monthly meeting.									√	√
June 30, 2023 Emails	These emails between KZA and CNL Communications Officer is to discuss the agenda for the 2023 July monthly meeting.										√
July 13, 2023 Meeting	This meeting was held between CNL (including Manager, Communications and Engagement, Communications Officer, Indigenous Engagement Coordinator, Manager NPD Regulatory Approvals, Manager, ERM Licencing Support, Director Communications and Engagement) and KZA (Including KZA elder, and KZA Consultation Coordinator, and KZA Councillor), while the focus was the NSDF project CNL and KZA did discuss the next steps for the NPD Revise Draft EIS submission.										√
July 13, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to KZA is to provide KZA with the action items from the 2023 July 12 CNL/KZA meeting.										√
July 13, 2023 Outgoing Email	This email from CNL Communications Officer to KZA is to provide KZA with the two action items from the 2023 July 12 CNL/KZA meeting. CNL provided both the information for the Port Granby project and the information on simplified list of KZA NPD Closure Project Interests and Concerns Table recorded to date.									√	√
July 28, 2023 Incoming Email	This email from KZA consultation coordinator to CNL Communications Officer is to provide CNL with KZA's preliminary comments on the list of concerns and interests about the NPD. CNL confirmed receiving the response.									√	
August 14, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to KZA is to provide KZA with a copy of the draft agenda for the 2023 August 16 Monthly Working Group Meeting.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
August 16, 2023 Meeting	This meeting between CNL (including CNL Manager, Communications and Engagement, Manager of NPD Regulatory Affairs, Indigenous Engagement Coordinator and Director, Communications and Engagement, and Manager, NSDF regulatory Approvals) and KZA (Including Consultation Coordinator, Councillor and KZA Impact Assessment Coordinator and Manager, Natural Resource and Wildlife Office), and AECL, (Including ‚Director' Communications and Government Reporting and Manager Communications and Engagement) introduce the new KZA Impacts Assessment Coordinator. The NPD Project I&C Table was an agenda item; however the focus of the meeting was on the NSDF Project.									√	
August 16, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator, to KZA is to provide them with a copy of the actions from the 2023 August 16 Monthly meeting. KZA responded with 2 additional actions.										√
August 22, 2023 Outgoing Email	This email from CNL Communications Officer to KZA is to provide KZA the CNL NPD Action items. CNL noted that a dedicated NPD meeting would also be an opportunity to bring the new IAA Coordinator and others up to speed with an overview of the NPD Project. CNL requested KZA propose date options. CNL further noted that they recognize and appreciate the KZA had some specific questions. CNL is currently preparing responses that will be ready to share early in September									√	√
August 29, 2023 Outgoing Email	This email from CNL Communications Officer to KZA is to express CNL commitment to incorporating KZA's interests and concerns into the Revised Draft EIS, as KZA input is essential to the environmental assessment process. CNL asked that KZA propose times. CNL also noted that they understand that KZA is interested in reviewing the revised draft EIS. CNL offered capacity to support KZA's participation in the EA process. CNL suggested provision of funding through a contribution agreement (a template was sent August 21, 2023).									√	
August 29, 2023 Incoming Email	This email from KZA Impact Assessment Coordinator to CNL Communications Officer is in response to the email from CNL on 2023 August 29. KZA proposed dates for a meeting to discuss NPD. CNL confirmed that 2023 September 7th works for CNL and sent a meeting invite (3 emails).										√
September 06, 2023 Outgoing Email	This email from CNL Communications Officer to KZA is to provide KZA with the draft agenda for the 2023 September 07 KZA - NPD Interest and Concerns and Commitment list discussion.										√
September 06, 2023 Incoming Email	This email from KZA Impact Assessment Coordinator to CNL Communications Officer is to request the latest version of the NPD Closure Project EIS. CNL provided a copy of the EIS to KZA.										√
September 07, 2023 Meeting	This meeting with CNL (including, Manager, NPD Closure Project, Decommissioning and Environmental Specialist, Communications Officer, Indigenous Engagement Coordinator, and Manager Communications and Engagement) and KZA including (Including Consultation Coordinator, and Impact Assessment Coordinator) provided KZA with an overview presentation of the project with the opportunity to ask questions and seek clarification. CNL and KZA also discussed the Reviewed Draft EIS submission timeline and capacity support.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
September 09, 2023 Outgoing Email	This email from CNL Communications Officer to KZA is to provide KZA with follow-up from the KZA NPD meeting held on 2023 September 06. CNL attached the presentation, links to the CNSC website and a review of the Consolidated Table of Federal and Provincial Comments on the Draft Environmental Impact Statement for the NPD Closure Project (also on the IAA website).										√
September 11, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to KZA Is to provide the draft agenda for the 2023 September monthly meeting being held on 2023 September 13. NPD was not a topic on the agenda.										√
September 15, 2023 Outgoing Email	This email from CNL Communications Officer to KZA is to provide KZA with follow-up from the KZA NPD meeting held on 2023 September 06. CNL attached the response to KZA questions shared during the review of the Interests and Concerns list (received July 28), Section 6 of the EIS, Table C-16 KZA Record of engagement, Table C-17 Mapping of key interests and concerns to detailed input from KZA, and Table C-18 (of the EIS).				√	√	√			√	√
September 15, 2023 Incoming Email	This email from KZA Impact Assessment Coordinator to CNL Communications Officer is to inform CNL that the KZA Natural Resource and Wildlife office, on Wednesday, September 13th 2023, held an open community engagement session. KZA provided community members a high-level overview of the NPD Closure Project and a brief explanation of the current stage of the EIS. KZA shared the main areas of interest and questions. CNL confirmed receipt of the email; CNL also noted providing answers to questions soon.									√	
September 29, 2023 Outgoing Email	This email from CNL Communications Officer to KZA is to provide the draft agenda for the 2023 October 11 KZA- Monthly Meeting. CNL proposed the meeting focus on the NPD Closure Project. CNL is working to put together a presentation to address the areas of interest identified in the KZA September 15 email.										√
October 06, 2023 Outgoing Email	This email from CNL Communications Officer to KZA is to follow-up from their email on 2023 September 29 looking to confirm the monthly meeting for 2023 October 11. CNL re-attached the proposed draft agenda.										√
October 11, 2023 Meeting	This meeting with CNL (including, NPD Closure Project, Decommissioning and Environmental Specialist, Director of Communications and Engagement, Communications Officer, and manager Communications and Engagement) and KZA including (Including Consultation Coordinator, and Impact Assessment Coordinator) and AECL (Manager Communications and Engagement) was to discuss an update on the NPD funding agreement (EIS review) and have an update from KZA on their EIS review. CNL also gave a presentation to address questions and areas of interest from the community information session on the NPD Project.									√	
October 17, 2023 Outgoing Email	This email from CNL Manager of Communications and Engagement to KZA is to provide an invite to the 2023 October 20 Career Fair being held In Pembroke. KZA looked to confirm registration requirements. CNL confirmed registration is not required. (3 Emails).										√
October 18, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to KZA is to provide the actions from the 2023 October 11 KZA - CNL monthly meeting.										√
November 01, 2023 Incoming Email	This email from KZA Impact Assessment Coordinator to CNL Communications Officer is to request the slide deck for the NPD specific meeting held on October 11, as well as a copy of the capacity funding agreement. CNL Director, NPD provided both.									√	√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 07, 2023 Emails	This email from CNL Manager Communications and Engagement to KZA is to provide KZA with the draft agenda for the 2023 November 08 KZA – AECL - CNL monthly meeting. KZA confirmed receipt of the draft agenda and requested to add discussion on KZA points of concern/areas of interest on the NPD EIS as well as providing some high-level comments on some of the CNL actions and accommodation measures added to the tracking table back in July. CNL recommended an NPD - Specific meeting to discuss the KZA concerns / area of interest.									√	
November 08, 2023 Meeting	This meeting between CNL (including CNL Manager, Communications and Engagement, Director NPD Closure Project, Indigenous Engagement Coordinator, Director, Communications and Engagement, Communications Officer, and decommissioning and Environmental Specialist, and CNL Legal Counsel), AECL (Including, Manager of Communication and Engagement) and, KZA (Including Consultation Coordinator, and Impact Assessment Coordinator) is to discuss the NPD Closure Project Status Update, Discuss dates for an NPD project specific meeting to discuss KZA's interests and concerns table (NPD EIS), and CNL Waste Strategy and Fuel Inventory Overview Presentation and Discussion. KZA noted they had comments on the I&C table and requested an NPD focused meeting.									√	
November 09, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to KZA Is to provide KZA with the Actions from the 2023 November 08 CNL-AECL-KZA Monthly meeting.										√
November 14, 2023 Outgoing Email	This email from CNL Communications Officer to KZA is to request the KZA-NPD meeting time be changed to 1:30 pm. KZA confirmed.										√
November 14, 2023 Meeting	This meeting between CNL (including Director NPD Closure Project, Decommissioning and Environmental Specialist, Communications Officers and Indigenous relations coordinator) and KZA (including Impact Assessment coordinator) is to discuss the NPD KZA interests and concerns table, and KZA's initial feedback.									√	
November 14, 2023 Outgoing Email	This email from CNL Communications Officer to KZA is to provide the initial materials as requested in the monthly meeting for the Community engagement session. CNL attached the image with all the CNL monitoring locations (not just NPD) and the Archaeological Technical Supporting Document.									√	√
November 20, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to KZA is to provide KZA with the meeting notes from the 2023 November 14 NPD Interests and Concerns meeting.									√	√
November 27, 2023 Outgoing Email	This email from CNL Communications Officer to KZA is to follow-up from the last meeting and see how the community engagement session was and if there is any feedback to share with CNL? Community feedback can be incorporated into the updates to the table that captures KZA's interests and concerns. CNL also inquired about where the KZA office will be closing for the holidays. KZA noted that they will be providing notes from the town hall meeting.									√	√
November 30, 2023 Outgoing Email	This email from CNL Communications Officer to KZA is to note that CNL has used the feedback from the conversation on November 14, 2023 and made additions to the Interests and Concerns Table. CNL attached the tracked changes files (CNL also included the Mapping Table (Table C-17) which works together with the Interests and Concerns Table (Table C-18) to paint a fuller picture of KZAs concerns while Table C-18 focuses on CNL's response to the concern).									√	√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
December 19, 2023 Incoming Email	This email from KZA Impact Assessment Coordinator to CNL Communications Officer is to provide CNL with KZA's submission of feedback on the V3 draft EIS for the NPD closure project. CNL confirmed the receipt of the submission.	√	√	√	√	√	√	√	√	√	
December 20, 2023 Meeting	This meeting between KZA (Including KZA Impact Assessment Coordinator), CNL (Director NPD, Communications Officer, Indigenous Engagement Coordinator, and Environmental and Decommissioning Specialist), and AECL (Manager, Communications and Engagement) is to discuss the feedback from the KZA Community session, and the KZA EIS review.	√	√	√	√	√	√	√	√	√	
January 02, 2024 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to KZA is to provide the actions from the 2023 December 20 KZA - CNL Monthly meeting (NPD Focused). In the email, CNL also shared the link to the updated CNL Integrated Waste Strategy, and the link to the GCT #3 Nuclear 101 Guidebook.										√
January 05, 2024 Outgoing Email	This email from CNL Communications Officer to KZA Impact Assessment Coordinator is to confirm the 2024 January KZA - CNL monthly meeting. CNL also asked if KZA had topics they wished to discuss. KZA requested that the meeting be moved to 2024 February. CNL confirmed receipt of date change.										√
January 29, 2024 Outgoing Email	This email from CNL Communications Officer to KZA Impact Assessment Coordinator provided CNL's response to the KZA EIS review (December 19, 2023). CNL provided an updated Interests and Concerns table based on the feedback, highlighted the themes, corrected the misinformation related to the KFN visit in Spring 2023 and offered further discussions on areas of interest and a site tour.	√	√	√	√	√	√	√	√	√	√
January 29, 2024 Incoming Email	This email from the KZA Impact Assessment Coordinator to a CNL Communications Officer confirmed receipt of the updated Interests and Concerns table. KZA indicated they would review the updates for accuracy by February 14, 2024, and requested time at the February monthly meeting to discuss.									√	
February 20, 2024 Incoming Email	This email from the KZA Impact Assessment Coordinator to CNL provided feedback on the NPD Interests and Concerns table (sent January 29, 2023). KZA indicated that Table C-17 has thoroughly captured the majority of KZA's comments and they appreciated the use of language taken directly from previous submissions to ensure concerns were appropriately described. KZA stated they maintain that the project poses significant risk of detrimental impact to Kitigan Zibi Anishinabeg. CNL's response to address KZA's concerns has not been enough to erase them, specifically those listed in Table C-18 under the following topic numbers 5 d & e, 9, 11 a and 15 a. KZA recognized that the parties may not always be able to reach a consensus or agree on a topic and they would like to reiterate that KZA remain committed to working respectfully and collaboratively with CNL. KZA noted that outstanding concerns will be addressed with the CNSC.	√	√	√	√	√	√	√	√	√	
February 20, 2024 Outgoing Email	This email from a CNL Communications Officer to the KZA Impact Assessment Coordinator confirmed receipt of the email providing feedback on the NPD Interests and Concerns table. CNL offered to address any NPD topic of interest at the next working group meeting.									√	√
March 07, 2024 Outgoing Email	This email from a CNL Communications Officer to the KZA Impact Assessment Coordinator noted that the KZA - CNL monthly meeting falls on March Break. CNL asked if the meeting could be postponed due to staff shortages. KZA confirmed postponing the meeting. CNL proposed 2024 March 20 as the new meeting date.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
March 20, 2024 Meeting	This meeting between KZA (Including KZA Impact Assessment Coordinator) and CNL (Communications Officer, Director of Engagement and Communications, Director NPD, Communications Officer, and Environmental and Decommissioning Specialist) focused on CNL demonstrating to KZA how feedback was used to update the *Table of Interest and Concerns* and Sections of the EIS. KZA noted satisfaction with the language used to capture KZA's interest and concerns, specifically, that CNL used KZA own language. CNL and KZA discussed including language in the EIS to reflect the Summary of KZA Key interests and concerns has been developed at the working group level based on community feedback but that this information has not been reviewed or vetted by KZA leadership.	√	√	√	√	√	√	√	√	√

KZA - Mapping of Key Interests and Concerns

Table C-17 presents a mapping of how the key interests and concerns relate to detailed feedback and input from KZA, up to May 2024.

Table C-17 has 3 columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, why it is important to the Indigenous Nation, community or organization, and connects it to a project aspect or an Aboriginal or treaty right wherever possible. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 presents details of the key interest or concern that the Indigenous Nation, community or organization has identified formally in writing and/or verbally to CNL.

Table C-17 Mapping of KZA Key Interests and Concerns

Topic	Key Interests and Concerns	Specific feedback provided by KZA on this interest/concern (validated)
1. Accidents and Malfunctions	(a) KZA expressed concern about proximity of the disposal facility to the Ottawa River and potential effects of malfunctions, accidents and deterioration of the disposal facility over time The Kichi-Sìbì is a major artery and is very important to KZA and must be protected from long-term impacts from the disposal facility. The Kichi-Sìbì not only paramount to the Anishinabe, it is the main drinking water source for millions of people living along the river, in particular the Country's capital, Ottawa. Many KZA community members live in the Ottawa and Gatineau region. This is a project-specific concern.	During a community meeting in November 2022, KZA First Nation community members expressed concerns about the proximity of disposal facilities to the river and the potential for waste and contamination to leak into the water. In July 2023, KZA shared context about KZA's heightened concerns related to drinking water. Drinking water within the KZA community has unsafe levels of uranium and radium. Although drinking water advisories for the community center, the local school and the wellness centre have been lifted (the public systems), private wells within the community are still unusable. KZA lives with, knows and faces the impacts of naturally occurring radioactivity (in groundwater) in its daily life. Its community's health, safety and wellbeing is affected by it. KZA highlights that it is essential that the potential impacts and risks from the NPD closure project be assessed cumulatively in light of the psychological and physical harm colonization continues to cause upon Indigenous peoples. KZA highlights that clean water is also essential to local economy health (agriculture), especially in a context where domestic production will be more important (national security). In KZA's preliminary written feedback on the EIS (2023 December), KZA notes that the EIS contains little to no information on the expected lifespan of the concrete, particularly how many years is it expected to last before it cracks and what effect a crack in the grout would have on the release of contaminants to the environment. Other gaps in the EIS include what the actual steps are following a disaster resulting in the release of contaminants, or the failure of one or more barriers described in the current EIS.
2. Alternatives	(a) Technical suitability of the ISD concept KZA has expressed concern about the societal and ethical choice of in-situ decommissioning, in particular about the future impacts to Indigenous Nations, communities and organizations. Further KZA has expressed interest that the NPD Closure Project selected alternative of ISD be compared against international best practices. It is the position of KZA to advocate for that all materials and contaminants present at the NPD site should be removed and permanently stored in a deep geological repository off-site. This is a project-specific concern.	In July 2023, KZA highlighted that the IAEA (Specific Safety Guide SSG-47, article 5.18) states: "…. If entombment is selected, it will impose a burden on future generations owing to the need for long term monitoring of the site and owing to possible future actions necessary to prevent and reduce leakages of radioactive material from the facility." Since contact, First Nations have been harmed by the impacts of colonization, and are still today facing these impacts and their burden in their communities. KZA is concerned that Canada would select entombment and impose ongoing burden on future generations, including First Nations generations. KZA believes that pursuing ISD for the decommissioning of NPD is not in alignment with genuine (re)conciliation. Further, in KZA's comparison of the NPD project to international best practices, KZA raises the following concerns and questions : • Why choose *in situ* disposal when disposal technologies and designs evaluated by the IAEA for radioactive waste management do not tend to include *in situ* management for non-mining facilities?

Topic	Key Interests and Concerns	Specific feedback provided by KZA on this interest/concern (validated)
		• Why choose an entombment method when the IAEA does not accept "entombment" for planned decommissioning? • What objectives, criteria and thresholds are included in the decision-making process/assessment? In KZA's preliminary written feedback on the EIS (2023 December), KZA advocates for all materials and contaminants present at the NPD site to be removed and permanently stored in a deep geological repository off-site. Based on current level of information and understanding by KZA on Canada's Policy for Radioactive Waste Management and Decommissioning. KZA views the complete removal of all contaminants at the NPD site for the eventual long-term disposal in a deep geological repository as the safest, most responsible, and preferred method.
2. Alternatives	(b) Inadequate consideration of long-term risk KZA is concerned that the evaluation of alternatives did not include a thorough risk assessment, considering worst-case scenarios, emergency protocols and remediation measures. This is a project-specific concern.	In July 2023, KZA expressed concern about CNL's evaluation of project alternatives. KZA highlighted that the evaluation does not properly account for long-term risks and remediation plans including their costs. KZA re-enforced that the principle of precaution should paramount at all times and for all decisions.
	(c) Process for Assessment of Alternatives It is important to KZA that the process of assessing and accepting alternative means includes KZA. KZA highlights that joint assessment of alternatives is considered best practice and are commonly implemented for projects that are of high concern to Indigenous Peoples. This is both a CNL-wide and a project-specific concern.	In KZA's preliminary written feedback on the EIS, KZA notes that the weighting structure used in the CNL assessment of alternative means is unclear and the methods used to calculate potential risk are not specified. Potential contamination of the Ottawa River and the risk to surrounding wildlife are of great concern for KZA. KZA's values and the weight placed on risks to wildlife and water health may be different from CNL's weighting structure due to cultural differences. Indigenous Nations, communities and organizations should be given the opportunity to be involved in the initial selection of the project method. This would help build Trust. It would allow for increased ability on proponents' behalf to design projects that greater reflect First Nations values and principles. It would also increase the ease of incorporation of future accommodation measures for First Nations groups identified throughout the consultation process which could streamline the entire process and avoid unnecessary conflicts. If Indigenous Nations, communities and organizations had been allowed to voice concerns before the project method was formalized, perhaps the feedback received coupled with public opinion from other groups would have driven further investigation into the alternative means and the in-situ model would not have been chosen as the preferred method.
3. Archaeology and Cultural Heritage	a) KZA has expressed concern about the archaeological potential on the site. In that context, KZA has expressed interest in the archaeological studies for the NPD site. It is important to KZA First Nation to be aware of the archaeological potential and activities at the site, to ensure that artefacts with cultural value and significance are identified and protected. This is a project-specific concern.	In May 2022, KZA requested a discussion related to archeological studies of the NPD site. KZA is concerned that artefacts by returned to rightful Anishinabeg owners if discovered.
4. Engagement	a) Effective, transparent, understandable and timely information sharing. As of May 2022, KZA has indicated improved understanding by their technical team treating nuclear files and have brought forward more project specific concerns. This is a project-specific concern.	Representatives of KZA have had general questions about the NPD Closure Project (engagement in 2017 and 2021). The natural resource and consultation team has changed significantly since 2017 and would like to review the communication protocol and engagement possibilities. In July 2023, KZA highlighted that effective information sharing also includes answering KZA questions and information requests with the best information available, in a clear and transparent way and in a timely manner. KZA has also highlighted that effective information sharing should include answering KZA questions and information requests with the best information available, again in a clear and transparent way and in a timely manner.

Topic	Key Interests and Concerns	Specific feedback provided by KZA on this interest/concern (validated)
4. Engagement	b) Meaningful engagement It is important to KZA that meaningful Indigenous participation and adequate Crown consultation occurs for the NPD Closure Project and the NSDF Project environmental assessments. This is both a project-specific concern and a concern for the Crown.	During a community meeting in November 2022, KZA community members expressed concerns that their Nation had not been engaged at the outset of the project and that they had not been properly consulted on the project. In July 2023, KZA shared preliminary concerns on the project itself but also on the consultation process, looking at meaningful consultation, accommodation and (re)conciliation. KZA highlighted that it cannot speak of reconciliation since no “conciliation” or Nation-to-Nation relationship ever happened. KZA continue to assert its rights as a Nation and, ever since colonization, is still looking at a Nation-to-Nation relationship and respect. KZA has identified that comments are only preliminary and will evolve through the consultation process which should be flexible and dynamic. KZA highlights that the Interests and Concerns list does not constitute consultation, as meaningful consultation goes far behind exchanging a list of concerns and interests. It has to include KZA in the decision-making process, early in the process, to enable effective accommodation measures. This obligation is yet to be fulfilled. This concern has been repeated in KZA’s preliminary written feedback on the EIS (2023 December). As a rights-holder, KZA’s early participation in the decision-making process – in this case in the identification of the best-suited method for long-term disposal of the NPD facility waste – is a pre-requisite for meaningful consultation. KZA highlights that meaningful consultation must include KZA early in the decision-making process to enable effective accommodation measures and respect of KZA rights. It remains a concern that this obligation is currently not met through a poor informative approach.
5. EA Process and Methodology	a) Relevant legislation and current framework KZA expressed concern on continued use of *CEAA* (2012) rather than the more recent *Impact Assessment Act*. KZA expects that the NPD Closure Project Environmental Assessment is carried out using up-to-date legislation, fulfilling Canada’s international engagements, especially regarding Indigenous rights. This is not a project-specific concern.	During a community meeting in November 2022, KZA expressed concerns about the project continuing under *CEAA* (2012). In order to be meaningfully consulted, in July 2023 KZA has requested to review the scope of the NPD environmental assessment (EA), to ensure it enables assessing all impacts to KZA rights and interests thoroughly. In KZA’s preliminary written feedback on the EIS, KZA notes that the current framework used to assess the NPD project fails to acknowledge the colonial context. KZA’s sacred responsibilities for this land have never ceased despite our displacement however CNL fails to acknowledge how our Anishinabe laws and governance systems still apply, reinforcing our jurisdiction in this matter; the rights that flow from these responsibilities are broader than any specific fishing, harvesting, trapping, or plant gathering activities noted in the EIS. These underlying responsibilities, laws and governance systems are also much broader than any criteria referenced in *CEAA* (2012) in s. 5(1)(c) or elsewhere. The act of the Crown’s definition of terms and criteria results in a restriction of voice and shifts the exploration of impacts to a search for evidence to prove an argument based on a predetermined set of values that do not serve KZA. The viewpoint of KZA is that the criteria set out in *CEAA* (2012) section 5.1.c is very limiting and does not address specifically how the NPD Closure Project impacts KZA members. KZA notes that *CEAA* (2012) section 5.1.c and the four criteria it defines will not be there to help when the intermediate level waste at the NPD site begins to leach into the soils and rivers.

Topic	Key Interests and Concerns	Specific feedback provided by KZA on this interest/concern (validated)
5. EA Process and Methodology	b) Cumulative effects KZA is interested in the overall protection of the Ottawa River and land at, and in the vicinity of, CNL sites, not just the impacts of a single project. This is a CNL-wide concern.	During a community meeting in November 2022, KZA expressed concern about cumulative effects from all CNL sites and operations. In July 2023 KZA also identified that the EA process should include cumulative effects studies and an ecosystem approach. KZA would like to see a cumulative effects study conducted by CNL that measures the impacts and effects of CNL's activities and legacy waste in and around CNL sites, including the NPD site using a pre-disturbance baseline. KZA is looking for a more holistic impact analysis study that considers the impact of NPD in the area.
	c) Access to, and use of, information KZA is interested in data sovereignty and in conducting its own environmental and impact assessment, inventories and monitoring studies. KZA is concerned that failing to observe Indigenous knowledge in favour of the more limited CNL studies conducted to date cannot be fully relied on to adequately protect the land. Specifically, KZA notes that data access and governance must approach the First Nation as authorities and partners, rather than subjects of study. This is a project-specific concern.	In July 2023, KZA identified the importance of data sovereignty (e.g. ensuring Indigenous Peoples' data access) and in conducting its own environmental and impact assessment, inventories and monitoring studies along with the need for capacity to perform this work. KZA also highlighted the importance of protection of Indigenous data as outlined by the OCAP® principles (The First Nations principles of ownership, control, access, and possession, https://fnigc.ca/ocap-training/). This concern has been highlighted in KZA's preliminary written feedback on the EIS (December 2023). KZA notes that Traditional Ecological Knowledge (TEK) and Indigenous Knowledge (IK) – Anishinaabe gikendaasowin – is co-produced by all Creation. Over thousands of years, KZA has developed this knowledge and the approaches to governance and stewardship of our lands and waters that it requires. KZA keeps this knowledge alive from generation to generation, and the body of knowledge continues to grow and deepen to this day, despite colonial displacement and attempts to root our language which contains so much of this knowledge. The brief surveys used to inform CNL's current EIS cannot compare to this knowledge, and cannot be relied on to adequately protect the land on their own. Conforming to the Crown's system of formal reports, lengthy essays, and peer-reviewed studies all fail to capture the essence of what KZA is trying to express. KZA is concerned for the health of the land, the waters, the plants, the animals, and the people, and call on CNL to address this gap in research.
	d) Lack of integration of KZA information and knowledge in the NPD EIS KZA is concerned that CNL has not incorporated available information on KZA's history in the region or outlined the harmful past interactions between the nuclear industry and KZA in general. This is both a project-specific concern and company-wide concern.	Within KZA's preliminary written feedback on the EIS, KZA identified that available information and knowledge for KZA's correspondence with the NSDF Project has not been acknowledged or incorporated into the EIS for the NPD Closure Project. Those submissions detailed several aspects of KZA's relationships with this region of our territory and outlined the harmful past interactions between the nuclear industry and KZA. A great deal of time, resources, and effort goes into preparing submissions in hopes of contributing to better cultural understanding, which in turn results in more sensitive and responsive communication. It is disrespectful and unreasonable to expect all projects (especially those with the same proponents, and in the same Indigenous territories) to start at square one each time. Such an approach unfairly burdens Indigenous Nations with all the responsibilities of consultation for nuclear facilities we have never given permission for in the first place – and for projects we are not responsible for proposing. In order to demonstrate good faith, CNL must show and acknowledge how it is learning from our past interventions and incorporating the knowledge shared by KZA into future proceedings. Further, CNL has an obligation to provide clear summarized information in easy to follow formats. KZA has found the structure of the EIS difficult to follow, and therefore needs improvement.

Topic	Key Interests and Concerns	Specific feedback provided by KZA on this interest/concern (validated)
5. EA Process and Methodology	e) Concern about the methodology for conducting the effects assessment KZA is concerned that the First Nation is being asked to restrict KZA's exploration of impacts to the health and socioeconomic conditions, the physical and cultural heritage, the use of lands and resources, and the historical archeological, paleontological or architecturally significant structure or thing based on limited methodology. This is a project-specific concern.	Within KZA's preliminary written feedback on the EIS, KZA identified CNL asked KZA to address specifically how the NPD Closure Project impacts them based on the criteria set out in *CEAA* (2012) section 5.1.c. There are four categories identified in this piece of legislation that every interested Indigenous party in Canada must use to structure every piece of information they interact with during their exploration of impacts in order for it to be considered valid by CNL and the Crown. This is a legal text written by the Crown to achieve its own goals. The cultures, values, resources, and histories of the various Indigenous peoples in Canada are extremely diverse and unique. KZA is being asked to restrict our exploration of impacts to the health and socio economic conditions, the physical and cultural heritage, the use of lands and resources, and the historical archeological, paleontological or architecturally significant structure or thing. These explorations are costly, time-consuming, resource-draining, and historically ineffective at changing the outcome of project progression.
6. End State, Site Restoration and Future Use of the Land	a) Collaborative end land use planning There is a strong desire from KZA for future use of the NPD site. It is important to KZA that it receives reassurance that the area will move towards renaturalization and healing over time, so that KZA community members can reconnect with the site and be able to practice traditional activities. KZA affirms that the NPD site should be remediated before being returned to the care of Indigenous Peoples who have always been responsible for these lands and waters. This is both a CNL-wide and project-specific concern.	During an NPD-specific meeting with the KZA Working Group in November 2023, KZA expressed preliminary interest to be involved in site restoration and end state planning at the NPD site. This concern has been repeated in KZA's preliminary written feedback on the EIS (December 2023). It is the position of KZA that the NPD site should be remediated before being returned to the care of Indigenous Peoples who have always been responsible for these lands and waters. If there is a possibility for the return of these lands for Indigenous use, they should not be returned to Indigenous Peoples contaminated and destroyed.
7. Free Prior and Informed Consent (FPIC)	a) Principle of consent KZA asserts that permission for the construction of the NPD site was never originally given by KZA. It is important to KZA that CNL work to secure its free, prior and informed consent through meaningful consultation. This is both a CNL-wide and project-specific concern.	In July 2023, KZA highlighted that in order for KZA to consider providing consent, CNL and KZA should work to develop, agree and implement accommodation and mitigation measures. KZA also highlighted that with respect to KZA prior and informed consent, KZA expects effective information sharing with CNL. KZA has indicated that all relevant information should be shared to KZA in a clear, transparent and understandable way and in a timely manner. KZA needs sufficient time to review and comment on this information and that information should be "word-count effective" (focusing on the main information/fact, without diluting it through a lot of general text). Permission for the NPD site has never been given by KZA; in KZA's words "our forced displacement from many parts of our homelands due to the reserve system and other measures; our sacred responsibilities for this land have never ceased despite our displacement however CNL fails to acknowledge how our Anishinabe laws and governance systems still apply, reinforcing our jurisdiction in this matter; the rights that flow from these responsibilities are broader than any specific fishing, harvesting, trapping, or plant gathering activities noted in the EIS." As a rights-holder, KZA's early participation in the decision-making process – in this case in the identification of the best-suited method for long-term disposal of the NPD facility waste – is a pre-requisite for meaningful consultation.

Topic	Key Interests and Concerns	Specific feedback provided by KZA on this interest/concern (validated)
8. Impacts on Rights	a) Impacts on KZA Rights It is important to KZA that the rights and interests of the Nation are understood and upheld. This is both a CNL-wide and project-specific concern.	KZA submitted comments to the CNSC on the Project Description, (July 2016) KZA stated that it had never given up nor sold its traditional ancestral territory. KZA territory has never been under treaty and is subject to Algonquin Aboriginal Title. KZA asserts its rights to co-governance and sovereignty over the lands to which the NPD Closure Project is subject. As the recognized stewards, it is KZA's duty to protect the lands and waters that have allowed our people to thrive from time immemorial. These responsibilities constitute the laws and governance systems that underpin the Anishinabe jurisdiction. KZA has strong environmental, legal, and ethical concerns linked to these aforementioned rights and the NPD Closure Project. As the true stewards of the land, it is KZA's duty to respect it and maintain its health and wealth for the next 7 generations. KZA asserts its sovereignty and laws over its traditional land and this project, and asserts its rights to consultation and accommodation.
9. Inventory	a) Inventory of the NPD disposal facility KZA is concerned about the nuclear waste that will remain on site and the radiological content (inventory) of the proposed NPD disposal facility. This is a project-specific concern.	In July 2023, KZA expressed concern about the nuclear waste on site, including legacy waste, and radiological content (inventory) of the proposed NPD disposal facility.
10. Long-term Safety	a) Long-term site integrity It is important to KZA that there is confidence in the performance of the facility over the long-term and that there are barriers in place to protect the environment, taking into account the worst case scenario in terms of climate change and extreme natural disturbance. This is a project-specific concern.	During a community meeting in November 2022, KZA community members expressed concern about the changing environment. There was a lack of confidence in the science behind the long-term performance of waste disposal facilities and an overall concern for protection of the environment. In July 2023, KZA also expressed concerns about the long-term performance of the barriers, since no barrier have been shown remain effective for the hazardous lifetime of some of the waste material.
11. Monitoring	a) Monitoring locations and implementation of mitigation measures. KZA has expressed concern about water management and monitoring specifically locations for monitoring to occur and mitigation measures in the event that water becomes contaminated. This is a project-specific concern.	In July 2023, KZA identified that it expects monitoring to occur both at the NPD site and offsite. This monitoring should check all waters (groundwater and surface water) coming into or leaving the NPD site. This water should be monitored to ensure it remains uncontaminated with particularly attention given to water flowing to the Kichi Sìbì. KZA is concerned that any contaminated water be isolated from the water network and remediated.
	b) Participation in Monitoring KZA would be interested in being involved in a monitoring strategy to provide assurance to KZA members that CNL is regularly monitoring the environment around CNL sites. This is both a CNL-wide and project-specific concern.	During an NPD-specific meeting with the KZA Working Group in November 2023, KZA expressed interest in being involved in regular monitoring.
12. Protection of Flora and Fauna	a) Biota and Species at Risk KZA expressed concerns about potential project impacts to biota, and its natural habitat, specifically SAR at the NPD site – chimney swifts and Monarch butterflies. In particular, KZA has questions about leaving the ventilation stack in place. This is a project-specific concern.	KZA expressed concerns about impacts to biota, specifically chimney swifts, at a meeting in May 2017. KZA identified the potential for Monarch butterflies on a site tour at NPD in July 2017 when KZA biologists identified SAR habitat (milkweed). In July 2023 KZA also expressed concerns about leaving the NPD ventilation stack in place. Specifically, KZA was interested in knowing the contamination levels in the ventilation stack, the toxicity thresholds that have been set for the Chimney Swift and a desire to see conservative thresholds set.

Topic	Key Interests and Concerns	Specific feedback provided by KZA on this interest/concern (validated)
13. Protection of the Ottawa River	a) KZA expressed concern about the potential impacts of nuclear waste on the health of the Ottawa River), and its entire watershed, including wildlife and flora. This is a concern for KZA because for the Anishinaabe peoples, water is sacred and essential for all life and must be protected. This is a project-specific concern.	KZA submitted comments to the CNSC on the Project Description (July 2016) In July 2023, KZA voiced concerns about the proximity of the NPD Project to natural waterways (the Ottawa River) and the potential for impacts on the health of the Ottawa River For the Anishinaabe peoples, water is sacred and essential for all life. As noted under topic 1(a) KZA has historically and continues to be impacted by a lack of clean drinking water within their community and therefore have a heightened concern about the protection of water. KZA has requested that the project apply the most modern and stringent environmental protection measures to ensure that contamination does not enter waterways. This concern has been repeated in KZA's preliminary written feedback on the EIS (2023 December). KZA continues to raise concerns that the EIS contains little to no information on the pathways for contamination or the potential repercussions of contamination. Instead it states that levels of radioactive waste that will reach the river are negligible, the risks are low, and the parameters will be closely monitored. This information is too vague to alleviate the worries of KZA. For example, KZA is still unclear on what risk the in-situ disposal method poses for aquatic species considering the phenomena of bio-magnification.
14. Socio-economic	a) Contracting opportunities KZA is interested in contracting opportunities with CNL to enhance community opportunities. This is a CNL-wide interest.	KZA expressed some interest in contracting opportunities.
15. Traditional Land and Resource Use and Cultural Impacts	a) Impact on ability to practice traditional activities KZA is concerned that the EIS neglects to acknowledge CNL's responsibility in creating and perpetuating avoidance of the area by KZA members. KZA notes that there is a lack of desire to hunt and fish near the site and reluctance to gather plants that were grown in soils affected by radioactive contamination. The idea that KZA must hunt, fish and gather at the site to validate KZA claims to the right to co-manage and protect it is a shortfall in the understanding of KZA culture and values. This is a project-specific concern.	In KZA's preliminary written feedback on the EIS (2023 December), KZA notes that the EIS neglects to acknowledge CNL's responsibility in creating and perpetuating First Nations avoidance of the area. Many First Nations people presently avoid the area due to its history of nuclear activity and contamination. CNL's current occupation, the inventory of radioactive waste, and a history of nuclear disasters on-site have created a dynamic of fear, avoidance, and grief for First Nations people. It is the viewpoint of KZA that the loss of the land on the NPD site and its subsequent mistreatment by CNL also contribute to the avoidance of the area. However, KZA stresses that the lack of desire to hunt and fish near the Chalk River site and reluctance to gather plants that were grown in soils ravaged by radioactive contamination does not mean that KZA is no longer connected to this area nor negates responsibility to protect it. Oral cultures value person-to-person interaction. They require intensive listening skills and an equal commitment from all parties involved to share the burden of understanding. All listeners (including CNL and CNSC representatives) ultimately have individual and personal responsibilities as well as collective ones to contribute their knowledge and incorporate what they learn into their actions moving forward. Addresses, presentations, and stories from Elders, leadership, and community members require considerable work on the part of listeners to understand and implement. More work is required on the part of CNL to gain a greater understanding of KZA culture and values.

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Kitigan Zibi Anishinabeg First Nation (KZA) – Summary of Interests and Concerns

Table C-18 below summarizes the key interests and concerns that Kitigan Zibi Anishinabeg First Nation (KZA) have raised on the NPD Closure Project, up to May 2024. KZA is part of the AANTC and did not submit separately comments on the 2017 draft EIS.

Note: The Summary of KZA key interests and concerns has been developed at the Working Group level based on community feedback. The KZA community consultation information has been shared with KZA leadership. This information has not been reviewed or vetted by KZA leadership, however KZA representation in the Working Group have confirmed that KZA has fully participated in pre-consultation efforts to the best of KZA's availability. CNL has tried to accurately portray the interests and concerns of KZA however it is understood the KZA may articulate these concerns differently. KZA and CNL remain committed to working respectfully and collaboratively at the Working Group level and will seek opportunities to present this information to leadership.

Table C-18 has five columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, why it is important to the Indigenous Nation, community or organization, and connects it to a project aspect or an Aboriginal or treaty right wherever possible. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 summarizes CNL's response or conclusions as well as CNL's efforts to address this key interest or concern
- Column 4 identifies where in the EIS the key interest or concern is addressed, and whether any changes were made to the EIS in response to the interest/concern. If these changes resulted in a different outcome in the EIS outcome, this is also discussed;
- Column 5 summarizes the "Status" of the key interest or concern and the anticipated Next Steps towards achieving resolution of the key interest or concern. Not all concerns can be quickly or easily resolved, as some concerns go beyond the scope of the EA process, or there may divergent perspectives on certain interests or concerns. Note: this column does not, unless specifically confirmed by the Indigenous Nation, community or organization, mean that they have verified that the interest or concern has been dealt with to their satisfaction.

Table C-18 Summary of Kitigan Zibi Anishinabeg (KZA) Key Interests and Concerns and CNL Actions

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
1. Accidents and Malfunctions	a) KZA expressed concern about proximity of the disposal facility to the Ottawa River and potential effects of malfunctions, accidents and deterioration of the disposal facility over time. The Kichi-Sìbì is a major artery and is very important to KZA and must be protected from long-term impacts from the disposal facility. The Kichi-Sìbì is not only paramount to the Anishinabe, it is the main drinking water source for millions of people living along the river, in particular the Country's capital, Ottawa. Many KZA community members live in the Ottawa and Gatineau region. This is a project-specific concern.	CNL is attempting to address concerns related this topic by: (i) Involving the Indigenous Nations, communities and organizations, including KZA if interested, in monitoring activities that will confirm the conclusions of the EIS (ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern (**Section 9.9.5** of the EIS). <u>CNL Response:</u> CNL's Emergency Procedure for the NPD site includes actions for specific staff roles in the event of a wide range of emergency conditions including fires, floods, and hazardous spills, loss of power, earthquakes, and tornados. This procedure was developed and is updated in accordance with CNL's company-wide Emergency Preparedness Program, which has been accepted by the CNSC and meets the requirements of REGDOC 2.10.1 Nuclear Emergency Preparedness and Response. It will remain in place and be updated as required throughout the Decommissioning Execution and Institutional Control phases of this project. As per the plan, as soon as it is safe to do so following an emergency event, CNL staff will evaluate site and facility	<u>Where is this topic discussed in the EIS?</u> **Section 8.12** of the EIS discusses the natural disasters to which NPD may be exposed. **Section 9.14** of the EIS discusses the potential effects on the project of climate change, forest fires, floods, earthquakes, severe weather such as tornados, lightning strikes, ice storms, and changes to the Ottawa River. Additional details and a range of scenarios that encompass the potential impacts from extreme weather and natural hazards are examined in the Decommissioning Safety Assessment TSD and the PostSA TSD. <u>What changes have been made (and where)?</u> No changes have been made to the EIS in response to this comment.	<u>Status:</u> Resolution is in progress. CNL's technical assessment shows that accidents and natural hazards which could affect the facility will not result in undue effects on people and the environment around the site. Further engagement may result in additional commitments which will enhance confidence and trust in CNL's assessment. CNL remains committed to ongoing engagement with KZA within CNL's role as the project proponent. <u>Next steps:</u> CNL and KZA to discuss forward communication for the project and support needed for continued involvement by KZA in the NPD EA.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		conditions and arrange for any necessary repairs to be made. CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above-ground natural hazards and extreme temperature change through all project phases (Decommissioning Execution, Institutional Controls and Post-Institutional Controls) and has concluded that these events will have no undue effects on people or the environment around the site. CNL models several scenarios in its Postclosure Safety Assessment (PostSA) technical supporting document (TSD) which considers how accidents and natural hazards could affect the facility. These scenarios are called disruptive events. One such case models severe erosion (flood) while another case models extreme degradation of the facility (the concrete structure and the grout). In both of these cases, the predicted doses to receptors are still well below the dose criterion of 0.25 mSv/yr; 0.009 mSv/yr and 0.0009 mSv/yr, respectively. To verify that the engineered barriers as a whole are performing as expected/designed, CNL will monitor groundwater. Groundwater wells will be located between the NPD facility and the Ottawa River in order to monitor groundwater quality after it interacts with the facility and before it reaches the Ottawa River. CNL will conduct monitoring for as long as necessary to verify the results of the assessment in the EIS. CNL is open to increased engagement, education and participatory involvement in monitoring activities at CNL operated sites to help alleviate any concerns.		
2. Alternatives	a) Technical suitability of the ISD concept KZA has expressed concern about the societal and ethical choice of *in-situ* decommissioning, in particular about the future impacts to Indigenous Nations, communities and organizations. Further KZA has expressed interest that the NPD Closure Project selected alternative of ISD be compared against international best practices. It is the position of KZA that all materials and contaminants present at the NPD site should be removed and permanently stored in a deep geological repository off-site. This is a project-specific concern.	CNL would be happy to provide an overview of the in-situ disposal concept to KZA, including how CNL conducted the alternative means assessment (AMA) and why in-situ disposal is the preferred approach. CNL Response: The risks associated with in-situ disposal are lower than other options. In-situ disposal is a well-known technique used since the 1960's at many nuclear sites worldwide. Sites contaminated with toxic and hazardous wastes are also remediated using this technique. This approach requires the project to apply for a license as a disposal facility, and hence the facility must also meet the regulations for a disposal facility. In the case of the NPD reactor, the decommissioning strategy is to incorporate the reactor into a new disposal facility, which is in accordance with the IAEA definition of	Where is this topic discussed in the EIS? The in-situ disposal approach is described in **Section 3.2** of the EIS. Alternative means are discussed in the **Alternative Means Assessment TSD** (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS. **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment. **Section 11.2** of the EIS confirms that in-situ disposal is a proven technology in use for over 50 years. What changes have been made (and where)?	Status: Further alignment on this concern is unlikely CNL's technical assessment shows that the in-situ design is appropriate for the hazardous timeframe of the contaminants and is consistent with national and international standards. KZA and CNL disagree on the preferred option to decommission the NPD site. CNL understands that this concern is outstanding from KZA's perspective based on KZA feedback in July 2023 and February 2024. KZA's laws require that KZA continues to advocate for the complete removal of all contaminated materials as KZA's assessments have determined this to be the preferred option. Next steps:

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		decommissioning, IAEA Safety Glossary (IAEA 2019). This strategy also meets the Canadian regulatory requirements, in particular the requirements of Section 5.1 of REGDOC-2.11.2, Decommissioning (CNSC 2021b). Therefore, entombment is not being used as a decommissioning strategy for the decommissioning of the NPD reactor. The NPD reactor has a low inventory. Tritium is the major radionuclide and will decay to low levels during the Institutional Control period. The longer-lived Intermediate Level Waste (ILW) consists of small quantities of low energy beta emitters. The beta emitters have low radiotoxicity and do not generate heat. These are activation products inside the metal of the calandria in the reactor vault. The reactor vault is reinforced concrete with walls 3 m thick located around 10 m below grade in bedrock. The location of the reactor vault isolates the wastes making it hard to access. These are all features that are consistent with IAEA Safety Standard SSR-5, Disposal of Radioactive Waste (IAEA 2014d), regarding cavern or vault disposal for ILW. CNL has written a report summarizing facilities worldwide that use in-situ disposal (Aikens 2019b). The report is not limited to nuclear reactors or processing facilities, and also includes mines and hazardous waste sites. The report also describes what each of the facilities have in common, why in-situ disposal is the preferred approach and how it applies to NPD. In summary, in-situ disposal is a viable option for NPD. It is CNL's belief that the NPD facility has characteristics that support in-situ disposal. CNL is committed to ongoing engagement with KZA to gain a greater understanding of their concerns about the long-term safety of nuclear waste.	As a result of its engagement with Indigenous Peoples on Alternative Means, CNL EIS **Section 4.2 (**Alternative Means) in the EIS to include alternative perspectives. The 2020 EIS already included the following improvements: • CNL incorporated additional information from the AMA TSD in the EIS (**Section 4.2**) to provide greater clarity on how the alternative means was completed and what the results mean. • CNL enhanced the assessment of alternatives in the AMA TSD; for example, the projected radiological dose and industrial safety risk to workers for each alternative means was presented. Though all alternatives can be performed safely, there is an increased risk to workers from industrial hazards and radiological dose for the removal alternative means compared to in-situ disposal.	Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic which may include proposed commitments.
2. Alternatives	b) Inadequate consideration of long-term risk KZA is concerned that the evaluation of alternatives did not include a thorough risk assessment, considering worst-case scenarios, emergency protocols and remediation measures. This is a project-specific concern.	In October 2023, CNL provided a presentation to the KZA Monthly Working Group with additional information on the contaminants involved in the NPD Closure Project, including: • main contaminants of concern; • half-life and LLW/HLW categorization; • threshold limits and how they are established; • lifespan of the grout/concrete structure; • effects of the contaminants at higher levels on the environment and human health; • the mobility of the contaminants (how they move within the environment and how they affect the things around them); • overview of the various proposed protection measures (the role of grout and other barriers);	<u>Where is this topic discussed in the EIS?</u> Alternative means are discussed in the Alternative Means Assessment TSD (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS. **Section 8.5** of the EIS presents the geological baseline data. **Section 8.12** of the EIS discusses the relevant natural disasters to which NPD may be exposed. **Section 9.14** of the EIS discusses the potential effects on the project of climate change, forest fires, floods, earthquakes, severe weather such as tornados, lightning strikes, ice storms, and changes to the Ottawa River.	<u>Status:</u> Further alignment on this concern is unlikely CNL's technical assessment shows that the in-situ design is appropriate to ensure long term safety. KZA and CNL disagree on the process for assessing alternatives and on the preferred option to decommission the NPD site. CNL understands that this concern is outstanding from KZA's perspective based on KZA feedback in July 2023 and February 2024. <u>Next steps:</u>

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		• how in-situ disposal compares and contrasts with Deep Underground Repositories; and • what route would the contaminants (even if they are at 'acceptable levels') travel after the concrete/grout decays. <u>CNL Response:</u> CNL acknowledges KZA's concerns about the long-term safety of the NPD site. CNL followed the framework laid out in the *Canadian Environmental Assessment Act* (*CEAA*) Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2015) for the evaluation of alternatives, which allows for a qualitative assessment. The level of analysis conducted for each alternative is consistent with the *CEAA* requirements. CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above ground natural hazards and extreme temperature change through all project phases (Decommissioning Execution, Institutional Controls and Post-Institutional Controls), and has concluded that these events will have no undue effects on people or the environment around the site. CNL models several scenarios in its PostSA TSD which take into account how accidents and natural hazards could affect the facility. These scenarios are called disruptive events. One such case models severe erosion (flood) while another models extreme degradation of the facility (the concrete structure and the grout). In both of these cases the predicted doses to receptors are still well below the dose criterion. In 2018/19, CNL undertook a geoscientific fieldwork campaign to sample and characterize the bedrock around the NPD facility. The fieldwork included coring of 10 boreholes to a depth of 50 meters into bedrock and several overburden boreholes, with installation of wells for sampling and hydraulic property determinations. The Geoscientific Characterization Report was used to revise the Geosynthesis report and the various models (i.e., Groundwater Model, Resaturation Model). The results of these reports were incorporated into the PostSA TSD, enabling CNL to assess potential effects to valued components (VC) in the aquatic and terrestrial ecosystems. The additional field investigations and updated models support the conclusion that the NPD Closure Project is protective of human health and the environment. CNL, as the licensee, is responsible for conducting the long-term management of the site during the Institutional Controls period, which will last a minimum of 100 years and will be	The follow-up monitoring program is described at a high level in **Section 12** of the EIS, details of which derive from the development of the effluent, environment and groundwater draft follow-up monitoring plans. Additional details and a range of scenarios that encompass the potential impacts from extreme weather and natural hazards are examined in the DecomSA TSD and the PostSA TSD <u>What changes have been made (and where)?</u> CNL has revised the EIS (**Section 4.2)** to include additional information from the AMA TSD, to provide greater clarity on how the AMA was completed and what the results mean. In addition, both the Alternative Means TSD and **Section 4.2** of the EIS were updated to assess the projected radiological dose and industrial safety risk to workers for each option.	Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic, which may include proposed commitments.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		extended as long as is necessary to ensure protection of people and the environment. The EIS predicts no effects to surface water (including the Ottawa river); CNL will conduct monitoring for as long as necessary to verify the results of the assessment in the EIS. CNL is open and willing to meet with KZA to discuss the four alternatives used in the AMA TSD and how long term risk was considered in the assessment. In particular, CNL is interested in going over the changes incorporated in the revised version of the AMA TSD with KZA to discuss the additional quantitative analyses conducted for each of the alternatives that were considered.		
2. Alternatives	c) Process for Assessment of Alternatives It is important to KZA that the process of assessing and accepting alternative means includes KZA. KZA highlights that joint assessment of alternatives is considered best practice and are commonly implemented for projects that are of high concern to Indigenous Peoples. This is both a CNL-wide and a project-specific concern.	CNL would be open and willing to provide an overview of the in-situ disposal concept to KZA, including how CNL conducted the AMA and why in-situ disposal is the preferred approach. CNL Response: When conducting the AMA, CNL followed the regulatory framework laid out in the Canadian Environmental Assessment Agency (CEAA) Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2015) for the evaluation of alternatives. The level of analysis conducted for each alternative is consistent with the *CEAA* requirements. The waste at NPD has been there for over 55 years. CNL is reducing the waste liability by converting the waste into a form that provides safe, permanent waste disposal. It is CNL's belief that the NPD facility has characteristics that support in-situ disposal. CNL is interested in continuing engagement with KZA to gain a greater understanding of KZA concerns on the alternative assessment methodology.	Where is this topic discussed in the EIS? The in-situ disposal approach is described in **Section 3.2** of the EIS. Alternative means are discussed in the **Alternative Means Assessment TSD** (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Further alignment on this concern is unlikely. CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012), and concludes that ISD is the preferred means to execute the NPD Closure Project. KZA disagrees that this concern is adequately addressed. KZA and CNL disagree on the process for assessing alternatives and on the preferred option to decommission the NPD site. CNL understands that this concern is outstanding from KZA's perspective based on KZA preliminary feedback on the EIS in December 2023 and February 2024. Next steps: Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic, which may include proposed commitments.
3. Archaeology and Cultural Heritage	a) KZA has expressed concern about the archaeological potential on the site. In that context, KZA has expressed interest in the archaeological studies for the NPD site. It is important to KZA to be aware of the archaeological potential and activities at the site, to ensure that artefacts with cultural value and significance are identified, protected and returned to the community. This is a project-specific concern.	In July 2017, KZA staff toured the site with technical and environmental experts. CNL's biologist was on hand to discuss ecological and archaeological studies. KZA First Nation had the opportunity to ask questions or offer feedback on the project, including feedback on species at risk. All questions were addressed verbally at the tour. CNL will share the results of the archaeological assessment with KZA and would be pleased to provide a summary and overview presentation on the archaeological work conducted on the site. CNL Response: CNL's archaeology consultant determined that there was no archeological potential for the Site Study Area (where project	Where is this topic discussed in the EIS? The NPD EIS includes a summary of the archaeological assessment (**Section 8.11.4**). CNL describes proposed mitigation measures that will be employed if undocumented archaeological resources (including burial sites) are discovered during the project in **Section 9.9.3.2** of the EIS. The EIS does not predict any adverse residual effects on the socio-economic environment (**Section 9.11.3.3**) or traditional land and resource use (**Section 9.9.3.3**) (encompassing archaeological resources).	Status: Resolution in Progress CNL understands that there is renewed interest from KZA First Nation in the archaeological studies of the NPD site. CNL remains committed to ongoing engagement with KZA within CNL's role as the project proponent. Next Steps: CNL will share the Stage 1 archaeological assessment results.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		activities will take place), because that area has already been completely disturbed during site construction. However, in response to concerns expressed by Indigenous Nations, communities and organizations, CNL did conduct a Stage 1 archaeological assessment of the remainder of the NPD site. No further archaeological work is planned for NPD.	What changes have been made (and where)? In **Section 9.9.3.2** of the EIS, CNL added proposed mitigation measures that will be employed if undocumented archaeological resources are discovered during the project.	
4. Engagement	a) Effective, transparent, understandable and timely information sharing As of May 2022, KZA has indicated improved understanding by their technical team treating nuclear files and have brought forward more project specific concerns. This is a project-specific concern.	As a part of the AANTC, KZA attended a meeting between the AANTC and CNL in 2017 April to share project information and hear feedback from the AANTC leadership. CNL's presentation included: site location, project components and timeline, species at risk, proposed end state, and safety barriers for the protection of the environment. In May 2017, CNL met with KZA, including two specialists in biology and forestry and one Councilor. This was an opportunity for open discussion on the project with NPD Closure Project team members as well as discuss KZA's comments on the Project Description. CNL provided an overview presentation and shared information on: EA and environmental monitoring, Indigenous requirements in an EIS, project overview and timeline and end state. In July 2017, KZA staff, which included technical experts, toured the NPD site. CNL's biologist was on hand to discuss ecological and archeological studies. KZA staff asked questions and offered feedback on the project, including feedback on species at risk. All questions were addressed verbally at the tour. CNL has responded to all questions, comments, and information requests to date. CNL has reached out to KZA on an ongoing basis since the beginning of the project and has met with KZA in 2017 and in 2021. At the meeting in November 2021, CNL expressed interest in entering into an agreement to provide capacity funding to enable participation in the EA process. CNL Response: CNL responded to all questions from KZA in real-time during the 2017 engagements. Since the summer of 2023, CNL and KZA have been meeting monthly about the NPD Closure Project. CNL has provided reference material and discussed topics identified by KZA. CNL will continue to work with KZA to respond to areas of concern and identify additional opportunities for engagement.	Where is this topic discussed in the EIS? **Section 6.2 4.7.1** of the EIS summarizes CNL engagement with KZA. What changes have been made (and where)? CNL has updated **Section 6.2.4.7.1** of the EIS with all engagement efforts to the May of 2023.	Status: Resolution in Progress There were no outstanding questions from KZA following the 2017 engagements. CNL remains committed to ongoing engagement with KZA within CNL's role as the project proponent. Next Steps: CNL and KZA to discuss forward communication for the project and support needed for continued involvement by KZA in the NPD EA.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
4.Engagement	b) Meaningful engagement It is important to KZA that meaningful Indigenous participation and adequate Crown consultation occurs for the NPD Closure Project and the NSDF Project environmental assessments. This is both a project-specific concern and a concern for the Crown.	CNL has heard KZA's concern about meaningful Indigenous participation in the EAs for CNL's designated projects and has sought feedback from and offered engagement opportunities for KZA on numerous occasions since the beginning of the NPD Closure Project. CNL Response: For the NPD Closure Project, the responsibility for assessing that adequate Crown consultation has been undertaken falls with the CNSC. CNL is committed to open, transparent and continuing engagement with KZA within CNL's role as the project proponent. CNL and KZA have been meeting monthly since summer 2023 and CNL will continue to provide engagement opportunities for KZA. Engagement Highlights: CNL first reached out to KZA in 2016 with two letters addressed to the Chief; both letters shared information and one inquired on traditional land use. As a part of the AANTC, KZA attended an introductory project meeting between the AANTC and CNL in 2017 April to share project information and hear feedback from the AANTC leadership. The CNL presentation included: site location, project components and timeline, species at risk, proposed end state, and safety barriers for the protection of the environment. In May 2017, CNL met with KZA including two specialists in biology and forestry and one Councilor. This was an opportunity for open discussion on the project with NPD Closure Project team members as well as discuss KZA's comments on the Project Description. CNL provided an overview presentation and shared information on: EA and environmental monitoring, Indigenous requirements in an EIS, project overview and timeline and end state. In July 2017, KZA staff, which included technical experts, toured the NPD site. CNL's biologist was on hand to discuss ecological and archeological studies. KZA staff asked questions and offered feedback on the project, including feedback on species at risk. All questions were addressed verbally at the tour. CNL has responded to all questions, comments, and information requests to date. CNL has reached out to KZA on an ongoing basis since the beginning of the project and has met with KZA in 2017 and in 2021. At the meeting in November 2021, CNL expressed	Where is this topic discussed in the EIS? **Section 6.2.4.7.1** of the EIS summarizes CNL engagement with KZA. What changes have been made (and where)? CNL has updated **Section 6.2.4.7.1** of the EIS to reflect new and planned engagement activities to support KZA's meaningful participation in the EA process.	Status: Resolution in Progress CNL remains committed to ongoing engagement with KZA within CNL's role as the project proponent. It is noted that this topic extends beyond the scope of the NPD Closure Project. Next Steps: CNL and KZA to discuss forward communication for the project and support needed for continued involvement by KZA in the NPD EA.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		interest in entering into an agreement to provide capacity funding to enable participation in the EA process. Since the summer of 2023, CNL and KZA have been meeting monthly about the NPD Closure Project. CNL has provided reference material and discussed topics identified by KZA. In May 2024, KZA community members, including high school students and elders, visited the CRL site. KZA community members shared feelings with CNL about projects, including the NPD project. CNL will continue to work with KZA to respond to areas of concern and identify additional opportunities for engagement.		
5. EA Process and Methodology	a) Relevant legislation and current framework KZA expressed concern on continued use of *CEAA, 2012* rather than the more recent *Impact Assessment Act*. KZA expects that the NPD Closure Project Environmental Assessment is carried out using up-to-date legislation, fulfilling Canada's international engagements, especially regarding Indigenous rights. This is not a project-specific concern.	No actions – the NPD Closure Project EA will continue under *CEAA* (2012). CNL Response: Note this concern was raised with the Federal Government. This interest is generally beyond the scope of the project. As per direction from the CNSC and transitional provisions of the *Impact Assessment Act*, CNL is continuing its EA for the NPD Closure Project under *CEAA* (2012). Letter to CNL - Changes to Federal Legislation. While the topic of regulatory requirements for an EA process is broad and not specific to the NPD Closure Project, KZA's comments were directed at the regulatory regime under which the NPD Closure Project should be assessed. CNL recognizes the importance of addressing this concern. Therefore, the NPD EIS was revised to include a reference to the *IAA* transitional provisions for continuing the NPD Closure Project EA under *CEAA* (2012) given that it was commenced under *CEAA* (2012) before the *IAA* came into force in 2019.	Where is this topic discussed in the EIS? **Section 3.5** of the EIS summarizes the regulatory framework for the NPD Closure Project. **Section 6.4** outlines CNL's approach and commitment to reconciliation. What changes have been made (and where)? **Section 3.5** of the EIS reflects the provisions in subsection 182 of the *IAA* for continuation of ongoing projects under *CEAA* (2012).	Status: Further alignment on this concern is unlikely For the NPD Closure Project, CNL considers this concern addressed by the revisions to the EIS that provide the regulatory framework and outline CNL's approach and commitment to reconciliation. While KZA may still prefer that the project is subject to the *Impact Assessment Act*, the CNSC has determined that the project will be evaluated under *CEAA* (2012). In feedback provided by KZA in December 2023 and February 2024, KZA is addressing concerns on the current legislative framework with the CNSC who on behalf of the Crown holds the responsibility and duty to consult with and accommodate KZA for the proposed NPD closure project. KZA's laws require that KZA continue to advocate for the complete removal of all contaminated materials as the preferred option. CNL remains committed to ongoing engagement with KZA within CNL's role as the project proponent.
	b) Cumulative effects KZA is interested in the overall protection of the Ottawa River and land at, and in the vicinity of, CNL sites, not just the impacts of a single project. This is a CNL-wide concern.	In November 2023, KZA's Impact Assessment Coordinator shared that KZA is looking for a more holistic cumulative effects study that considers the impact of NPD in the area. KZA would like this study to consider all CNL projects on KZA traditional territory and measure the impacts and effects of CNL's activities and legacy waste in and around CNL sites. CNL proposes a dedicated meeting on this topic to fully understand KZA's interest on cumulative effects and continue dialogue on a desired KZA cumulative effects study.	Where is this topic discussed in the EIS? **Section 9.13** of the EIS describes the process for evaluating cumulative effects, and presents CNL's assessment of cumulative effects for the NPD Closure Project. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolution in progress CNL considers that this concern will be fully addressed through an appropriate commitment to provide capacity for including Indigenous Peoples in CNL's monitoring programs. Engagement between CNL and the KZA may result in specific project commitments on additional mitigations measures or commitments that support KZA's involvement in monitoring activities that will enhance confidence and trust in CNL's assessment.

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		CNL Response: CNL acknowledges KZA's concern about the effects on the Ottawa River and land at, and in the vicinity of the NPD site from various activities in the past, present and future. As discussed in the EIS and outlined in the CEAA technical guidance Assessing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act*, 2012 (2015), a cumulative effects assessment is only required to be undertaken for residual effects of the project. For all environmental components, since it was determined that no adverse residual effects are expected to occur from the NPD Closure Project, there is no potential for the occurrence of cumulative effects, including no potential for synergistic and/or additive effects. CNL respects that Indigenous Nations, communities and organizations often prefer to evaluate the effects assessment against a different baseline than CNL. The baseline used in the EIS reflects current-day conditions, in accordance with *CEAA* (2012) requirements. CNL maintains the view that past disturbances, i.e., those that occurred during the pre-construction of the NPD facility, are not in scope. CNL notes that the proposed NPD Closure Project will improve the long-term environmental conditions and safety of the NPD site and surroundings, which will be confirmed by Indigenous-led monitoring programs.		CNL remains committed to ongoing engagement with KZA within CNL's role as the project proponent. Next steps: CNL and KZA to discuss continued involvement by KZA in the NPD EA, which may include a dedicated discussion on cumulative effects.
5. EA Process and Methodology	c) Access to, and use of, information KZA is interested in data sovereignty and in conducting its own environmental and impact assessment, inventories and monitoring studies. KZA is concerned that failing to observe Indigenous knowledge in favour of the more limited CNL studies conducted to date cannot be fully relied on to adequately protect the land. Specifically, KZA notes that data access and governance must approach the First Nation as authorities and partners, rather than subjects of study. This is a project-specific concern.	CNL Response: CNL acknowledges that KZA is interested in conducting its own EA, inventories and monitoring studies. The EIS and supporting studies have assumed that traditional uses do occur adjacent to the NPD site, whether on the Ottawa River or outside the restricted/fenced area. CNL has also assumed that there will be future interest in re-establishing traditional use activities on the NPD site. CNL has determined that there are no adverse impacts on Traditional Land and Resource Use resulting from the NPD Closure Project. Indigenous Nations, communities and organizations often prefer a different approach, consider different factors, and evaluate against a different baseline than CNL and, subsequently, the findings of the Indigenous Nations, communities and organizations, and CNL, differ. The proposed NPD Closure Project has the potential to help reduce concerns of alienation and/or fears. The proposed project involves a long-term solution to ensure the waste that currently resides at the NPD site is effectively contained and isolated from the environment, ensuring public safety. This	Where is this topic discussed in the EIS? **Section 8.9** of the EIS presents information about traditional land and resource use. **Section 9.9** of the EIS assesses risk to traditional land and resource use VCs, including new VCs (**Sections 6.3 and 9.9** within the EIS). **Section 9.1.1.1** of the EIS presents the future exposure scenarios and groups that are considered in the PostSA TSD. What changes have been made (and where)? CNL expanded the description of traditional uses and added and evaluated new traditional land and resource use VCs (**Sections 6.3 and 9.9** of the EIS). The EIS update includes additional detail on the VC-related engagement process (**Section 6.3**) and how Indigenous interests have been incorporated into the VCs selected for the NPD Closure Project.	Status: Resolution in progress CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012). CNL understands that this concern is outstanding from the KZA's perspective based on KZA feedback in July 2023. Next steps: Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic.

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		solution has the potential to result in additional lands being freed up for traditional harvest or other uses by Indigenous peoples or the public. CNL stands by its conclusion that the project will not interfere with traditional activities or have a negative impact on the biological resources on which they are dependent. Ultimately, the decision of impacts to rights rests with the CNSC. If the CNSC finds any potential impacts to KZA's Indigenous and/or treaty rights, CNL remains committed to understanding these rights and working collaboratively to ensure that they are appropriately mitigated to the greatest extent possible.		
5. EA Process and Methodology	d) Lack of integration of KZA information and knowledge in the NPD EIS KZA is concerned that CNL has not incorporated available information on KZA's history in the region or outlined the harmful past interactions between the nuclear industry and KZA in general. This is both a project-specific and company-wide concern.	CNL Response: CNL is working to incorporate KZA feedback and knowledge shared with CNL on the NPD and NSDF project in its next revision of the NPD EIS. NPD Closure Project representatives are eager to hear from KZA to learn more about KZA history, traditions and culture through the method desired by KZA. CNL will continue to communicate openly and transparently with KZA, and provide engagement opportunities for KZA within CNL's role as the project proponent.	<u>Where is this topic discussed in the EIS?</u> **Section 6.2 4.7.1** of the EIS summarizes CNL engagement with KZA. <u>What changes have been made (and where)?</u> CNL has updated **Section 6.2.4.7.1** of the EIS with all engagement efforts to the May of 2023. <u>Where is this topic discussed in the EIS?</u> **Section 6.2.4.7.1** of the EIS summarizes CNL engagement with KZA. <u>What changes have been made (and where)?</u> CNL has updated **Section 6.2.4.7.1** of the EIS to reflect new and planned engagement activities to support KZA's meaningful participation in the EA process.	<u>Status:</u> Resolution in progress CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012). KZA disagrees that this concern is adequately addressed based on KZA feedback from December 2023 and February 2024. <u>Next Steps:</u> CNL is working to incorporate KZA feedback and knowledge shared with CNL on the NPD and NSDF project in its next revision of the EIS.
	e) Concern about the methodology for conducting the effects assessment KZA is concerned that the First Nation is being asked to restrict KZA's exploration of impacts to the health and socioeconomic conditions, the physical and cultural heritage, the use of lands and resources, and the historical archeological, paleontological or architecturally significant structure or thing based on limited methodology. This is a project-specific concern.	CNL is continuing its efforts to address these concerns by: (i) Involving Indigenous Nations, communities and organizations, including KZA, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near the CNL operated sites and build confidence that the decommissioning strategy and mitigation measures are effective. (ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern.	<u>Where is this topic discussed in the EIS?</u> **Section 9.1.2** of the EIS explains the methodology used for determining the significance of residual effects. It also presents the criteria used to evaluate significance, which are from CNSC REGDOC 2.9.1 (2020), Environmental Protection: Environmental Principles, Assessments and Protection Measures. **Section 11** of the EIS, Conclusion on Significance, discusses the assessment findings. <u>What changes have been made (and where)?</u> No changes have been made to the EIS in response to this comment.	<u>Status:</u> Further alignment on this concern is unlikely CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012). KZA disagrees that this concern is adequately addressed based on KZA feedback from December 2023 and February 2024. <u>Next Steps:</u> KZA and CNL remain committed to working respectfully and collaboratively with each other. CNL wishes to continue discussions with KZA to better understand the community's perspective and values and any fears, or concerns associated with the NPD site and traditional use near the site.

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		CNL Response: The methodology used in the EIS for assessing the significance of residual effects for the NPD Closure Project is an established methodology that was used in the EA for the Darlington New Nuclear Project, which currently has an approved License to Prepare Site. The criteria for the evaluation of significance are from the CNSC REGDOC 2.9.1(2020), Environmental Protection: Environmental Principles, Assessments and Protection Measures. The baseline used in the EIS reflects current-day conditions, in accordance with *CEAA* (2012) requirements. CNL notes that the proposed NPD Closure Project will improve the long-term environmental conditions and safety of the NPD site and surroundings, which will be confirmed by Indigenous-led monitoring programs. The participation of KZA in monitoring work for the NPD Closure Project would help to ensure consideration of Indigenous knowledge, collaboration, mutual respect, ongoing participation and relationship building for the future. CNL is open and willing to have a dedicated meeting with KZA to review all environmental effects of the project and present the methodology for determining significance of adverse residual effects.		
6. End State, Site Restoration and Future Use of the Land	a) Collaborative end land use planning There is a strong desire from KZA for future use of the NPD site. It is important to KZA that it receives reassurance that the area will move towards renaturalization and healing over time, so that KZA community members can reconnect with the site and be able to practice traditional land use activities. KZA affirms that the NPD site should be remediated before being returned to the care of Indigenous Peoples who have always been responsible for these lands and waters. This is both a CNL-wide and project-specific concern.	CNL received preliminary feedback on KZA's desire to be involved in site restoration and end state planning during an NPD-specific meeting with the KZA Working Group in November 2023. CNL is committed to sharing the draft restoration plan with KZA once it is developed. CNL Response CNL acknowledges KZA's desire for the NPD site to move towards renaturalization and healing. CNL has used the terms renaturalize/renaturalization to mean: return to natural. As the majority of the site is forested, disturbed areas outside the final licensed area will be left to return to natural via natural succession. Renaturalization will have a positive impact on terrestrial biodiversity because vegetation will provide habitat for nests and dens, cover for animals as they roam, and will promote movement of animals by increasing connectivity (reducing habitat fragmentation). Future land use is a discussion topic that requires the participation of AECL as the owner of the NPD site, in consultation with Indigenous Nations, communities, and organizations, the public, as well as industry and government. As the licensee, CNL is committed to engagement and consultation with Indigenous Nations, such	Where is this topic discussed in the EIS? General plans for restoration and end state are described in **Section 4.3.1.9** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Resolution in progress. This interest and concern is in progress pending engagement on site restoration and end-state planning. Next Steps: CNL will engage with KZA through targeted discussions to seek input prior to and during restoration plan development. The restoration and end state plan draft will be shared with KZA to verify that input has been adequately recorded. CNL is committed to seeking input from the KZA on the proposed ISD project end state, including KZA input on lands restoration of the disturbed areas.

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		as KZA, on future end state and land use. The potential land options will not be fully determined until the NPD Closure Project EA and license amendment process proceeds further. In the meantime, CNL is preparing a plan for site restoration after decommissioning is complete, which CNL is committed to sharing with KZA.		
7. Free Prior and Informed Consent (FPIC)	a) Principle of consent KZA asserts that permission for the construction of the NPD site was never originally given by KZA. It is important to KZA that CNL work to secure its free, prior and informed consent through meaningful consultation. This is both a CNL-wide and project-specific concern.	<u>CNL Response:</u> CNL acknowledges that it is understood by KZA that an Indigenous Nation, community or organization's consent is required for the creation of a permanent hazardous waste disposal facility in its traditional territory, per Section 29.2 of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). As the licensee, CNL is committed to work towards consensus and consent, with an understanding that UNDRIP does not necessitate a veto in decision-making. CNL is committed to ensuring meaningful participation of Indigenous peoples in decisions that affect their nations, communities and territories.	<u>Where is this topic discussed in the EIS?</u> **Section 3.5** of the EIS summarizes the regulatory framework for the NPD Closure Project. **Section 6.4** outlines CNL's approach and commitment to reconciliation **Section 6.2 4.7.3** of the EIS summarizes KZA's interests and concerns including governance. <u>What changes have been made (and where)?</u> No changes have been made to the EIS in response to this comment.	<u>Status:</u> Resolution in progress CNL understands that UN guiding principles for human rights and UNDRIP are areas of importance for KZA. CNL remains committed to seeking common ground with KZA in the interest of moving closer towards consent. <u>Next Steps:</u> Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic.
8. Impacts on Rights	a) Impacts on KZA Rights KZA is concerned about the impacts of the NPD Closure Project on its Aboriginal Title rights. It is important to KZA that the rights and interests of the Nation are understood and upheld. This is both a CNL-wide and project-specific concern.	CNL has sent 3 targeted letters asking specific questions of KZA to align with the requirements of *CEAA* 2012 Section 5(1)(c) including Indigenous rights. CNL has reached out to KZA on an ongoing basis since the beginning of the project and has met with KZA in 2017 and in 2021. At the meeting in November 2021, CNL expressed interest in entering into an agreement to provide capacity funding to enable participation in the EA process. CNL seeks to develop a mutual understanding of the perceived effects of NPD Closure Project activities on the environment and any potential negative impacts on Aboriginal and/or treaty rights. This includes, but is not limited to, rights to trap, hunt, fish, gather, or harvest as well as the continuation and uninterrupted access to cultural and spiritual activities on the lands and waters. CNL is continuing its efforts to address this concern by committing to: (i) Involving the Indigenous Nations, communities and organizations in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near CNL operated sites and build confidence that the decommissioning strategy and mitigation measures are effective. (ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to	<u>Where is this topic discussed in the EIS?</u> **Table 6.2-2** of the EIS summarizes the identified Indigenous Nations, Communities and Organizations for the NPD Closure Project including information about the location of their traditional territory and assertion of rights. <u>What changes have been made (and where)?</u> Note that this concern was raised at the Project Description stage and therefore no changes were made to the EIS as **Table 6.2-2** has been present since the initial draft.	<u>Status:</u> Further alignment on this concern unlikely CNL stands by its conclusion that the project will not interfere with traditional activities or have a negative impact on the biological resources on which they are dependent. CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012). CNL acknowledges that the findings of the KZA-CNSC rights impact assessment may require additional engagement and a mutually agreed upon resolution of any found impacts on rights. KZA remains concerned that the project poses significant risk of detrimental impact to KZA, as communicated in KZA preliminary feedback on the EIS in December 2023 and February 2024. <u>Next steps:</u> Through continued engagement at the Working Group, CNL hopes that the parties are able to find common ground on this topic, which may include proposed commitments.

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		negative perceptions and feelings of discomfort and concern (**Section 9.9.5** of the EIS). CNL Response: Table 6.2-1 of the EIS notes that the NPD site is located within the vicinity of known traditional territory of the AANTC. It also indicates assertion of rights. CNL acknowledges KZA's concerns about assessment of impacts to rights and traditional land and resource use, driven by concerns about contamination of and distrust in the safety of the land and water. CNL is open to increased engagement, education, and participatory involvement in monitoring activities at its sites to address these concerns. The proposed NPD Closure Project has the potential to help reduce concerns of alienation and/or fears. The proposed project involves a long-term solution to ensure the waste that currently resides at the NPD site is effectively contained and isolated from the environment, ensuring public safety. This solution has the potential to result in additional lands being freed up for traditional harvest or other uses by Indigenous peoples or the public. CNL stands by its conclusion that the project will not interfere with traditional activities or have a negative impact on the biological resources on which they are dependent. Ultimately, the decision of impacts to rights rests with the CNSC, therefore CNL is unable to comment on an assessment of impacts to rights at this time. If the CNSC finds any potential impacts to KZA's Indigenous and/or treaty rights, CNL remains committed to understanding these rights and working collaboratively to ensure that they are appropriately mitigated to the greatest extent possible.		
9. Inventory	a) Inventory of the NPD Disposal Facility KZA is concerned about the nuclear waste that will remain on site and the radiological content (inventory) of the proposed NPD disposal facility. This is a project-specific concern.	CNL Response: CNL agrees that protection of future land users is an important concern and has addressed this subject. CNL has assessed the suitability of in-situ disposal for the NPD site, and the EIS shows that such a disposal is safe for human health and the environment in the short term and long term. The NPD reactor has a low radionuclide inventory. Tritium is the major radionuclide and will decay to low levels during the Institutional Control period (~100 years). The proposed waste disposal facility barriers have a design life consistent with that timeframe. The longer-lived ILW consists of small quantities of low energy beta emitters. The beta emitters have low radiotoxicity. The main barrier to containing the radioactivity on long timescales is that 83% of the initial inventory (mostly activation products) is embedded within steels and zircaloy which corrode very slowly, particularly in	Where is this topic discussed in the EIS? **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment. What changes have been made (and where)? No changes were made to the EIS as a result of this concern.	Status: Resolution In progress CNL's technical assessment shows that the in-situ design is appropriate for the hazardous timeframe of the contaminants and is consistent with national and international standards. CNL understands that this concern is outstanding from KZA's perspective based on feedback in July 2023. Next steps: Through engagement, CNL hopes that the parties are able to find common ground on this topic, including the development of commitments to build confidence and trust in the in-situ disposal concept.

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		an alkaline environment. The metals used in the reactor vault are corrosion-resistant alloys, with stainless steel taking approximately 30,000 years to fully corrode and zircaloy up to 300,000 years to fully corrode. The low corrosion rates allow the radioactivity to decay before it is released into the reactor vault. Once in the reactor vault the radioactive contaminants sorb onto the grout which further delays its diffusion out of the facility. Based on its consideration of national and international standards and guidelines, CNL continues to believe that the NPD facility has characteristics that support in-situ disposal.		
10. Long-term Safety	a) Long-term site integrity It is important to KZA that there is confidence in the performance of the facility over the long-term and that there are barriers in place to protect the environment, taking into account the worst case scenario in terms of climate change and extreme natural disturbance.. This is a project-specific concern.	In October 2023, CNL provided a presentation to the KZA Monthly Working Group with additional information on the contaminants involved in the NPD Closure Project, including: • main contaminants of concern; • half-life and LLW/HLW categorization; • threshold limits and how they are established; • lifespan of the grout/concrete structure; • effects of the contaminants at higher levels on the environment and human health; • the mobility of the contaminants (how they move within the environment and how they affect the things around them); • overview of the various proposed protection measures (the role of grout and other barriers); • how in-situ disposal compares and contrasts with Deep Underground Repositories; and • what route the contaminants would travel (even if they are at 'acceptable levels') after the concrete/grout decays. CNL is attempting to address concerns related to long-term safety at the NPD site by: (i) Involving the Indigenous Nations, communities and organizations, including KZA if interested, in monitoring activities that will confirm the conclusions of the EIS. (ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern (**Section 9.9.5** of the EIS). CNL Response: CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above-ground natural hazards and	Where is this topic discussed in the EIS? **Section 8.12** of the EIS discusses the relevant natural disasters to which NPD may be exposed. **Section 9.14** of the EIS discusses the potential effects on the project of climate change, forest fires, floods, earthquakes, severe weather such as tornados, lightning strikes, ice storms, and changes to the Ottawa River. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Further alignment on this concern is unlikely CNL's technical assessment shows that there are no long-term effects resulting from the NPD Closure Project. KZA disagrees that this concern is adequately addressed based on KZA feedback from December 2023 and February 2024. KZA's laws require that KZA continues to advocate for the complete removal of all contaminated materials as KZA's assessments have determined this to be the preferred option. CNL remains committed to ongoing engagement with KZA within CNL's role as the project proponent. Next Steps: Through engagement, CNL hopes that the parties are able to find common ground on this topic, including the development of commitments to build confidence and trust in the in-situ disposal concept.

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		extreme temperature change on the integrity of the grouted facility and concluded that these events will have no undue short-term or long-term effects on people or the environment around the site. The PostSA TSD demonstrates that beyond the Institutional Controls period, under all scenarios, the impact on the public, Indigenous and the environment is negligible. To verify that the engineered barriers as a whole are performing as expected/designed, CNL will monitor groundwater. Groundwater wells will be located between the NPD facility and the Ottawa River in order to monitor groundwater quality after it interacts with the facility and before it reaches the Ottawa River. CNL will conduct monitoring for as long as necessary to verify the results of the assessment in the EIS. The proposed NPD Closure Project conforms with all applicable Canadian codes and standards as well as international best practices to ensure protection of the environment and safety throughout the life of the facility. CNL is committed to further engagement with KZA to obtain a greater understanding of their concerns about the long-term safety of nuclear waste.		
10. Long-term Safety	b) Consideration of unique pathways for potential contamination exposure It is the view of KZA that there is a significant gap in research on the unique pathways for exposure to contaminants for Anishinabe people that needs to be addressed in the EIS in order for the project to move forward. It is important to KZA that CNL recognizes the unique pathways of potential exposure, therefore KZA would like to be involved in identifying the source of these of pathways to instill confidence for KZA members practicing traditional activities on the site in the future. This is a project-specific concern.	CNL received preliminary input on this concern during an NPD-specific meeting with KZA in November 2023. CNL re-iterates that the details of CNL's research on the unique pathways for exposure to contaminants are described in CNL's PostSA TSD and associated TSDs. The NPD EIS contains a summary of the results. CNL is open and willing to hold a dedicated Working Group meeting to further describe the studies that have been done and provide an explanation of the results. CNL is continuing its efforts to address these concerns by committing to: (i) Involving the Indigenous Nations, communities and organizations, including KZA, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near CNL operated sites and build confidence that the decommissioning strategy and mitigation measures are effective. (ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to	<u>Where is this topic discussed in the EIS?</u> The EIS presents the PostSA results for the Indigenous receptor group in **Section 9.10.2.** <u>What changes have been made (and where)?</u> CNL's has updated its PostSA TSD. This update includes an Indigenous receptor whose characteristics have been based on the results of a local Indigenous Nation harvest and diet study. Two additional medicinal pathways have been added in addition to ingestion (inhalation and skin application). The human health assessment in the PostSA also includes an even more conservative scenario where an Indigenous receptor where characteristics match a pre-European contact lifestyle. The results of the PostSA have been integrated into the EIS.	<u>Status:</u> Resolution is in progress CNL's technical assessment shows that there are no predicted impacts to Indigenous biophysical health resulting from the NPD Closure Project. Continued engagement with KZA may result in commitments that will enhance confidence and trust in CNL's assessment. <u>Next Steps:</u> Review with KZA the exposure pathways included in CNL's assessment and hear feedback from KZA on any pathways that may have not been adequately considered. KZA's primary goal is to responsibly assess the project to ensure the health and well-being of its people and the environment. KZA appreciates CNL's willingness to continue to explore this topic.

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		negative perceptions and feelings of discomfort and concern (**Section 9.9.5** of the EIS) CNL Response: CNL agrees that traditional activities and resource use is important to integrate into the EIS with consideration of potential unique pathways of exposure for materials harvested or gathered in the area. In the third iteration of the PostSA TSD issued in March 2020, CNL included a Potential Exposure Group consisting of a family of self-sufficient Indigenous receptors in the NPD Area. The exposure profile in the postclosure period was developed based on a traditional Indigenous lifestyle pre-European contact (SENES 2014). This lifestyle results in a more cautious dose estimate than that based on current-day lifestyle, where some food is store-bought and likely not from the contaminated area. The predicted peak dose to an Indigenous receptor (from the 3rd iteration PostSA) is 0.0004 mSv/yr, which is 500 times less than the dose criterion. The analysis demonstrates that the impact on the public, Indigenous peoples and the environment is negligible under all scenarios. Through use of a Diet and Harvest Study prepared by a local Indigenous Nation, CNL has updated the exposures to an Indigenous receptor within its PostSA TSD. This receptor already included pathways to wild foods harvested from the area but now also considers exposure through traditional use of materials harvested or gathered from the area. The new pathways include inhalation of smoke from burning medicinal plants and rubbing of plants into the skin. To instill confidence in the EIS findings and the effectiveness of the follow-up monitoring, CNL will involve the KZA and other Indigenous Nations, communities and organizations in the monitoring program, which aims to confirm the predictions of the EIS.		
11. Monitoring	a) Monitoring locations and implementation of mitigation measures KZA has expressed concern about water management and monitoring specifically locations for monitoring to occur and mitigation measures in the event that water becomes contaminated. This is a project-specific concern.	In July 2023, KZA identified that it expects monitoring to occur both at the NPD site and offsite. CNL Response: The potential for contamination to reach the Ottawa river is assessed in the EIS, and is supported by long term modelling and detailed groundwater modelling. The EIS	Where is this topic discussed in the EIS? **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment, including the Ottawa River.	Status: Resolution in progress. CNL understands that this concern is outstanding from KZA's perspective. A dedicated Indigenous-led, Indigenous Knowledge driven component integrated into the site monitoring at NPD can help build confidence and trust in CNL's assessment.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		predicts no effects to surface water (including the Ottawa river. CNL has added information to the EIS about the washout pit and historic water discharges from the wells area sump. Monitoring results capture the effects of historic activities. Groundwater modelling was conducted for the NPD site. The PostSA TSD incorporates the results of groundwater modelling and, where necessary, uses conservative assumptions, (e.g., the tile drains remain functional and serve as a faster pathway to the Ottawa River), and considers the tile drains to have failed (so that the facility resaturates more quickly). The PostSA TSD concludes that no residual effects are expected from potential contaminant migration in groundwater. The tile drain system is expected to fail at some point during the Institutional Controls phase. In addition, monitoring of the environment will be undertaken to verify the EIS predictions of no significant adverse effect and to confirm that mitigation measures are effective. Groundwater wells will be located between the NPD facility and the Ottawa River in order to monitor groundwater quality after it interacts with the facility and before it reaches the Ottawa River. CNL will conduct monitoring for as long as necessary to verify the results of the assessment in the EIS. Through engagement, CNL is open and willing to collaboratively discuss the list of mitigation measures proposed for the NPD Closure Project as well as KZA's interests in water monitoring and mitigation efforts.	Mitigation measures for the protection of surface water are described in **Section 9.3.3.2** of the draft EIS. The EIS does not predict any adverse residual effects on the surface water environment (**Section 9.3.3.3** and **9.3.3.5**). The follow-up monitoring program is described at a high level in **Section 12** of the EIS. Groundwater modelling has been conducted in the Groundwater Modelling TSD. <u>What changes have been made (and where)?</u> No changes have been made to the EIS in response to this comment.	<u>Next Steps:</u> Through engagement, CNL hopes that the parties are able to find common ground on this topic. CNL and KZA to have a dedicated discussion to discuss KZA's involvement in monitoring at the NPD site.
11. Monitoring	b) Participation in monitoring KZA would be interested in being involved in a monitoring strategy to provide assurance to KZA members that CNL is regularly monitoring the environment around CNL sites. This is both a CNL-wide and project-specific concern.	CNL received preliminary feedback on this topic during an NPD-specific meeting with the KZA Working Group in November 2023. As follow-up from the meeting, CNL sent an infographic to KZA that illustrates CNL's environmental monitoring (i.e., water sampling locations) throughout the Regional Study Area. <u>CNL Response:</u> CNL is committed to involving Indigenous Nations, such as KZA, in its monitoring programs, and is open and willing to explore options for KZA's desired involvement in monitoring at the NPD site. The participation of KZA in monitoring work for the NPD Closure Project ensures consideration of Indigenous knowledge, collaboration, mutual respect, ongoing participation and potential relationship building for the future.	<u>Where is this topic discussed in the EIS?</u> **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment, including the Ottawa River. Mitigation measures for the protection of surface water are described in **Section 9.3.3.2** of the draft EIS. The EIS does not predict any adverse residual effects on the surface water environment (**Section 9.3.3.3** and **9.3.3.5**). The follow-up monitoring program is described at a high level in **Section 12** of the EIS.	<u>Status:</u> Resolution in progress. CNL understands that this concern is outstanding from KZA's perspective. A dedicated Indigenous-led, Indigenous Knowledge driven component integrated into the site monitoring at NPD can help build confidence and trust in CNL's assessment. <u>Next Steps:</u> Through engagement, CNL hopes that the parties are able to find common ground on this topic. CNL and KZA to have a dedicated discussion to discuss KZA's involvement in monitoring at the NPD site.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
			Groundwater modelling has been conducted in the Groundwater Modelling TSD. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	
12. Protection of Flora and Fauna	a) Biota and Species at Risk KZA expressed concerns about potential project impacts to biota and its natural habitat, specifically SAR at the NPD site -chimney swifts and Monarch butterflies. In particular, KZA had questions about leaving the ventilation stack in place This is a project-specific concern.	In May 2017, CNL met with KZA including two specialists in biology and forestry and one Councilor. This was an opportunity for open discussion on the project with NPD Closure Project team members as well as to discuss KZA's comments on the Project Description. CNL provided an overview presentation and shared information on: EA and environmental monitoring, Indigenous requirements in an EIS, project overview and timeline and end state. The discussion also included Species at Risk and interest in a visit to NPD. In July 2017, KZA staff toured the site with technical and environmental experts. CNL's biologist was on hand to discuss ecological and archaeological studies. KZA had the opportunity to ask questions or offer feedback on the project, including feedback on species at risk. All questions were addressed verbally on the tour. CNL Response: CNL involved third party experts through a workshop and evaluated all possible options to best protect the chimney swift. The recommendations from the workshop was to retain the ventilation stack as critical habitat. CNL has submitted a permit to Environment and Climate Change Canada as part of the project. The draft conditions of that permit (mitigations for the protection of the chimney swift) are included in the EIS. In response to observations of milkweed at the NPD site by KZA staff during their site visit, monarch butterfly has been added as a valued component to the EIS and mitigations are in place to preserve and reseed with milkweed (critical habitat).	Where is this topic discussed in the EIS? Collectively, mitigation measures for the protection of flora and fauna, specifically species at risk are outlined in **Sections 9.6.3.2** (Terrestrial Environment). No residual effects for the terrestrial environment are predicted (**Section 9.6.3.5**). What changes have been made (and where)? As a result of feedback from KZA staff and technical experts, monarch butterflies were added as a VC (see **Section 6.2.4.7** and **Appendix B** of the EIS). Habitat effects on the monarch butterfly are considered and mitigations are outlined in **Section 9.6.3.2**. The EIS includes additional mitigations related to milkweed (important habitat for monarch butterflies), migratory birds, bats, chimney swifts and milksnakes.	Status: Resolution in Progress CNL considers this concern has been addressed by changes to the EIS, including the addition of monarch butterfly to the VC list, as well as the site tour and meetings. CNL understands that the concerns of KZA relating to protection of flora and fauna have greatly evolved since 2017. CNL remains committed to ongoing engagement with KZA within CNL's role as the project proponent. Next Steps: CNL proposes a meeting with KZA to discuss how the species they have identified are considered and included in CNL's assessment.
13. Protection of the Ottawa River	a) KZA expressed concern about the potential impacts of nuclear waste on the health of the Ottawa River and its entire watershed including wildlife and flora. This is a concern for KZA because for the Anishinaabe peoples, water is sacred and essential for all life and must be protected. This is a project-specific concern.	As a part of the AANTC, KZA attended a meeting with the AANTC and CNL in 2017 April to share project information and hear feedback from the AANTC leadership. CNL's presentation included: site location, project components and timeline, species at risk, proposed end state, and safety barriers for the protection of the environment. In May 2017, CNL met with KZA including two specialists in biology and forestry and one Councilor. This was an opportunity for open discussion on the project with NPD	Where is this topic discussed in the EIS? **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment including the Ottawa River. Mitigation measures for the protection of surface water (**Section 9.3.3.2**) (including the Ottawa	Status: Resolution in Progress CNL considers this concern has been addressed by the draft EIS content and CNL's ongoing outreach to engage the KZA through a variety of means. CNL remains committed to ongoing engagement with KZA within CNL's role as the project proponent. Next Steps:

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		Closure Project team members as well as discuss KZA's comments on the Project Description. CNL provided an overview presentation and shared information on: EA and environmental monitoring, Indigenous requirements in an EIS, project overview and timeline and end state. In July 2017, the KZA staff toured the NPD site with technical and environmental experts. CNL's biologist was on hand to discuss ecological and archeological studies. KZA staff asked questions and offered feedback on the project, including feedback on species at risk. All questions were addressed verbally at the tour. CNL has reached out to KZA on an ongoing basis since the beginning of the project and has met with KZA in 2017 and in 2021. At the meeting in November 2021 CNL expressed interest in entering into an agreement to provide capacity funding to enable participation in the EA process. <u>CNL Response:</u> CNL has assessed in-situ disposal of the waste as safe for the public and the environment, particularly the Ottawa River, over both short and long-term periods (e.g.,100,000 years). If the EA for in-situ disposal of the NPD facility is approved, the CNSC will require CNL to monitor and control access to the site during the Institutional Control period currently proposed for a minimum of 100 years. Once the regulator allows for Institutional Controls to cease, there will be no requirement for future monitoring or maintenance as the in-design features or passive barriers of the disposal facility, such as the grout, will help protect the public and the environment from radioactive and non-radioactive wastes. To verify that the engineered barriers as a whole are performing as expected/designed, CNL will monitor groundwater. Groundwater wells will be located between the NPD facility and the Ottawa River in order to monitor groundwater quality after it interacts with the facility and before it reaches the Ottawa River. CNL will conduct monitoring for as long as necessary to verify the results of the assessment in the EIS. CNL is working to involve Indigenous Nations, communities and organizations, including KZA if interested, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near CNL operated sites and build confidence that the decommissioning strategy and mitigation measures are effective.	River) have been updated and expanded from the 2017 draft EIS. The EIS does not predict any adverse residual effects on the surface water environment (**Section 9.3.3.3**). <u>What changes have been made (and where)?</u> Note that this concern was raised at the Project Description stage and therefore no changes were made to the EIS as the above assessment has been present since the initial draft.	CNL will continue to follow-up with the KZA on opportunities for involvement in monitoring.
14. Socioeconomic	a) Contracting opportunities	CNL discussed contracting opportunities with KZA at a May 2017 meeting.	<u>Where is this topic discussed in the EIS?</u>	<u>Status:</u> Resolved

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
	KZA is interested in contracting opportunities with CNL to enhance community opportunities. This is a CNL-wide interest.	CNL Response: CNL is committed to improved economic outcomes and benefits for Indigenous Peoples from its projects. CNL has acknowledged this gap and is working to develop a company-wide Indigenous Procurement Strategy, as well as a Reconciliation Action Plan, which includes a commitment to advance economic reconciliation.	Not applicable. What changes have been made (and where)? No impact to the EIS.	Economic opportunities for KZA are considered to be a broader CNL issue and not specific to the EA for the NPD Closure Project. It is noted that this topic extends beyond the scope of *CEAA* (2012) and the NPD Closure Project.
15. Traditional Land and Resource Use and Cultural Impacts	a) Impact on ability to practice traditional activities KZA is concerned that the EIS neglects to acknowledge CNL's responsibility in creating and perpetuating avoidance of the area by KZA members. KZA notes that there is a lack of desire to hunt and fish near the site and reluctance to gather plants that were grown in soils ravaged by radioactive contamination. The idea that KZA must hunt, fish and gather at the site to validate KZA claims to the right to co-manage and protect it is a shortfall in the understanding of KZA culture and values. This is a project-specific concern.	CNL is continuing its efforts to address these concerns by committing to: (i) Involving the Indigenous Nations, communities and organizations, including KZA, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near the CNL operated sites and build confidence that the decommissioning strategy and mitigation measures are effective (ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern. CNL seeks to develop a mutual understanding of the perceived effects of the NPD Closure Project activities on the environment and any potential negative impacts on Aboriginal and/or treaty rights. This includes, but is not limited to, rights to trap, hunt, fish, gather, or harvest as well as the continuation and uninterrupted access to cultural and spiritual activities on the lands and waters. CNL Response: CNL acknowledges KZA's concerns about the safety of the NPD site and the potential impacts on the rights of the KZA and other Indigenous Nations, communities and organizations to practice traditional activities around the NPD site. CNL has assessed potential effects related to dust and noise nuisance, loss of connection, safety of harvesting and consuming local foods, and changes to access and identified no significant adverse effects. To instill confidence in the EIS findings and the effectiveness of the follow-up monitoring, CNL will involve the KZA and other Indigenous Nations, communities and organizations in the monitoring program, if desired, which aims to confirm the predictions of the EIS.	Where is this topic discussed in the EIS? The EIS discusses concerns about potential loss of connection to land and water (e.g., feeling of discomfort or concern), and loss of land and water use in **Section 9.9.5**. General plans for restoration and end state, including access considerations, are described in **Section 4.3.1.9** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this comment.	Status: Further alignment on this concern is unlikely. CNL's conclusion is that the project will not interfere with traditional activities or have a negative impact on the biological resources on which they are dependent. CNL's technical assessment was conducted in accordance with the requirements of *CEAA* (2012). KZA remains concerned that the project poses significant risk of detrimental impact to KZA, as communicated in KZA preliminary feedback on the EIS in December 2023 and February 2024. Next steps: CNL wishes to continue discussions with KZA to better understand the community's perspective and values and any fears, or concerns associated with the NPD site and traditional use near the site. CNL proposes a dedicated Working Group meeting focused on effects to traditional land and resource use.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		CNL notes that the final end state is the only time when changes to access will occur; the final end state of the NPD site will be an improvement from current conditions. The PostSA TSD addresses the potential for concerns about loss of connection to land and water, and about food safety. The PostSA and EIS (and other supporting studies) have demonstrated that, there are no concerns about the accessibility or safety of the NPD site in the long term based on several different future use scenarios, including self-sufficient Indigenous receptors. The proposed activities will result in an enhancement of current conditions at the NPD site and will improve the ability to practice traditional activities in the area surrounding the NPD site. These findings, which will be confirmed by monitoring, may reduce concerns about loss of connection to land and water, and about food safety.		

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Appendix C.5 – Record of Engagement and Tables of Interests and Concerns for Williams Treaties First Nations (WTFN)

This appendix provides a complete record of all engagement between CNL and Williams Treaties First Nations (WTFN) from June 2016 to March 2024 (Table C-19). A record of engagement for each of the individual WTFN is included in subsequent tables:

- Table C-20 – Alderville First Nation
- Table C-21 – Curve Lake First Nation
- Table C-22 – Hiawatha First Nation
- Table C-23 – Mississaugas of Scugog Island First Nation
- Table C-24 – Chippewas of Rama First Nation
- Table C-25 – Chippewas of Georgina Island First Nation
- Table C-26 – Chippewas of Beausoleil First Nation

These tables include the date and method of the communication/engagement, the topics discussed and participants. The tables also highlight engagements where key EA topics were discussed. The key EA topics align with "Generic Guidelines for Preparation of an Environmental Impact Statement Pursuant to the *Canadian Environmental Assessment Act,* 2012" as well as the requirements of REGDOC 3.2.2 "Indigenous Engagement" and guidance specific to NPD provided by the CNSC in January 2021 (e-doc # 6467843).

Following the record of engagement tables is a mapping of how the summary of interests and concerns were compiled (Table C-27), as well as a summary of interests and concerns raised by Williams Treaties First Nations (Table C-28).

Section 6.2.4.9.1, 6.2.4.10.1, 6.2.4.11.1, 6.2.4.12.1, 6.2.4.13.1, 6.2.4.14.1 and 6.2.4.15.1 of the EIS summarizes the engagement activities that have taken place to date between CNL and the WTFN.

Table C-19 Record of Engagement with Williams Treaties First Nations (WTFN)

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
December 16, 2016 Outgoing letter	This was a letter from CNL staff to the Williams Treaties First Nations (WTFN) Process Coordinator introducing the project and included a request for community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested meaningful feedback on the following: • Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes; • Whether the project may have any perceived impacts on Aboriginal and Treaty Rights; • Whether local and traditional knowledge can assist in describing the existing environment; and, • The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.				√	√				√	
January 05, 2017 Outgoing email	This email from CNL communications staff to the WTFN Process Coordinator was to follow up on previous correspondence, inquiring about whether the WTFN as a whole were interested in engaging with CNL on the NPD Closure Project.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
January 20, 2017 Outgoing email	This email from CNL communications staff to the WTFN Process Coordinator was to follow up again on previous correspondence, inquiring about whether the WTFN as a whole were interested in engaging with CNL on the NPD Closure Project.										√
November 15, 2017 Outgoing email	This email from CNL communications staff to the WTFN Process Coordinator enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and environmental assessment, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	
November 17, 2017 Outgoing email	This email from CNL communications staff to the WTFN Process Coordinator enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: "CNL would be pleased to update information in this current draft with input from your community."	√	√	√	√	√	√	√	√	√	
February 20, 2020 Outgoing email	This email from CNL communications staff to the WTFN Process Coordinator inquired about whether the WTFN as a whole were interested in engaging with CNL on the CNL's projects (NPD Closure Project).										√
March 02, 2020 Outgoing telephone call	This telephone call from CNL communications staff to the WTFN Process Coordinator was to follow-up on previous correspondence.										√
March 03, 2020 Outgoing email	This email from CNL communications staff to the WTFN Process Coordinator was to follow-up previous efforts at connecting.										√
March 3, 2020 Outgoing email	This email from CNL communications staff to the Williams Treaties First Nations general email inquiry mailbox was to inquiry/confirm Williams Treaties First Nations Process Coordinator contact details as we have had received no response on any correspondence.										√

Table C-20 Record of Engagement with Alderville First Nation

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Alderville First Nation (FN) Chief introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5(1)(c), the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* • *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	
November 10, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Alderville FN Chief inquired about asserted rights and traditional activities in the region around CRL. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested a better understanding of Alderville FN's historic and/or modern day use of lands in and/or near both of the projects and asked the following questions: • *Does Alderville First Nation have traditional territory or reserve lands near the NSDF and/or NPD Closure Project?* • *What is the history of Alderville First Nation using the areas around the two projects?* • *Do you have any members of Alderville First Nation that currently live in close or reasonable proximity to either of the projects?* • *Does Alderville First Nation have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects?* • *Does Alderville First Nation, or any members, have sites of ceremonial significance in close proximity to either of the two sites, or more generally, any cultural activities near either of the two sites*? CNL also indicated interested in learning more about the FN and any asserted rights, interests or activities members might undertake in the local or regional areas in proximity to the project.				√	√				√	
November 15, 2017 Outgoing email	This email from a CNL communications officer to the Alderville FN Chief enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and environmental assessment, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	
November 17, 2017 Outgoing email	This email from a CNL communications officer to the Alderville FN Chief enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: *"CNL would be pleased to update information in this current draft with input from your community."*	√	√	√	√	√	√	√	√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
April 09, 2020 Outgoing email	This email from a communications officer to representatives of the different WTFN communities (including the Lands and Resources Communications Officer with Alderville FN) was to propose a virtual webinar meeting on the NPD Closure Project and the NSDF Project.										√
May 04, 2020 Outgoing email	This email from CNL staff to representatives of the WTFN communities (including representative of Alderville FN) enclosed an action list.										√
May 06, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Alderville FN Chief enclosed a preliminary version of the 2020 EIS and an updated IER. This letter also asked for feedback in the following seven areas: • *Does Alderville First Nation have additional information that they would like to provide in the context of traditional territory near the NPD site?* • *Does Alderville First Nation have any members who currently live close or in reasonable proximity to the NPD site?* • *Does Alderville First Nation have historical and/or current traditional practices near the NPD site, specifically we are interested in members' traditional uses such as trapping (traditional or commercial), hunting, fishing (traditional or commercial), gathering and practicing cultural ceremonies?* • *Does Alderville First Nation have sites of ceremonial significance in close proximity or more generally any cultural activities near the NPD site?* • *Tell us about any important resources, uses, activities, values and interests to Alderville First Nation near the NPD site.* • *If there is use in close proximity to the NPD site, is current community use different than historic use and can a description of those difference be provided?* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights.* This letter also indicated an interest in meeting with Alderville FN to discuss any interests or concerns.	√	√	√	√	√	√	√	√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 19, 2020 Virtual meeting	This meeting between four representatives of different WTFN communities (specifically, Hiawatha FN's Land and Resources consultation workers, Alderville FN's lands and community engagement officer, Curve Lake FN's lands and resources consultation officer and Georgina Island FN's consultation coordinator attended) and six CNL representatives (including the Manager of Stakeholder Relations, the Manager of Regulatory Approvals for the NPD Closure Project and communications officers with CNL) included an interactive webinar overview presentation on the project with the opportunity for questions. Specific topics discussed included the following: • Project overview and components; • Timeline; • Waste inventory; • Monitoring; • VCs; • Species at risk; • traditional land and resource use; • Effects on the environment. The Alderville FN representative had interests and questions with respect to the Chimney Swifts and the height of the ventilation stack in relation to its long-term maintenance.	√		√	√		√	√	√	√	
May 26, 2020 Outgoing email	This email from CNL communications officer to representatives of the WTFN communities (including Lands and Resources Communications Officer with Alderville FN) enclosed the follow-up information responding to all questions from the meeting on May 19, including the Alderville FN representative's questions on the Chimney Swift (a species at risk) and ventilation stack at the NPD site.	√			√					√	
May 27, 2020 Incoming email	This email from Alderville First Nation's Lands and Resources Communications Officer to a CNL communications officer was to inquire if any issues had not been closed off in the previous virtual meeting.										√
May 27, 2020 Outgoing email	This email from a CNL communications officer to Alderville FN Lands and Resources Communications Officer confirmed and enclosed the follow-up information from the previous virtual meeting.										√
July 27, 2020 Outgoing email	This email from a CNL communications officer to representatives of the WTFN communities (including Alderville FN's Lands and Resources Communications Officer) enclosing the presentation from the previous meeting in May.	√		√	√		√	√	√	√	
February 12, 2021 Outgoing email	This email from a CNL communications officer to WTFN communities (including Alderville FN's Lands and Resources Communications Officer) was an invitation to join Curve Lake First Nation's request of a monthly update on Canadian Nuclear Laboratories (CNL) environmental remediation projects, such as the NSDF Project and NPD Closure Project, as well as Port Hope Area Initiative (PHAI) activities in Port Hope and Port Granby. The monthly meeting takes place the last Wednesday of each month starting March 2021.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 4, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
April 12, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Alderville FN Chief enclosed a preliminary list of commitments and indicated interest in meeting to discuss.										√
April 28, 2021 Virtual meeting	This was the second of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Stakeholder and Indigenous Relations with PHAI and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands and Resources Consultation Officer, a consultant and the Lands and Resource Administrative Support Worker), Hiawatha FN (including two community consultation coordinators), Alderville FN (including the Lands and Resources Communications Officer), Rama FN (including the community consultation worker) and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was an overview on the NPD Closure Project, the NSDF Project and the PHAI.			√	√						√
June 15, 2021 Outgoing email	This email from a communications officer with CNL to Alderville FN's Lands and Resources Communications Officer was to follow-up on the April letter.										√
June 21, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Alderville FN Chief enclosed a draft summary of Alderville FN's interests and concerns for the NPD Closure Project for the Alderville FN's review and verification.									√	√
July 5, 2021 Outgoing email	This email from a communications officer with CNL to Alderville FN's Lands and Resources Officer was to follow up seeking a response on the June 21, 2021 email enclosing the summary of interests and concerns.										√
July 6, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
August 17, 2021 Outgoing email	This email from a communications officer with CNL to Alderville FN's Lands and Resources Officer was to follow up on the June 21, 2021 letter. CNL requested feedback by August 31, 2021.									√	
August 26, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
October 21, 2021 Outgoing email	This email from a senior communications officer with CNL to Alderville FN's Lands and Resources Communications Officer was to follow up on the letter that CNL sent on June 21, 2021 regarding the *Table of Interests and Concerns* for the NPD Closure Project. CNL wanted to ensure that this table was up to date with Alderville FN and stated that feedback on the table was required by November 15, 2021 in order to have any feedback incorporated into the revised draft EIS submission in 2021.									√	√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 1, 2021 Outgoing email	This email from a CNL Senior Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
April 09, 2022 Outgoing email	This email from a communications officer to representatives of the different WTFN communities (including the Lands and Resources Communications Officer with Alderville FN) was to propose a virtual webinar meeting on the NPD Closure Project and the NSDF Project.										√
April 25, 2022 Outgoing email	Email invitation to the April 27, 2022 Williams Treaties First Nations monthly meeting. The agenda items included the following on the NPD project: • NPD Project Updates; • NPD Draft EAFMP.								√		
April 27, 2022 Virtual Meeting	This was the ninth of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant), Chippewas of Georgina Island First Nation (Invasive Species coordinator) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a discussion on the NSDF Project. CNL also shared an update on the NPD Closure Project.								√		√
April 28, 2022 Outgoing email	This email from a CNL Senior Advisor of Indigenous Relations to the WTFN communities attached the presentation from the April 27, 2022 monthly meeting. CNL invited WTFN communities to the Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.								√		
May 13, 2022 Outgoing email	This email from ERM Stakeholder Relations to the WTFN communities provided a response to technical questions asked at the April 27, 2022 monthly meeting. Q1: Please provide a breakdown of how much tritium in the Ottawa River is naturally occurring versus anthropogenic (e.g. from weapons testing in the 1960s), including a graph showing the peak of tritium from weapons testing. Q2: Please provide further information on stack contamination and the remedial actions planned at the base of the stack, with respect to potential impacts on Chimney Swifts.								√		
May 17, 2022 Incoming email	This email from the Curve Lake FN Consultation to a CNL Senior Communications Officer coordinating combined reposes from Curve Lake, Hiawatha, Alderville to CNL's March 8, 2022 request for feedback on the repackaged Table of Interests and Concerns. The consultant asked the CNL update with information provided and note the new information. CNL acknowledged.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 06, 2022 Outgoing email	This email from a Senior Advisor of Indigenous Relations at CNL to the WTFN communities sent a proposed agenda for the tenth monthly meeting planned for June 29, 2022. The meeting is planning to be held in-person at the Port Hope Area Initiative office. On the proposed agenda the NPD Project staff will provide an update on the project.										√
June 06, 2022 Outgoing email	This email from a Senior Advisor of Indigenous Relations at CNL to the WTFN communities sent a proposed agenda for the tenth monthly meeting planned for June 29, 2022. The meeting is planning to be held in-person at the Port Hope Area Initiative office. On the proposed agenda the NPD Project staff will provide an update on the project.										√
June 22, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the WTFN communities provided an updated agenda for the June 29, 2022 monthly meeting. A NPD Project update was included as an agenda item.										√
June 29, 2022 Meeting	This was the tenth of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Chief, the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Alderville First Nation (Chief) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a tour of the PHAI location. CNL also shared an update on the NPD Closure Project.										√
June 29, 2022 Outgoing email	This email from the Manager of Regulatory Approvals for the NPD Project to Curve Lake FN's Consultant requesting feedback on the summary tables of interests and concerns for Curve Lake First Nation, Hiawatha First Nation and Alderville First Nation.									√	
June 29, 2022 Incoming email	This email from Curve Lake FN's Consultant to the Manager of Regulatory Approvals for the NPD Project noting no feedback on the Alderville First Nation tables of interests and concerns.									√	
July 14, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Curve Lake FN's Consultant sent the new row for the Hiawatha First Nation interest and concern table. CNL requested to know if the communities would like to see further additions to any of the three tables for Curve Lake, Hiawatha or Alderville.										√
July 14, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Curve Lake FN's Consultant sent the updated summary tables of interests and concerns for Curve Lake First Nation, Hiawatha First Nation and Alderville First Nation for review.									√	
July 14, 2022 Incoming email	This email from Curve Lake FN's Consultant to a CNL Senior Communications Officer confirming receipt of the updated summary tables of interests and concerns for Curve Lake First Nation, Hiawatha First Nation and Alderville First Nation and noted that there are no further updates needed at this point.									√	
July 14, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant proposed dates for a tour of the NSDF and NPD Facility. CNL proposed an online poll and asked for any additional dates needed. Curve Lake FN's Consultant replied and will provide alternative dates.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 25, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN Communities sharing the agenda for the 11th monthly meeting on July 27, 2022. The agenda included a NPD project update.										√
July 27, 2022 Virtual meeting	This was the 11th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant) and Rama First Nation (including a consultation workers) were in attendance. CNL shared an update on the NPD Closure Project.										√
August 22, 2022 Outgoing/Incoming emails	Emails from a CNL Senior Communications Officer to WTFN consultation representatives coordinating dates for the tour of the NSDF and NPD Facility.										√
September 16, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN consultation representatives to save the date for the WTFN tour of Chalk River Laboratories on October 25 and 26, 2022 (including the proposed NSDF site and NPD site).										√
September 21, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant sharing for review the proposed agenda or the 12th monthly meeting on September 28, 2022. The agenda included a NPD project update. Curve Lake FN accepted the agenda.										√
September 26, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN communities sharing the agenda for the September 28 working group meeting. The agenda included an update on the NPD project.										√
September 28, 2022 Virtual meeting	This was the 12th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including an Elder and community consultation coordinator), Scugog Island (including a consultant) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a presentation and discussion on CNL's Integrated Waste Strategy. CNL also shared an update on the NPD Closure Project.										√
October 01, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN communities sharing the agenda and presentation from the September 28, 2022 monthly meeting. Related to the presentation content, CNL have also attached a CNSC infographic that provides a description of the classes of radioactive waste.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 03, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN communities sharing the agenda for the October 25 and 26, 2022 tour of Chalk River Laboratories (including the proposed NSDF site and NPD site). CNL also sent information about required PPE and the link to register for the tour.										√
October 03, 2022 Outgoing email	This letter addressed to Alderville First Nation's Chief from CNL's Director of Indigenous Relations provided a project update and the engagement status with Alderville First Nation. CNL stated it is committed to incorporating Alderville's interests and concerns into the EIS. CNL provided an engagement status and next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for Alderville First Nation's review. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that Alderville First Nation respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.									√	√
October 04, 2022 Incoming email	This email from Alderville FN's Lands and Resources Communications Officer to a CNL Senior Communications Officer requested a meeting to discuss the October 3, 2022 letter. CNL coordinated a meeting.									√	√
October 07, 2022 Virtual Meeting	This meeting between Alderville FN's Lands and Resources Communications Officer and CNL representatives (including a CNL Senior Communications Officer and the Manager of Regulatory Approvals for the ND Project) provide an update on the NPD Closure Project and the upcoming WTFN tour of the NPF facility.										√
October 07, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Alderville FN's Lands and Resources Communications Officer provided the details of the WTFN tour of the NPD facility.										√
October 26, 2022 Tour	WTFN communities were invite to tour the NPD facility as part of a two day visit to the Chalk River Laboratories site and area. Representatives from CNL (in particular, NPD Project staff, communications officers, ERM Stakeholder Relations Manager, Director of Indigenous Relations) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including Lands and Resource consultation coordinator), Scugog Island (including a consultation coordinator) and AECL (including the Director of Decommissioning and Waste Management Programme) took part in a reactor tour and site walk. The day include a smudging ceremony by the Ottawa River and relationship building.										√
November 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities thanked the participants of the October 25 and 26, 2022 tour. As requested over the days CNL sent the archaeological assessments for the NPD site and photos from the tour.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 15, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities cancelled the December monthly meeting.										√
November 28, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities sent the agenda for the November 30th, 2022 monthly meeting. The agenda included a NPD Project update, a discussion on 2023 engagement plans and a discussion on a year in review.										√
November 30, 2022 Virtual meeting	This was the 13th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including and Elder, Councillors, the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator) and Scugog Island (including consultants) were in attendance. CNL shared an update on the NPD Closure Project.										√
January 20, 2023 Outgoing email	Email from a CNL Communications Officer to Alderville First Nation's Consultation Officer to inform of the decision to postpone the submission of the NPD Closure Project's draft Environmental Impact Statement (EIS) until May 2023 to allow for additional Indigenous input. CNL acknowledged that as of October 7, 2022, that Alderville First Nation AFN has no further concerns at this time.										√
January 23, 2023 Incoming email	This email from Alderville First Nation's Consultation Officer to a CNL Communications Officer acknowledging receipt of the 2023 January 23 email. CNL responded to thank Alderville First Nation for the acknowledgement.										√
March 14, 2023 Outgoing email	This email from CNL Senior Communications Officer to WTFN with CNL's Indigenous Relations Procurement Strategy.										√
May 31, 2023 Meeting	This was the 17th of the monthly meetings between CNL (Including, CNL Communications Officer, Indigenous Engagement Coordinator, Manager, ERM Licensing Support, Administrative Assistant, Manager NPD Regulatory Approvals, and Senior Advisor Indigenous Relations) and the WTFN communities (including Consultant, CLFN and HFN, Rama FN, Community Consultation, Alderville Consultation Coordinator, Mississaugas of Scugog Island First Nation Community Consultation, Curve Lake First Nation, Acting Consultation lead, Hiawatha lands and resource consultation, coordinated between Curve Lake FN and CNL and open to all. CNL reminded communities it was seeking validation of the I&C tables, extended the invitation to attending the Swift Count night and provided an update on the restoration plan timing for feedback.						√			√	√
June 09, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with an updated actions list from the 2023 May 31 Monthly Meeting.										√
June 19, 2023 Emails	These emails between CNL and Alderville First Nations is to confirm the receipt of the 2023-2024 meeting schedule.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 28, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with an updated actions list from the 2023 June 28 Monthly Meeting.										√
June 28, 2023 Incoming Email	This email from Alderville Consultation Coordinator to CNL Indigenous Engagement Coordinator, and CNL Senior Indigenous Relations Advisor is to request additional information on the tobacco offering action noted in the actions from the 2023 June 28 monthly meeting.										√
July 11, 2023 Outgoing Email	This email from CNL Communications Officer to all WTFN communities is to request confirmation of attendance at the 2023 July monthly meeting being held in person in Hiawatha. Communities confirmed their attendance.										√
July 19, 2023 Outgoing Email	This email from CNL Communications Officer to Alderville FN is to request confirmation of attendance at the 2023 July monthly meeting being held in person in Hiawatha.										√
July 25, 2023 Incoming Email	This email from Alderville to CNL Communications Officer is to inform CNL that Alderville will not be attending the 2023 July WTFN working group being held in person in Hiawatha.										√
July 25, 2023 Incoming Email	This email from Alderville to CNL Communications Officer is to confirm if there is a WTFN monthly meeting in 2023 August.										√
July 27, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with the action list from the 2023 July 26 in person meeting.										√
October 25, 2023 Meeting	This was the 20th of the monthly meetings between CNL (Including, Director and Manager of Communications and Engagement, Indigenous Engagement Coordinator, Communications Officers, HWP Manager of Indigenous Relations Communications, Environmental and decommissioning specialist), AECL (including the Director of AECL GO-CO Procurement Process) and the WTFN communities (including, Acting Consultation lead from CLFN, Consultant, Consultation Liaison for Beausoleil First Nation, Consultation Coordinator for Alderville First Nation, Hiawatha First Nations Lands and Conservation Officer, and Consultation Advisor for Scugog First Nation) coordinated between Curve Lake FN and CNL and open to all. This meeting was to discuss CNL Updates, WTFN updates, the Indigenous Relations Procurement Strategy, the GO-CO Procurement process and the format of WTFN monthly meetings.										√
October 26, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with the action list from the 2023 October 26 WTFN Monthly meeting.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 01, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to all WTFN is to follow-up from the 2023 October monthly meeting. CNL noted for those who were unable to attend the meeting, an agenda item was tabled for discussion to move our monthly information sharing meeting to a quarterly meeting instead. The discussion result was an agreement (with those in attendance) to change to a quarterly meeting update if WTFN communities still received project updates/ milestones and/ or news in between meetings. I encourage you to provide feedback on this change. CNL also shared the GO-CO model presentation.										√
November 23, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to all WTFN is to follow-up from the 2023 November 01 email to all WTFN communities to confirm that the 2023 November 30 WTFN monthly meeting has been cancelled, and that the monthly meeting has been changed to a quarterly meeting series. The monthly meeting series has been cancelled. A quarterly meeting series has been setup, and the next meeting is on Wednesday, January 31, 2024.										√
January 31, 2024 Meeting	This meeting between CNL (including, Manager of Communications and Engagement, Communications Officers, HWP Manager of Indigenous Relations Communications, NPD Closure Project Director and Environmental and Decommissioning Specialist, Manager, HWP Environmental Management and Director, Indigenous Engagement) and WTFN (including, Alderville First Nation, Lands and Resources Consultation Officer, Curve Lake First Nation, Acting Consultation lead , Hiawatha First Nations Lands and Conservation Officer and Consultants) was to discuss CNL Updates and hear community updates. The NSDF and NPD project shared updates including the recent CNSC Decision on the NSDF and the NPD Revised Draft EIS submission date.										√

Table C-21 Record of Engagement with Curve Lake First Nation

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 05, 2016 Letter to the CNSC	This letter from the Curve Lake First Nation (FN) Chief to an environmental specialist with the CNSC was related to the Project Description for the NPD Closure Project and raised the following interests and concerns: • Indigenous rights; • Protection of the environment; • Archaeological resources.									√	
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Curve Lake First Nation FN Chief introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5(1)(c), the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* • *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	
October 24, 2016 Outgoing telephone call	This telephone call from CNL communications staff to Curve Lake FN staff was to follow-up on the July letter.										√
November 10, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Curve Lake FN Chief inquired about asserted rights and traditional activities in the region around CRL. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested a better understanding of the Curve Lake FN's historic and/or modern day use of lands in and/or near both of the projects and asked the following questions: • *Does Curve Lake First Nation have traditional territory or reserve lands near the NSDF and/or NPD Closure Project?* • *What is the history of Curve Lake First Nation using the areas around the two projects?* • *Do you have any members of Curve Lake First Nation that currently live in close or reasonable proximity to either of the projects?* • *Does Curve Lake First Nation have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects?* • *Does Curve Lake First Nation, or any members, have sites of ceremonial significance in close proximity to either of the two sites, or more generally, any cultural activities near either of the two sites?* CNL also indicated interested in learning more about the FN and any asserted rights, interests or activities members might undertake in the local or regional areas in proximity to the project.				√	√				√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
December 05, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Lands and Resources Consultation Liaison for Curve Lake First Nation acknowledged Curve Lake FN's interest in archaeological resources at CRL site and confirmed that NPD archaeological information would also be shared in the future.									√	
February 09, 2017 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Lands and Resources Consultation Liaison for Curve Lake First Nation enclosed the Archaeological Assessment for the NPD Closure Project, based on Curve Lake First Nation's previous interest in archaeological resources for the NSDF project.									√	
November 15, 2017 Outgoing email	This email from a CNL communications officer to the Curve Lake FN Chief enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and environmental assessment, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	
November 17, 2017 Outgoing email	This email from a CNL communications officer to the Curve Lake FN Chief enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: *"CNL would be pleased to update information in this current draft with input from your community."*	√	√	√	√	√	√	√	√	√	
In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
April 09, 2020 Outgoing email	This email from a CNL communications officer to representatives of the different WTFN communities (including the Lands Resource Consultation Liaison with Curve Lake FN) was to propose a virtual webinar meeting on the NPD Closure Project and the NSDF project.										√
April 09, 2020 Incoming email	This email from Curve Lake First Nation's Lands Resource Consultation Liaison to a CNL communications officer was to confirm attendance and date preference for the webinars.										√
April 17, 2020 Outgoing email	This email from a CNL communications officer to representatives of the different WTFN communities (including the Lands Resource Consultation Liaison with Curve Lake FN) was to confirm the webinar and to offer to test the virtual meeting platform.										√
April 29, 2020 Outgoing email	This email from a CNL communications officer to representatives of the different WTFN communities (including the Lands Resource Consultation Liaison with Curve Lake FN) enclosed a copy of the overview presentations for the webinars.										√
May 04, 2020 Outgoing email	This email from a CNL communications officer to representatives of the different WTFN communities (including the Lands Resource Consultation Liaison with Curve Lake FN) enclosed an action list.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 06, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Curve Lake FN Chief enclosed a preliminary version of the 2020 EIS and an updated IER. This letter also asked for feedback in the following seven areas: • *Does Curve Lake First Nation have additional information that they would like to provide in the context of traditional territory near the NPD site?* • *Does Curve Lake First Nation have any members who currently live close or in reasonable proximity to the NPD site?* • *Does Curve Lake First Nation have historical and/or current traditional practices near the NPD site, specifically we are interested in members' traditional uses such as trapping (traditional or commercial), hunting, fishing (traditional or commercial), gathering and practicing cultural ceremonies?* • *Does Curve Lake First Nation have sites of ceremonial significance in close proximity or more generally any cultural activities near the NPD site?* • *Tell us about any important resources, uses, activities, values and interests to Curve Lake First Nation near the NPD site.* • *If there is use in close proximity to the NPD site, is current community use different than historic use and can a description of those difference be provided?* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights.* This letter also indicated an interest in meeting with Curve Lake FN to discuss any interests or concerns.	√	√	√	√	√	√	√	√	√	
May 19, 2020 Virtual meeting	This meeting between four representatives of different WTFN communities (specifically, Hiawatha FN's Land and Resources consultation workers, Alderville FN's lands and community engagement officer, Curve Lake FN's Lands Resource Consultation Liaison and Georgina Island FN's consultation coordinator attended) and six CNL representatives (including the Manager of Stakeholder Relations, the Manager of Regulatory Approvals for the NPD Closure Project and communications officers with CNL) included an interactive webinar overview presentation on the project with the opportunity for questions. Specific topics discussed included the following: • Project overview and components; • Timeline; • Waste inventory; • Monitoring; • VCs; • Species at risk; • Traditional land and resource use; • Effects on the environment.	√		√	√		√	√	√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 19, 2020 Incoming email	This email from Curve Lake First Nation's Lands Resource Consultation Liaison to a CNL communications officer was in follow-up to the meeting of the same day with a number of questions on the following topics: • Chimney Swifts (species at risk); • Indigenous consultation and engagement; • The size of the NPD site; • Plans for the nuclear disposal facility resulting from decommissioning.	√			√					√	
May 26, 2020 Outgoing email	This email from a CNL communications officer to representatives of the different WTFN communities (including the Lands Resource Consultation Liaison with Curve Lake FN) enclosed the follow-up information responding to all questions from the meeting on May 19 and all of the questions sent from the Curve Lake FN Lands and Resources Consultation Liaison.	√			√					√	
July 27, 2020 Outgoing email	This email from a CNL communications officer to representatives of the different WTFN communities (including the Lands Resource Consultation Liaison with Curve Lake FN) enclosed the presentation from the previous meeting in May.	√		√	√		√	√	√	√	
November 6, 2020 Virtual meeting	This meeting between two Curve Lake FN representatives (consultants) and four CNL representatives (including the Manager of Regulatory Approvals for the NPD Closure Project, the Manager of Regulatory Approvals for the NSDF Project, the Manager of Stakeholder Relations and two communications officers) was to discuss Curve Lake's request for capacity to support meaningful consultation, engagement, and participation in the environmental assessments. Curve Lake FN and CNL discussed a contribution agreement for the NSDF project and NPD Closure Project and an action list was created.									√	
November 11, 2020 Outgoing email	This email from a CNL communications officer to the Lands Resource Consultation Liaison with Curve Lake FN and consultants enclosed an action list that was initiated at the 2020 November 06 meeting.										√
December 14, 2020 Virtual meeting	This meeting between the Curve Lake FN consultant and CNL representatives, including the Manager of Stakeholder Relations and two communications officers, was to discuss proposed budget and schedule for 2020/2021 activities and how it would fit into a contribution agreement. A second meeting was planned to continue discussions in early January 2021.									√	
December 22, 2020 Outgoing email	This email from a communications officer with CNL to the Curve Lake FN representatives (consultants and Lands Resource Consultation Liaison) was to follow-up and share the link to the NPD Closure Project's virtual open house for Curve Lake First Nation's consultant and staff to review the information on the project components, the EA process and all other information contained on the virtual open house website.										√
January 15, 2021 Virtual meeting	This meeting between two Curve Lake FN representatives (consultant) and CNL communications staff, including the Manager of Stakeholder Relations and two communications officers, was a continuation of the December 2020 discussion on establishing a contribution agreement, which included how to formalize engagement and how Curve Lake wished to be involved with CNL.									√	
February 01, 2021 Outgoing email	This email from a communications officer with CNL to the Curve Lake FN representatives (consultants and Lands Resource Consultation Liaison) representatives enclosed a list of CNL environmental remediation projects (such as the NSDF project and NPD Closure Project) as well as Port Hope Area Initiative (PHAI) activities for 2021, per an earlier request from Curve Lake FN.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
February 11, 2021 Outgoing email	This email from a communications officer with CNL to the Curve Lake FN representatives (consultants and Lands Resource Consultation Liaison) was to follow up on the CNL list of 2021 activities and to inquire when Curve Lake FN would like the monthly update meetings to start, per an earlier request.										√
February 11, 2021 Incoming email	This email from the Curve Lake FN consultant to a CNL communications officer acknowledged receiving the list of activities and confirmed monthly meetings could start in March 2021.										√
February 12, 2021 Outgoing email	This email from a CNL communications officer to WTFN communities (including the Curve Lake FN Lands Resource Consultation Officer) was an invitation to join Curve Lake First Nation's request of a monthly update on Canadian Nuclear Laboratories (CNL) environmental remediation projects, such as the NSDF Project and NPD Closure Project, as well as Port Hope Area Initiative (PHAI) activities in Port Hope and Port Granby. The monthly meeting takes place the last Wednesday of each month starting March 2021.									√	
February 16, 2021 Outgoing email	This email from a CNL communications officer to the Curve Lake FN representatives (including consultants and Lands Resource Consultation Liaison) confirmed that the monthly meetings had been set up. CNL also informed Curve Lake First Nation that the draft contribution agreement was being drawn up and that upon completion a meeting would follow to further discuss.									√	
February 26, 2021 Outgoing email	This email from a communications officer with CNL to the consultant and the Lands and Resources Consultation Coordinator with Curve Lake First Nation enclosed a number of suggested documents of interest related to the NPD Closure Project, including the following: draft follow-up monitoring plans, 2020 draft EIS, IER, Postclosure Safety Assessment and the Ecological Risk Assessment.	√	√	√	√		√	√	√	√	√
March 26, 2021 Virtual meeting	This meeting between two Curve Lake FN representatives (consultant and Lands and Resource Administrative Support Worker) and CNL communications staff, including the Manager of Stakeholder Relations and two communications officers, was a discussion on the contribution agreement and associated budget and schedule.									√	
March 31, 2021 Virtual meeting	This was the first of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Stakeholder and Indigenous Relations with PHAI and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands Resource Consultation Liaison, a consultant and the Lands and Resource Administrative Support Worker), Hiawatha FN (including two community consultation coordinators), Alderville FN (including the Lands and Resources Communications Officer), Rama FN (including the community consultation worker) and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was an overview on AECL and CNL as a corporation. A follow-up email with the presentation, was sent to all WTFN representatives.			√	√						√
April 4, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
April 12, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Curve Lake FN Chief enclosed a preliminary list of commitments and indicated interest in meeting to discuss.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 28, 2021 Virtual meeting	This was the second of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Stakeholder and Indigenous Relations with PHAI and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN including the Lands Resource Consultation Officer, consultants, a community member on a consultation committee and the Lands and Resource Administrative Support Worker), Hiawatha FN (including two community consultation coordinators), Alderville FN (including the Lands and Resources Communications Officer), Rama FN (including the community consultation worker) and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was an overview on the NPD Closure Project, the NSDF Project and the PHAI.			√	√						√
May 26, 2021 Virtual meeting	This was the third of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Stakeholder and Indigenous Relations with PHAI, an environmental specialist with the NPD Closure Project and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands Resource Consultation Officer, consultants, a community member on a consultation committee and the Lands and Resource Administrative Support Worker), Hiawatha FN (including two community consultation coordinators), Rama FN (including the community consultation coordinator) and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was an overview of biodiversity at CNL and included an update on the EA process for NPD.										√
June 15, 2021 Outgoing email	This email from a communications officer with CNL to Curve Lake FN's Lands Resource Consultation Liaison was to follow-up on the April letter.										√
June 21, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Curve Lake FN Chief enclosed a draft summary of the Curve Lake FN's interests and concerns for the NPD Closure Project for the Curve Lake FN's review and verification.									√	√
June 23, 2021 Incoming email	This email from the Curve Lake FN consultant to a communications officer with CNL was to confirm the most recent draft of the draft EIS for the project.										√
June 23, 2021 Outgoing email	This email from a Communications Officer with CNL to a Curve Lake FN consultant enclosed drafts of Sections 8.9 and 9.9 to assist in the EIS review.	√			√						√
June 30, 2021 Virtual meeting	This was the fourth of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Stakeholder and Indigenous Relations with PHAI, an environmental specialist with the NPD Closure Project and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands Resource Consultation Officer, consultants, a community member on a consultation committee and the Lands and Resource Administrative Support Worker), Hiawatha FN (including two community consultation coordinators), Rama FN (including the community consultation coordinator) and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was an overview of biodiversity at CNL and included an update on the EA process for NPD.								√	√	√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 6, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
July 16, 2021 Incoming email	This email from a consultant for Curve Lake to the ERM Stakeholder Relations Manager enclosed a letter enclosing Curve Lake First Nation's Review of the NPD Closure Project's 2020 EIS.	√		√	√		√	√	√	√	√
July 24, 2021 Outgoing email	This email from a communications officer with CNL to the consultant with Curve Lake FN summarized a phone call from the same day to confirm topics of discussion and that the revise of the EIS was the only formal review CNL would receive for now on the NPD Closure Project.									√	√
July 28, 2021 Virtual meeting	This was the fifth of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands and Resources Consultation Officer, a consultant and the Lands and Resource Administrative Support Worker), Hiawatha FN (including two community consultation coordinators), and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was an overview of the WTFN's interests and concerns with respect to the NPD Closure Project.			√						√	√
July 30, 2021 Outgoing email	This email from a communications officer with CNL to the consultant with Curve Lake FN enclosed a draft of the contribution agreement between Curve Lake FN and CNL for review.									√	√
August 11, 2021 Virtual Meeting	This was a meeting between Curve Lake FN representatives (consultant and Lands and Resource Administrative Support Worker) and CNL representatives (communications staff, including the Manager of Stakeholder Relations and two communications officers, Manager of Regulatory Approvals for the NPD Closure Project and Manager, ERM Licensing Support,) to discuss the draft contribution agreement.										√
August 16, 2021 Outgoing email	This email from a communications officer with CNL to the consultant with Curve Lake FN enclosed an updated contribution agreement between Curve Lake FN and CNL for review based on Curve Lake FN feedback received at the August 11, 2021 meeting.										√
August 25, 2021 Virtual Meeting	This was the six of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Stakeholder and Indigenous Relations with PHAI and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands and Resources Consultation Officer, a consultant and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Beausoleil FN (including a consultation coordinator) and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was on Port Granby and a Project update was shared about the NPD Closure Project.										√
August 26, 2021 Outgoing email	This email from a communications officer with CNL to the consultant with Curve Lake FN and Hiawatha FN community consultation coordinator enclosed updated *Table of Interests and Concerns*. Updates to the tables to reflect the additional interests that were noted in the discussion at the July 28, 2021 meeting.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
August 26, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the Williams Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
August 31, 2021 Outgoing email	This email from a communications officer with CNL to the consultant with Curve Lake FN enclosed CNL's responses to Curve Lake FN's review of the 2020 NPD Closure Project's revised draft EIS.	√		√	√	√		√	√	√	√
September 1, 2021 Incoming email	This email from a Curve Lake FN consultant to a communications officer with CNL enclosed an updated contribution agreement between Curve Lake FN and CNL for review based on a review from the Curve Lake FN legal team.										√
September 13, 2021 Outgoing Email	This email from a CNL Communications Officer to a Curve Lake FN consultant was in follow-up to the email shared on August 26, 2021, looking for verification that CNL had accurately made the changes to the *Table of Interests and Concerns*, which had been discussed at the July 28, 2021 meeting.									√	
September 29, 2021 Virtual meeting	This was the seventh of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, ERM Stakeholder Relations Manager and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a discussion on CNL's responses to Curve Lake First Nation's review of the 2020 EIS.	√		√	√	√				√	√
October 05, 2021 Outgoing Email	This email from a CNL Senior Communications Officer to the Lands and Resources Consultation Liaison for Curve Lake FN was to consult Curve Lake on their preferred topic of discussion for the October meeting.									√	√
October 05, 2021 Incoming Email	This email from Curve Lake FN Consultation to CNL ERM Stakeholder Relations is an invoice that covers August 2021 to the end of September 2021.										√
October 07, 2021 Incoming Email	This email from the Land & Resources Consultation Liaison for Curve Lake FN to a Senior Communications Officer was to confirm that the topics of interest for the October meeting outlined in an email from October 05, 2021 were appropriate for the upcoming meeting. The Administrative Support Worker with Curve Lake FN was copied on the email and confirmed that she also had no items to add.										√
October 21, 2021 Outgoing Email	This email from a CNL Senior Communications Officer to a Curve Lake FN Consultant included the 'Final' Contribution/Engagement Agreement that incorporated all comments previously discussed as well as both CLFN and CNL legal review.									√	
October 21, 2021 Incoming Email	This email from a Curve Lake FN Consultant confirmed receipt of the updated 'Final' Contribution Agreement and thanked CNL for their work on this.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 25, 2021 Incoming Email	This email from a Curve Lake FN Consultant to a Senior Communications Officer was to inform CNL of the inclusion of an individual to sit on the next meeting as an observer to visually render the discussion in real-time.										√
October 27, 2021 Virtual meeting	This was the eight of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a discussion on small modular reactor research and technology at Chalk River Laboratories. CNL also shared an update on the NPD Closure Project.										√
October 29, 2021 Outgoing email	This email from a CNL Communications Officer to a Curve Lake FN Consultant and Lands and Resources Consultation Coordinator provided an update on the decision to submit the revised draft EIS in December 2021 and indicated that any input that Curve Lake would like to see reflected in the 2021 revised draft EIS would need to be received by November 26, 2021.										√
November 1, 2021 Outgoing email	This email from a CNL Senior Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
November 2, 2021 Emails	This correspondence between a senior communications officer and a consultant for Curve Lake First Nation was to confirm receipt of emails.										√
November 4, 2021 Contribution Agreement Signed	CNL and Curve Lake FN signed a contribution agreement to cover engagement activities for the NPD Closure Project, the NSDF Project and the Port Hope Area Initiative.									√	
November 15, 2021 Emails	This correspondence between a senior communications officer and a consultant for Curve Lake First Nation was to follow-up on an administrative item from a previous monthly meeting.										√
November 15, 2021 Incoming email	This email from a Curve Lake FN Consultant to a Senior Communications Officer was to share the signed contribution agreement supporting Curve Lake FN's engagement on the NPD Closure Project, the NSDF Project and the PHAI.									√	√
November 18, 2021 Outgoing email	This email from a CNL Communications Officer to a Curve Lake FN Consultant was to confirm that the signed contribution agreement had been sent to be stamped.									√	√
November 19, 2021 Outgoing email	This email from a CNL Communications Officer to a Curve Lake FN Consultant enclosed the signed contribution agreement.									√	√
November 22, 2021 Emails	These emails between a CNL Communications Officer to a Curve Lake FN Consultant was about the format of the monthly meeting agenda.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 24, 2021 Virtual meeting	This was the eight of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a discussion on the NSDF Project. CNL also shared an update on the NPD Closure Project.										√
January 4, 2022 Incoming email	This email from Curve Lake FN to CNL enclosed attached the final 2021 invoice from Curve Lake First Nation that I am sending to CNL on CLFN's behalf.										√
January 5, 2022 Outgoing email	This email from CNL to Curve Lake FN acknowledged confirmation of the invoice and its delivery for processing.										√
January 17, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to Curve Lake FN was to propose CNL's Cleanup Mission as the topic for the next monthly meeting. CNL noted that they will send a list of key dates for the Projects over by the end of the following week and look forward to discussing if there were any further milestones that Curve Lake First Nation would like on that list of key dates for engagement activities.										√
January 21, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to Curve Lake FN attached a list of key dates for engagement activities.										√
February 15, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to Curve Lake FN proposed an agenda for the February 23, 2022 meeting.										√
February 16, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to Curve Lake FN was to thank Curve Lake FN for agreeing to submit a written intervention for NSDF.										√
March 8, 2022 Outgoing Email	This email from CNL to Curve Lake FN was to inform CLFN that CNL is revising how they present the summary table of interests and concerns to address a request from the Canadian Nuclear Safety Commission (CNSC). CNL requested that CLFN confirm whether they would like to verify that the revised table still reflects their interests and concerns, focusing on the new column that ties their interest/concern to the project or Aboriginal and treaty right, and identify why it is of concern to your community.										√
March 8, 2022 Incoming Email	This email from Curve Lake FN to a CNL Senior Communications Officer was to inform CNL that they would like to review the updated interest and concerns table before submission.										√
March 11, 2022 Incoming Email	This email from Curve Lake FN to CNL was to inform CNL about a new member of the Curve Lake FN support team.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 18, 2022 Outgoing email	Email invitation to Curve Lake FN to the CNL Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.										√
April 20, 2022 Outgoing email	This email from CNL to Curve Lake FN was a cancellation of the May monthly meeting as discussed at the previous meeting.										√
April 25, 2022 Outgoing email	Email invitation to the April 27, 2022 Williams Treaties First Nations monthly meeting. The agenda items included the following on the NPD project: • NPD Project Updates; • NPD Draft EAFMP.								√		
April 27, 2022 Virtual Meeting	This was the ninth of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant), Chippewas of Georgina Island First Nation (Invasive Species coordinator) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a discussion on the NSDF Project. CNL also shared an update on the NPD Closure Project.								√		√
April 28, 2022 Outgoing email	This email from a CNL Senior Advisor of Indigenous Relations to the WTFN communities attached the presentation from the April 27, 2022 monthly meeting. CNL invited WTFN communities to the Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.								√		
May 05, 2022 Outgoing email	Email invitation to Curve Lake FN to the CNL Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.										√
May 13, 2022 Outgoing email	This email from ERM Stakeholder Relations to the WTFN communities provided a response to technical questions asked at the April 27, 2022 monthly meeting. Q1: Please provide a breakdown of how much tritium in the Ottawa River is naturally occurring versus anthropogenic (e.g. from weapons testing in the 1960s), including a graph showing the peak of tritium from weapons testing. Q2: Please provide further information on stack contamination and the remedial actions planned at the base of the stack, with respect to potential impacts on Chimney Swifts.								√		
May 17, 2022 Incoming email	This email from the Curve Lake FN Consultation to a CNL Senior Communications Officer coordinating combined reposes from Curve Lake, Hiawatha, Alderville to CNL's March 8, 2022 request for feedback on the repackaged Table of Interests and Concerns. The consultant asked the CNL update with information provided and note the new information. CNL acknowledged.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 06, 2022 Outgoing email	This email from a Senior Advisor of Indigenous Relations at CNL to the WTFN communities sent a proposed agenda for the tenth monthly meeting planned for June 29, 2022. The meeting is planning to be held in-person at the Port Hope Area Initiative office. On the proposed agenda the NPD Project staff will provide an update on the project.										√
June 15, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Curve Lake FN's Lands Resource Consultation Liaison and Consultant sent the Williams Treaties First Nations Interest and Concerns table and the list of questions and responses form the May 29, 2020 webinar.									√	√
June 22, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the WTFN communities provided an updated agenda for the June 29, 2022 monthly meeting. A NPD Project update was included as an agenda item.										√
June 16, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Curve Lake FN's Lands Resource Consultation Liaison and Consultant asked for a timeline for Cure Lake FN's edits to the Interest and Concerns table. CLFN replied and would send edits to the table June 17, 2022.									√	
June 27, 2022 Outgoing email	This email from the Manager of Regulatory Approval for the NPD Project at CNL to Curve Lake FN's Consultant followed-up about Cure Lake FN's edits to the Interest and Concerns table.									√	
June 29, 2022 Incoming email	This email from Curve Lake FN's Consultant to a CNL Senior Communications Officer sent the Williams Treaties First Nations Interest and Concerns table.									√	
June 29, 2022 Virtual Meeting	This was the tenth of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Chief, the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Alderville First Nation (Chief) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a tour of the PHAI location. CNL also shared an update on the NPD Closure Project.										√
June 29, 2022 Outgoing email	This email from the Manager of Regulatory Approval for the NPD Project at CNL to Curve Lake FN's Consultant shared that CNL will be with incorporating the edits to the CLFN and Alderville FN tables while resolving a question about the Hiawatha table.									√	
June 29, 2022 Incoming email	This email from Manager of Regulatory Approval for the NPD Project at CNL to Curve Lake FN's Consultant indicated that CNL will incorporate the suggested next steps into the Curve Lake rows of the table.									√	
July 11, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Curve Lake FN's Consultant provided the new row for the Hiawatha First Nation Interest and Concerns table. CNL asked CLFN to confirm if they would like the same row added to the CLFN Interest and Concern table.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 14, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant sent the updated summary tables of interests and concerns for Curve Lake First Nation, Hiawatha First Nation and Alderville First Nation for review.									√	
July 14, 2022 Incoming email	This email from Curve Lake FN's Consultant to a CNL Senior Communications Officer confirming receipt of the updated summary tables of interests and concerns for Curve Lake First Nation, Hiawatha First Nation and Alderville First Nation and noted that there are no further updates needed at this point.									√	
July 14, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant proposed dates for a tour of the NSDF and NPD Facility. CNL proposed an online poll and asked for any additional dates needed. Curve Lake FN's Consultant replied and will provide alternative dates.										√
July 25, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN Communities sharing the agenda for the 11th monthly meeting on July 27, 2022. The agenda included a NPD project update.										√
July 27, 2022 Virtual meeting	This was the 11th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant) and Rama First Nation (including a consultation workers) were in attendance. CNL shared an update on the NPD Closure Project.										√
August 22, 2022 Outgoing/Incoming emails	Emails from a CNL Senior Communications Officer to WTFN consultation representatives coordinating dates for the tour of the NSDF and NPD Facility.										√
September 16, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN consultation representatives to save the date for the WTFN tour of Chalk River Laboratories on October 25 and 26, 2022 (including the proposed NSDF site and NPD site).										√
September 21, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant sharing for review the proposed agenda or the 12th monthly meeting on September 28, 2022. The agenda included a NPD project update. Curve Lake FN accepted the agenda.										√
September 21, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant providing the names of the participants for the Curve Lake FN visit on October 20, 2022.										√
September 21, 2022 Incoming email	Email from Curve Lake FN's Consultant to a CNL Senior Communications Officer providing an agenda for the October 20, 2022 visit to CLFN. NPD Project staff will be in attendance.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
September 26, 2022 Outgoing email	Email from a Senior Communications Officer to WTFN communities sharing the agenda for the September 28 working group meeting. The agenda included an update on the NPD project.										√
September 28, 2022 Virtual meeting	This was the 12th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including an Elder and community consultation coordinator), Scugog Island (including a consultant) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a presentation and discussion on CNL's Integrated Waste Strategy. CNL also shared an update on the NPD Closure Project.										√
September 29, 2022 Outgoing/Incoming emails	Emails from a CNL Senior Communications Officer to Curve Lake FN's Consultant drafting the agenda for the WTFN tour of the CRL site (including NPD).										√
October 01, 2022 Outgoing email	Email from a Senior Communications Officer to WTFN communities sharing the agenda and presentation from the September 28, 2022 monthly meeting. Related to the presentation content, CNL have also attached a CNSC infographic that provides a description of the classes of radioactive waste.										√
October 03, 2022 Outgoing email	Email from a Senior Communications Officer to WTFN communities sharing the agenda for the October 25 and 26, 2022 tour of Chalk River Laboratories (including the proposed NSDF site and NPD site). CNL also sent information about required PPE and the link to register for the tour.										√
October 04, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Curve Lake FN's Consultant asked about logistics for the October 20th 2022 meeting in the community.										√
October 05, 2022 Outgoing Letter	This letter addressed to Curve Lake First Nation's Chief from CNL's Director of Indigenous Relations provided a project update and the engagement status with CLFN. CNL stated it is committed to incorporating Curve Lake's interests and concerns into the EIS. CNL provided an engagement status and next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for CLFN's review. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that CLFN respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.									√	
October 13, 2022 Outgoing/Incoming emails	The emails from a CNL Senior Communications Officer to Curve Lake FN's Consultant coordinated logistics for the October 20, 2022 community visit.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 20, 2022 Meeting	CNL (NPD representatives and others) were invited to visit Curve Lake First Nation. CNL's visit to the community was a day of listening and experiencing the cultural values of the community; CNL visited and observed the historic and sacred Petroglyphs site, shared in a smudging ceremony, and heard from Elders within the community. The group congregated at the Curve Lake Community Centre and met with the Chief and council, and also heard from Elders within the community. The afternoon followed with informal conversations and perspective-sharing. We ended the day congregating near the water, and walking along the boardwalk.										√
October 26, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Curve Lake First Nation's Chief followed up the letter sent on October 5, 2055.										√
October 26, 2022 Tour	WTFN communities were invite to tour the NPD facility as part of a two day visit to the Chalk River Laboratories site and area. Representatives from CNL (in particular, NPD Project staff, Communications Officers, ERM Stakeholder Relations Manager, Director of Indigenous Relations) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including Lands and Resource consultation coordinator), Scugog Island (including a consultation coordinator), Chippewas of Rama First Nation (including a councillor) and AECL (including the Director of Decommissioning and Waste Management Programme) took part in a reactor tour and site walk. The day include a smudging ceremony by the Ottawa River and relationship building.										√
October 31, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Curve Lake FN's Consultant sending the December 2021 draft EIS via FTP link.										√
November 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities thanked the participants of the October 25 and 26, 2022 tour. As requested over the days CNL sent the archaeological assessments for the NPD site and photos from the tour.										√
November 15, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities cancelled the December monthly meeting.										√
November 15, 2022 Phone call	This call from a CNL Senior Communications Officer to Curve Lake FN's Consultant discussed the Curve Lake First Nation contribution agreement that is in effect until 2022 December 31. Curve Lake First Nation is interested in renewing the current contribution agreement for another two years. CLFN will be forwarding an updated budget to accompany the renewal. CLFN noted that Hiawatha First Nation and is proposing that CNL and Hiawatha First Nation establish a contribution agreement as well. Noting that some of the activities in the agreements would overlap but the funding would not. He will clearly articulate that in both budgets that the Curve Lake FN's Consultant will be sending to CNL for review.										√
November 23, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Curve Lake FN's Consultant requested a phone call to discuss the letter CNL sent on October 5, 2022.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 28, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities sent the agenda for the November 30th, 2022 monthly meeting. The agenda included a NPD Project update, a discussion on 2023 engagement plans and a discussion on a year in review.										√
November 30, 2022 Virtual meeting	This was the 13th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer and ERM Stakeholder Relations Manager) Curve Lake FN (including and Elder, Councillors, the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator) and Scugog Island (including consultants) were in attendance. CNL shared an update on the NPD Closure Project.										√
December 02, 2022 Virtual Meeting	Meeting between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer, the Manager of NPD Regulatory Approvals) and WTFN communities, (including Hiawatha and Curve Lake First Nation's Consultant). CNL and the WTFNs discussed the November 5, 2022, letter and the next steps for Cure Lake and Hiawatha First Nation.										√
December 02, 2022 Outgoing email	This email from CNL Communications Officer Curve Lake First Nation's Consultant included the updated WTFN Interest and Concerns table and identified the next steps from the December 2, 2022 meeting. Curve Lake FN acknowledged.										√
December 05, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Curve Lake First Nation's Consultant concerning attendance at the UN Biodiversity Conference (COP 15).										√
December 14, 2022 Incoming email	This email from Curve Lake First Nation's Consultant to a CNL Senior Communications Officer with information on the Ontario Phragmites Working Group Meeting on 2023 January 25.										√
January 03, 2023 Incoming email	This email from Curve Lake First Nation's Consultant to a CNL Senior Communications Officer with Curve Lake First Nation registration form for Alternative Routes fair (Career Fair).										√
January 17, 2023 Outgoing email	This email from a CNL Senior Communications Officer to Curve Lake First Nation's Consultant following up with the Draft Environmental Assessment to confirm when the review will be completed. Curve Lake FN confirmed the assessment will be reviewed by the end of February 2023.										√
January 20, 2023 Outgoing email	This email a CNL Communications Officer to Curve Lake First Nation's Consultant to inform of the decision to postpone the submission of the NPD Closure Project's draft Environmental Impact Statement (EIS) until May 2023 to allow for additional Indigenous input. CNL proposed the next steps would be to continue working together to ensure the CLFN's interests and concerns are reflected in the EIS by CLFN providing CNL with comments on the new Interests and Concerns table and on the proposed commitments. A follow-up meeting will be coordinated as necessary to ensure CNL accurately incorporates any feedback.									√	√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
January 25, 2023 Virtual Meeting	This was the 14th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer and ERM Stakeholder Relations Manager, Communications Officers, the Manager of ERM Licensing Support, Man the Manager of ERM Stakeholder Relations, the Manager of NPD Regulatory Approvals, the Senior Advisor Indigenous Relations, the Director of Indigenous Relations, and the Manager of Stakeholder and Indigenous Engagement) AECL (including the Manager of Engagement and Communications) and WTFN communities, (including, Mississaugas of Scugog Island First Nation Consultant Department, Hiawatha and Curve Lake First Nation Consultant). CNL and WTFN discussed the NPD Closure Project and NSDF Project. CNL and the WTFNs discussed 2023 engagement activities including visits to Hiawatha and Scugog Island communities. CNL also introduced the RAP and Procurement Strategy; restoration was a topic for interest for 2023.										√
January 25, 2023 Incoming email	This email from Curve Lake First Nation's Consultant to CNL with Part 1 of the Review of the I&C Table. CNL confirmed receipt.										√
February 16, 2023 Email between CNL and Curve Lake First Nation (3 Emails)	This email from Curve Lake First Nation's Consultant to a CNL Senior Communications Officer with an invitation to reception during the CNA Conference on 2023 February 23. Curve Lake First Nation responded with their confirmation of interest in attending.										√
February 16, 2023 Outgoing email	This email from a CNL Senior Communications Officer to Curve Lake First Nation's Consultant to confirm the proper contact for one of the staff members. Curve Lake FN confirmed the proper email address was being used.										√
February 20, 2023 Emails between CNL and Curve Lake First Nation (6 emails)	Email between a CNL Senior Communications Officer to Curve Lake First Nation's Consultant discussing setting up a meeting to discuss the Curve Lake First Nation and CNL 2023 Budget.										√
March 01, 2023 Virtual Meeting	This was the 15th of the monthly meetings between CNL and the Williams Treaties First Nations communities, coordinated between Curve Lake First Nation and CNL and open to all. Representatives from CNL (in particular, a Communications Officer, Indigenous Engagement Coordinator, and ERM Stakeholder Relations, the Manager of ERM Licensing Support, the Manager of ERM Stakeholder Relations, NPD Regulatory Approvals, the Senior Advisor Indigenous Relations, and the Manager of Stakeholder and Indigenous Engagement) AECL (including the Manager of Engagement and Communications) and WTFN communities, (including, Mississaugas of Scugog Island First Nation Consultant Department, Georgina Island Invasive Species Coordinator, Hiawatha and Curve Lake First Nation Consultant, Curve Lake First Nation Elder, Three Fires Consulting, Hiawatha Lands and Resource Coordinator). CNL and WTFN discussed NPD project update, May 2023 in-person meeting, CNL Public disclosures, and the program for Engagement with Indigenous Nations, communities and organizations.										√
March 14, 2023 Outgoing email	This email from CNL Senior Communications Officer to WTFN with CNL's Indigenous Relations Procurement Strategy.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
March 16, 2023 Outgoing email	This email from CNL Communications Officer to Curve Lake First Nation's Consultant with the edited proposed CLFN and HFN NPD commitments table from the feedback in the 4 Directions memo to assign dates and timelines to the commitments and the added column to the table, "Proposed Timeline".										√
March 29, 2023 Virtual Meeting	This was the 16th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. This meeting was between CNL representatives (including Communications Officers, the Indigenous engagement coordinator, the Manager of Supply Chain, the Manager of ERM Licensing Support, Man the Manager of ERM Stakeholder Relations, the Manager of NPD Regulatory Approvals, the Senior Advisor Indigenous Relations) AECL (including the Manager of Engagement and Communications) and WTFN communities, (including, Georgina Island First Nation Invasive Species Coordinator, Mississaugas of Scugog Island First Nation Consultant Department , Hiawatha and Curve Lake First Nation Consultant, and Curve Lake Elder. CNL and the WTFN discussed CNL's Indigenous Procurement Strategy.										√
May 01, 2023 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake First Nation with an attached copy of the DRAFT Hiawatha First Nation contribution agreement for their review. CNL requested that any changes be noted for CNL to address them.										√
May 16, 2023 Outgoing email	This email from a CNL Communications Officer to CLFN provided the updated Interests and Concerns Table. CNL is seeking verification from CLFN that the interests and concerns of CLFN have been recorded. CNL respectfully requested a response by 2023 June 20.									√	
May 31, 2023 Meeting	This was the 17th of the monthly meetings between CNL (Including, CNL Communications Officer, Indigenous Engagement Coordinator, Manager, ERM Licensing Support, Administrative Assistant, Manager NPD Regulatory Approvals, and Senior Advisor Indigenous Relations) and the WTFN communities (including Consultant, CLFN and HFN, Rama FN, Community Consultation, Alderville Consultation Coordinator, Mississaugas Scugog Island First Nation Community Consultation, Curve Lake First Nation, Acting Consultation lead, Hiawatha lands and resource consultation, coordinated between Curve Lake FN and CNL and open to all. CNL reminded communities it was seeking validation of the I&C tables, extended the invitation to attending the Swift Count night and provided an update on the restoration plan timing for feedback.						√			√	√
June 01, 2023 Outgoing email	This email from CNL Communications Officer to CLFN following up to the 2023 March 16 email. CNL offered to coordinate a meeting to discuss further should it be desired.									√	√
June 22, 2023 Outgoing email	This email from a CNL Communications Officer to CLFN following up to the 2023 March 16 email. CNL offered to coordinate a meeting to discuss further should it be desired.									√	√
June 22, 2023 Incoming email	This email from CLFN to a CNL Communications Officer requesting an edit to the Interest and Concerns Table.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 27, 2023 Incoming email	This email from a CNL Communications Officer to CLFN confirming the edit to the table had been made and asked if CLFN would like further review.									√	
June 27, 2023 Incoming email	This email from CLFN to a CNL Communications Officer validated the Table of Interest and Concerns.									√	
June 27, 2023 Incoming email	This email from CLFN to a CNL Senior Communications Officer requested the removal of the term Draft on the Agreement and then for it to be sent to leadership for signature.										√
June 28, 2023 Meeting	This was the 18th of the monthly meetings between CNL (Including, CNL Communications Officer, Indigenous Engagement Coordinator, Manager, ERM Licensing Support, Administrative Assistant, Manager NPD Regulatory Approvals, and Senior Advisor Indigenous Relations) and the WTFN communities (including Consultant, CLFN and HFN, Rama FN, Community Consultation, Alderville Consultation Coordinator, Mississauga's Scugog Island First Nation Community Consultation, Curve Lake First Nation, Acting Consultation lead, Hiawatha lands and resource consultation, coordinated between Curve Lake FN and CNL and open to all. The focus of this meeting was NSDF, PHAI, and NPD Project updates.										√
July 11, 2023 Outgoing Email	This email from CNL Communications Officer to all WTFN communities is to request confirmation of attendance at the 2023 July monthly meeting being held in person in Hiawatha. Communities confirmed their attendance.										√
July 17, 2023 Emails	These emails between Curve Lake consultation and CNL Manager, Communications and Engagement are to discuss a CNL visit to Curve Lake in fall 2023 to view the petroglyphs. CNL confirmed the invitation and noted they will confirm availability. CNL followed up to note that a leadership meeting might be more appropriate for this, and that CNL will reach out at a later date.										√
July 21, 2023 Outgoing Email	This email from CNL Communications Officer to Curve Lake Consultant is to confirm last minute logistics of the in person meeting being held in Hiawatha on 2023 July.										√
July 21, 2023 Outgoing Email	This email from CNL Communications Officer to Curve Lake Consultant is to let the curve lake consultant know that CNL is considering attending the workshop in curve lake with CNL leadership. Curve lake suggested the Sept 18, 19, Oct 2 (and maybe Oct 3).										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 26, 2023 Meeting	This was the 19th of the monthly meetings held in person in Hiawatha between CNL (including, Director of Engagement and Communications, Manager NPD Regulatory Approvals, Manager of Stakeholder and Indigenous Communications, Communications Officers, Indigenous Engagement Coordinator, Project Manager, and Project Coordinator) and the WTFN communities (including, CLFN Consultant, CLFN and Hiawatha FN, Rama FN, Community Consultation, Rama Acting Consultation lead, CLFN, Elder, CNLFN Consultant, Consultant, CLFN and HFN, Executive Director, MSIFN Staff, MSIFN Student, MSIFN Consultation Department), coordinated between Curve Lake FN and CNL and open to all. The meeting included a tour of Serpent Mounds, a working lunch and a monthly meeting. Topics of discussion included Project updates- NSDF, NPD, and PHAI.									√
July 27, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with the action list from the 2023 July 26 in person meeting.										√
August 09, 2023 Outgoing Email	This email from CNL Communications Officer to Curve Lake Consultant is to confirm numbers for the CLFN Leadership/ Proponents visit to CLFN.										√
September 05, 2023 Incoming Email	This email from CLRFN Consultant to CNL Manager, Communications and Engagement is to provide CNL with a copy of the signed CLFN- CNL amended agreement.										√
September 06, 2023 Incoming Email	This email from CLRFN Consultant to CNL Communications officer is to provide CNL with an update to the draft agenda for the CNL Leadership visit to Curve Lake First Nation in 2023 September.										√
September 18, 2023 Meeting	CNL staff (including ERM Stakeholder Relations, the Director of the NPD Closure Project, and leadership) attended Curve Lake First Nation for a Cultural sharing day hosted by the community itself for CNL specifically. The day included a visit to the Petroglyphs, and lunch.										√
October 03, 2023 Emails	This email from CNL Manager, Communications and Engagement to CLFN Consultant is to request a meeting to discuss the continuation of monthly meetings with the WTFN. CLFN confirmed 2023 October 06 for a meeting. CNL sent the meeting invite.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 25, 2023 Meeting	This was the 20th of the monthly meetings between CNL (including, Director and Manager of Communications and Engagement, Indigenous Engagement Coordinator, Communications Officers, HWP Manager of Indigenous Relations Communications, Environmental and decommissioning specialist) AECL (including the Director of AECL GO-CO Procurement Process) and the WTFN communities (including, Acting Consultation lead from CLFN, Consultant, Consultation Liaison for Beausoleil First Nation, Consultation Coordinator for Alderville First Nation, Hiawatha First Nations Lands and Conservation Officer, and Consultation Advisor for Scugog First Nation) coordinated between Curve Lake FN and CNL and open to all. This meeting was to discuss CNL Updates, WTFN updates, the Indigenous Relations Procurement Strategy, the GO-CO Procurement process and the format of WTFN monthly meetings.									√
October 26, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with the action list from the 2023 October 26 WTFN Monthly meeting.										√
November 01, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to all WTFN is to follow-up from the 2023 October monthly meeting. CNL noted for those who were unable to attend the meeting, an agenda item was tabled for discussion to move our monthly information sharing meeting to a quarterly meeting instead. The discussion result was an agreement (with those in attendance) to change to a quarterly meeting update if WTFN communities still received project updates/ milestones and/ or news in between meetings. I encourage you to provide feedback on this change. CNL also shared the GO-CO model presentation.										√
November 23, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to all WTFN is to follow-up from the 2023 November 01 email to all WTFN communities to confirm that the 2023 November 30 WTFN monthly meeting has been cancelled, and that the monthly meeting has been changed to a quarterly meeting series. The monthly meeting series has been cancelled. A quarterly meeting series has been setup, and the next meeting is on Wednesday, January 31, 2024.										√
January 31, 2024 Meeting	This meeting between CNL (including, Manager of Communications and Engagement, Communications Officers, HWP Manager of Indigenous Relations Communications, NPD Closure Project Director and Environmental and Decommissioning Specialist, Manager, HWP Environmental Management and Director, Indigenous Engagement) and WTFN (including, Alderville First Nation, Lands and Resources Consultation Officer, Curve Lake First Nation, Acting Consultation lead , Hiawatha First Nations Lands and Conservation Officer and Consultants) was to discuss CNL Updates and hear community updates. The NSDF and NPD project shared updates including the recent CNSC Decision on the NSDF and the NPD Revised Draft EIS submission date.										√

Table C-22 Record of Engagement with Hiawatha First Nation

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Hiawatha First Nation (FN) Chief introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5(1)(c), the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* • *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	
October 24, 2016 Outgoing telephone call	This telephone call from a CNL communications officer to the Hiawatha FN Chief's office was to follow-up on the July letter.										√
November 10, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Hiawatha FN Chief inquired about asserted rights and traditional activities in the region around CRL. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested a better understanding of Hiawatha's historic and/or modern day use of lands in and/or near both of the projects and asked the following questions: • *Does Hiawatha First Nation have traditional territory or reserve lands near the NSDF and/or NPD Closure Project?* • *What is the history of Hiawatha First Nation using the areas around the two projects?* • *Do you have any members of Hiawatha First Nation that currently live in close or reasonable proximity to either of the projects?* • *Does Hiawatha First Nation have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects?* • *Does Hiawatha First Nation, or any members, have sites of ceremonial significance in close proximity to either of the two sites, or more generally, any cultural activities near either of the two sites?* CNL also indicated interested in learning more about the FN and any asserted rights, interests or activities members might undertake in the local or regional areas in proximity to the project.				√	√				√	
November 15, 2017 Outgoing email	This email from a communications officer with CNL to the Hiawatha FN Chief enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and environmental assessment, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	
November 17, 2017 Outgoing email	This email from a communications officer with CNL to the Hiawatha FN Chief enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: *"CNL would be pleased to update information in this current draft with input from your community."*	√	√	√	√	√	√	√	√	√	

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
April 09, 2020 Outgoing email	This email from a communications officer with CNL to representatives of WTFN communities (including the Lands and Resources Consultation coordinator with Hiawatha FN) was to propose a virtual webinar meeting on the NPD Closure Project and the NSDF Project.										√
April 14, 2020 Incoming email	This email from Hiawatha First Nation's Lands and Resources Consultation Coordinator to a CNL communications officer was to confirm attendance and date preference for the webinars.										√
April 17, 2020 Outgoing email	This email from a communications officer with CNL to representatives of WTFN communities (including the Lands and Resources Consultation coordinator with Hiawatha FN) was to confirm the webinar, and offer to test the virtual meeting platform.										√
April 29, 2020 Outgoing email	This email from a communications officer with CNL to representatives of WTFN communities (including the Lands and Resources Consultation coordinator with Hiawatha FN) enclosed a copy of the overview presentations for the webinars.										√
May 04, 2020 Outgoing email	This email from a communications officer with CNL to representatives of WTFN communities (including the Lands and Resources Consultation coordinator with Hiawatha FN) enclosed an action list.										√
May 06, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Hiawatha FN Chief enclosed a preliminary version of the 2020 EIS and an updated IER. This letter also asked for feedback in the following seven areas: • *Does Hiawatha First Nation have additional information that they would like to provide in the context of traditional territory near the NPD site?* • *Does Hiawatha First Nation have any members who currently live close or in reasonable proximity to the NPD site?* • *Does Hiawatha First Nation have historical and/or current traditional practices near the NPD site, specifically we are interested in members' traditional uses such as trapping (traditional or commercial), hunting, fishing (traditional or commercial), gathering and practicing cultural ceremonies?* • *Does Hiawatha First Nation have sites of ceremonial significance in close proximity or more generally any cultural activities near the NPD site?* • *Tell us about any important resources, uses, activities, values and interests to Hiawatha First Nation near the NPD site.* • *If there is use in close proximity to the NPD site, is current community use different than historic use and can a description of those difference be provided?* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights.* This letter also indicated an interest in meeting with Hiawatha FN to discuss any interests or concerns.	√	√	√	√	√	√	√	√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 19, 2020 Virtual meeting	This meeting between four representatives of different WTFN communities (specifically, Hiawatha FN's Land and Resources consultation workers, Alderville FN's lands and community engagement officer, Curve Lake FN's lands and resources consultation officer and Georgina Island FN's consultation coordinator attended) and six CNL representatives (including the Manager of Stakeholder Relations, the Manager of Regulatory Approvals for the NPD Closure Project and communications officers with CNL) included an interactive webinar overview presentation on the project with the opportunity for questions. Specific topics discussed included the following: • Project overview and components; • Timeline; • Waste inventory; • Monitoring; • VCs; • Species at risk; • Traditional land and resource use; • Effects on the environment. The Alderville FN representative had interests and questions with respect to the Chimney Swifts and the height of the ventilation stack in relation to its long-term maintenance.	√		√	√		√	√	√	√	
May 26, 2020 Outgoing email	This email from a communications officer with CNL to representatives of WTFN communities (including the Lands and Resources Consultation coordinator with Hiawatha FN) enclosed the follow-up information responding to all questions from the meeting on May 19, including the Hiawatha FN representative's questions (topics listed above). Three ACMRs and the archaeological assessment were enclosed.	√			√					√	
February 12, 2021 Outgoing email	This email from a communications officer with CNL to representatives of WTFN communities (including the Lands and Resources Consultation coordinator with Hiawatha FN) was an invitation to join Curve Lake First Nation's request of a monthly update on Canadian Nuclear Laboratories (CNL) environmental remediation projects, such as the NSDF Project and NPD Closure Project, as well as Port Hope Area Initiative (PHAI) activities in Port Hope and Port Granby. The monthly meeting will take place the last Wednesday of each month starting March 2021.									√	
March 31, 2021 Virtual meeting	This was the first of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Stakeholder and Indigenous Relations with PHAI and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands Resource Consultation Liaison, a consultant and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a Lands and Resources Consultation Coordinator), Alderville FN (including the Lands and Resources Communications Officer), Rama FN (including the community consultation worker) and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was an overview on AECL and CNL as a corporation.			√	√						√
April 4, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 12, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Hiawatha FN Chief enclosed a preliminary list of commitments and indicated interest in meeting to discuss.										√
April 28, 2021 Virtual meeting	This was the second of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Stakeholder and Indigenous Relations with PHAI and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands Resource Consultation Officer, a consultant and the Lands and Resource Administrative Support Worker), Hiawatha FN (including two Lands and Resources Consultation Coordinators), Alderville FN (including the Lands and Resources Communications Officer), Rama FN (including the community consultation worker) and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was an overview on the NPD Closure Project, the NSDF Project and the PHAI.			√	√						√
May 26, 2021 Virtual meeting	This was the third of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Stakeholder and Indigenous Relations with PHAI, an environmental specialist with the NPD Closure Project and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands Resource Consultation Officer, a consultant and the Lands and Resource Administrative Support Worker), Hiawatha FN (including two Lands and Resources Consultation Coordinators), Rama FN (including the community consultation coordinator) and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was an overview of biodiversity at CNL and included an update on the EA process for NPD.										√
June 15, 2021 Outgoing email	This email from a communications officer with CNL to Hiawatha FN's Lands Resource Consultation Coordinator was to follow-up on the April letter.										√
June 21, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Hiawatha FN Chief enclosed a draft summary of the Hiawatha's interests and concerns for the NPD Closure Project for the Curve Lake FN's review and verification.									√	√
July 6, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
July 28, 2021 Virtual meeting	This was the fifth of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands and Resources Consultation Officer, a consultant and the Lands and Resource Administrative Support Worker), Hiawatha FN (including two community consultation coordinators) and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was an overview of the WTFN's interests and concerns with respect to the NPD Closure Project.			√						√	√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
August 25, 2021 Virtual Meeting	This was the six of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Stakeholder and Indigenous Relations with PHAI and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands and Resources Consultation Officer, a consultant and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Beausoleil FN (including a consultation coordinator) and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was on Port Granby and a Project update was shared about the NPD Closure Project.										√
August 26, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
August 26, 2021 Outgoing email	This email from a Senior Communications Officer with CNL to the consultant with Curve Lake FN and Hiawatha FN community consultation coordinator enclosed updated summary of interest and concerns tables. Updates to the tables to reflect the additional interests that were noted in the discussion at our July 28, 2021 meeting.									√	√
September 13, 2021 Outgoing Email	This email from a Senior Communications Officer with CNL to the consultant with Curve Lake FN and Hiawatha FN Lands/Resources Consultation was to inquire whether Hiawatha FN had the chance to look at the updated table of interests and concerns and whether it accurately reflects the concerns raised to date. This email also shared (via an attachment) CNL's responses to and the review of the revised Environmental Impact Statement for the NPD Closure Project (with permission from Curve Lake FN).			√						√	
September 29, 2021 Virtual meeting	This was the seventh of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, ERM Stakeholder Relations Manager and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a discussion on CNL's responses to Curve Lake First Nation's review of the 2020 EIS.	√		√	√	√				√	√
October 27, 2021 Virtual meeting	This was the eight of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a discussion on small modular reactor research and technology at Chalk River Laboratories. CNL also shared an update on the NPD Closure Project.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 29, 2021 Outgoing email	This email from a CNL Communications Officer to the Hiawatha Consultation Coordinators provided an update on the decision to submit the revised draft EIS in December 2021 and indicated that any input that Hiawatha FN would like to see reflected in the revised draft EIS would need to be received by November 26, 2021.										√
November 1, 2021 Outgoing email	This email from a CNL Senior Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
November 24, 2021 Virtual meeting	This was the eighth of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a discussion on the NSDF Project. CNL also shared an update on the NPD Closure Project.										√
April 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Hiawatha FN's Consultation worker was to inform HFN that CNL is revising how they present the summary table of interests and concerns to address a request from the Canadian Nuclear Safety Commission (CNSC). CNL requested that HFN confirm whether they would like to verify that the revised table still reflects their interests and concerns, focusing on the new column that ties their interest/concern to the project or Aboriginal and treaty right, and identify why it is of concern to their community.									√	
April 18, 2022 Outgoing email	Email invitation to Hiawatha FN's to the CNL Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.										√
April 25, 2022 Outgoing email	Email invitation to the April 27, 2022 Williams Treaties First Nations monthly meeting. The agenda items included the following on the NPD project: • NPD Project Updates; • NPD Draft EAFMP.								√		
April 26, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Hiawatha FN's Consultation worker and Lands and Resources Consultation Coordinator to follow-up on CNL's email from April 01, 2022. CNL request HFN confirm if they are interested in reviewing the new table of Interests and Concerns.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 27, 2022 Virtual Meeting	This was the ninth of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant), Chippewas of Georgina Island First Nation (Invasive Species coordinator) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a discussion on the NSDF Project. CNL also shared an update on the NPD Closure Project.								√		√
April 28, 2022 Outgoing email	This email from a CNL Senior Advisor of Indigenous Relations to the WTFN communities attached the presentation from the April 27, 2022 monthly meeting. CNL invited WTFN communities to the Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.								√		
May 13, 2022 Outgoing email	This email from ERM Stakeholder Relations to the WTFN communities provided a response to technical questions asked at the April 27, 2022 monthly meeting. Q1: Please provide a breakdown of how much tritium in the Ottawa River is naturally occurring versus anthropogenic (e.g. from weapons testing in the 1960s), including a graph showing the peak of tritium from weapons testing. Q2: Please provide further information on stack contamination and the remedial actions planned at the base of the stack, with respect to potential impacts on Chimney Swifts.								√		
May 17, 2022 Incoming email	This email from the Curve Lake FN Consultation to a CNL Senior Communications Officer coordinating combined reposes from Curve Lake, Hiawatha, Alderville to CNL's March 8, 2022 request for feedback on the repackaged Table of Interests and Concerns. The consultant asked the CNL update with information provided and note the new information. CNL acknowledged.										√
June 06, 2022 Outgoing email	This email from a Senior Advisor of Indigenous Relations at CNL to the WTFN communities sent a proposed agenda for the tenth monthly meeting planned for June 29, 2022. The meeting is planning to be held in-person at the Port Hope Area Initiative office. On the proposed agenda the NPD Project staff will provide an update on the project.										√
June 22, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the WTFN communities provided an updated agenda for the June 29, 2022 monthly meeting. A NPD Project update was included as an agenda item.										√
June 29, 2022 Incoming email	This email from Curve Lake FN's Consultant to a CNL Senior Communications Officer provided comments on the interest and concern table. HFN asked that any notes made at a recent monthly meeting about deer and hunting be incorporated.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 29, 2022 Outgoing email	This email from the Manager of Regulatory Approvals for the NPD Closure Project to Curve Lake FN's Consultant confirming receipt of the comments on the interest and concerns table. CNL asked for clarification regarding the request to incorporate information about hunting and deer.									√	
June 29, 2022 Incoming email	This email from Curve Lake FN's Consultant to the Manager of Regulatory Approvals for the NPD Closure Project clarified that the comment being discussed was about what wildlife would consume on site and the impact of that on future consumption.									√	
June 29, 2022 Meeting	This was the tenth of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Chief, the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Alderville First Nation (Chief) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a tour of the PHAI location. CNL also shared an update on the NPD Closure Project.										√
July 11, 2022 Outgoing email	This email from a Senior Advisor of Indigenous Relations at CNL to Curve Lake FN's Consultant sent the interest and concerns table with a new row "Status of this Concern" for review.									√	
July 14, 2022 Outgoing email Hiawatha First Nation and Alderville First Nation	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant sent the updated summary tables of interests and concerns for Curve Lake First Nation, Hiawatha First Nation and Alderville First Nation for review.									√	
July 14, 2022 Incoming email	This email from Curve Lake FN's Consultant to a CNL Senior Communications Officer confirming receipt of the updated summary tables of interests and concerns for Curve Lake First Nation, Hiawatha First Nation and Alderville First Nation and noted that there are no further updates needed at this point.									√	
July 14, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant proposed dates for a tour of the NSDF and NPD Facility. CNL proposed an online poll and asked for any additional dates needed. Curve Lake FN's Consultant replied and will provide alternative dates.										√
July 25, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN Communities sharing the agenda for the 11th monthly meeting on July 27, 2022. The agenda included a NPD project update.										√

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July 27, 2022 Virtual meeting	This was the 11th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant) and Rama First Nation (including a consultation workers) were in attendance. CNL shared an update on the NPD Closure Project.										√
August 22, 2022 Outgoing/Incoming emails	Emails from a CNL Senior Communications Officer to WTFN consultation representatives coordinating dates for the tour of the NSDF and NPD Facility.										√
September 16, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN consultation representatives to save the date for the WTFN tour of Chalk River Laboratories on October 25 and 26, 2022 (including the proposed NSDF site and NPD site).										√
September 21, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant sharing for review the proposed agenda or the 12th monthly meeting on September 28, 2022. The agenda included a NPD project update. Curve Lake FN accepted the agenda.										√
September 26, 2022 Outgoing email	Email from a Senior Communications Officer to WTFN communities sharing the agenda for the September 28 working group meeting. The agenda included an update on the NPD project.										√
September 28, 2022 Virtual meeting	This was the 12th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including an Elder and community consultation coordinator), Scugog Island (including a consultant) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a presentation and discussion on CNL's Integrated Waste Strategy. CNL also shared an update on the NPD Closure Project.										√
October 01, 2022 Outgoing email	Email from a Senior Communications Officer to WTFN communities sharing the agenda and presentation from the September 28, 2022 monthly meeting. Related to the presentation content, CNL have also attached a CNSC infographic that provides a description of the classes of radioactive waste.										√
October 03, 2022 Outgoing email	Email from a Senior Communications Officer to WTFN communities sharing the agenda for the October 25 and 26, 2022 tour of Chalk River Laboratories (including the proposed NSDF site and NPD site). CNL also sent information about required PPE and the link to register for the tour.										√

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		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 05, 2022 Outgoing Letter	This letter addressed to Hiawatha First Nation's Chief from CNL's Director of Indigenous Relations provided a project update and the engagement status with HFN. CNL stated it is committed to incorporating Hiawatha's interests and concerns into the EIS. CNL provided an engagement status and next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for HFN's review. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that HFN respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.									√	
October 03, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Hiawatha First Nation's Chief following up on the October 5, 2022 letter.									√	
October 26, 2022 Tour	WTFN communities were invited to tour the NPD facility as part of a two day visit to the Chalk River Laboratories site and area. Representatives from CNL (in particular, NPD Project staff, communications officers, ERM Stakeholder Relations Manager, Director of Indigenous Relations) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including Lands and Resource consultation coordinator), Scugog Island (including a consultation coordinator), Chippewas of Rama First Nation (including a councillor) and AECL (including the Director of Decommissioning and Waste Management Programme) took part in a reactor tour and site walk. The day include a smudging ceremony by the Ottawa River and relationship building.										√
November 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities thanked the participants of the October 25 and 26, 2022 tour. As requested over the days CNL sent the archaeological assessments for the NPD site and photos from the tour.										√
November 15, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities cancelled the December monthly meeting.										√
November 15, 2022 Phone call	This call from a CNL Senior Communications Officer to Curve Lake FN's Consultant discussed the Curve Lake First Nation contribution agreement that is in effect until 2022 December 31. Curve Lake First Nation is interested in renewing the current contribution agreement for another two years. CLFN will be forwarding an updated budget to accompany the renewal. CLFN noted that Hiawatha First Nation and is proposing that CNL and Hiawatha First Nation establish a contribution agreement as well. Noting that some of the activities in the agreements would overlap but the funding would not. He will clearly articulate that in both budgets that the Curve Lake FN's Consultant will be sending to CNL for review.										√

Date/Method	Details	Key EA Topics									
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November 28, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities sent the agenda for the November 30th, 2022 monthly meeting. The agenda included a NPD Project update, a discussion on 2023 engagement plans and a discussion on a year in review.										√
November 30, 2022 Virtual meeting	This was the 13th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including and Elder, Councillors, the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator) and Scugog Island (including consultants) were in attendance. CNL shared an update on the NPD Closure Project.										√
December 02, 2022 Virtual Meeting	Meeting between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer, the Manager of NPD Regulatory Approvals) and WTFN communities, (including Hiawatha and Curve Lake First Nation Consultant). CNL and the WTFNs discussed the November 5, 2022, letter and the next steps for Cure Lake and Hiawatha First Nation.										√
December 02, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Hiawatha First Nation's Consultant sharing the updated Interest and Concerns table and summarized notes from the December 02, 2022, meeting.										√
January 17, 2023 Outgoing email	This email from a CNL Senior Communications Officer to Hiawatha First Nation's Consultant following up with the Draft Environmental Assessment to confirm when the review will be completed. Curve Lake First Nation confirmed the assessment will be reviewed by the end of February 2023.										√
January 20, 2023 Outgoing email	This email from a CNL Communications Officer to Hiawatha First Nation's Consultant to inform of the decision to postpone the submission of the NPD Closure Project's draft EIS until May 2023 to allow for additional Indigenous input. CNL proposed the next steps would be to have Hiawatha to provide CNL comments on the new Interests and Concerns table and on the proposed commitments. A follow-up meeting will be coordinated as necessary to ensure CNL accurately incorporates any feedback.										√
January 25, 2023 Incoming email	This email from to Hiawatha First Nation's Consultant to CNL with Part 1 of the review of the I&C table, NPD closure. CNL confirmed receipt.										√
January 25, 2023 Virtual Meeting	This was the 14th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer and ERM Stakeholder Relations Manager, Communications Officers, the Manager of ERM Licensing Support, Man the Manager of ERM Stakeholder Relations, the Manager of NPD Regulatory Approvals, the Senior Advisor Indigenous Relations, the Director of Indigenous Relations, and the Manager of Stakeholder and Indigenous Engagement) AECL (including the Manager of Engagement and Communications) and WTFN communities, (including, Mississaugas of Scugog Island First Nation Consultant Specialist, Hiawatha and Curve Lake First Nation Consultant). CNL and WTFN discussed the NPD Closure Project and NSDF Project. CNL and the WTFNs discussed 2023 engagement activities including visits to Hiawatha and Scugog Island communities. CNL also introduced the RAP and Procurement Strategy; restoration was a topic for interest for 2023.										√

Environmental Impact Statement - NPD Closure Project

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March 01, 2023 Virtual Meeting	This was the 15th of the monthly meetings between CNL and the Williams Treaties First Nations communities, coordinated between Curve Lake First Nation and CNL and open to all. Representatives from CNL (in particular, a Communications Officer, Indigenous Engagement Coordinator, and ERM Stakeholder Relations, the Manager of ERM Licensing Support, the Manager of ERM Stakeholder Relations, NPD Regulatory Approvals, the Senior Advisor Indigenous Relations, and the Manager of Stakeholder and Indigenous Engagement) AECL (including the Manager of Engagement and Communications) and WTFN communities, (including, Mississaugas of Scugog Island First Nation Consultant Specialist, Georgina Island Invasive Species Coordinator, Hiawatha and Curve Lake First Nation Consultant, Curve Lake First Nation Elder, Three Fires Consulting, Hiawatha Lands and Resource Coordinator). CNL and WTFN discussed NPD project update, May 2023 in-person meeting, CNL Public disclosures, and the program for Engagement with Indigenous Nations, communities and organizations.										√
March 09, 2023 Outgoing email	This email from a CNL Senior Communications Officer to Hiawatha First Nation Consultation to confirm the interest in hosting the 2023 May 31 meeting in the community. Mississaugas of Scugog Island First Nation consultant confirmed receipt of the email and will get back to CNL after an internal discussion.										√
March 14, 2023 Outgoing email	This email from CNL Senior Communications Officer to Hiawatha First Nation with CNL's Indigenous Relations Procurement Strategy.										√
March 16, 2023 Outgoing email	This email from a CNL Communications Officer to HFN's Consultant with the edited proposed CLFN and HFN NPD commitments table from the feedback in the 4 Directions memo to assign dates and timelines to the commitments and the added column to the table, "Proposed Timeline".										√
March 29, 2023 Virtual Meeting	This was the 16th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. This meeting was between CNL representatives (including Communications Officers, the Indigenous engagement coordinator, the Manager of Supply Chain, the Manager of ERM Licensing Support, Man the Manager of ERM Stakeholder Relations, the Manager of NPD Regulatory Approvals, the Senior Advisor Indigenous Relations) AECL (including the Manager of Engagement and Communications) and WTFN communities, (, Georgina Island First Nation Invasive Species Coordinator, Mississaugas of Scugog Island First Nation Consultant Department, Hiawatha and Curve Lake First Nation Consultant, and Curve Lake Elder. CNL and the WTFN discussed CNL's Indigenous Procurement Strategy.										√
April 11, 2023 Outgoing email	This email from CNL Senior Communications Officer to WTFN with the agenda and presentation from the monthly meeting held on 2023 March 29. CNL also looked to confirm the dates of the 2023 April 26 monthly meeting.										√
May 01, 2023 Outgoing email	Email from CNL Senior Communications Officer to Hiawatha First Nation with an attached copy of the DRAFT Hiawatha First Nation contribution agreement for their review. CNL requested that any changes be noted for CNL to address them.										√
May 16, 2023 Outgoing email	This email from a CNL Communications Officer to HFN provided the updated Interests and Concerns Table. CNL is seeking verification from HFN that the interests and concerns of HFN have been recorded. CNL respectfully requested a response by 2023 June 20.									√	

Environmental Impact Statement - NPD Closure Project

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Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 31, 2023 Meeting	This was the 17th of the monthly meetings between CNL (Including, CNL Communications Officer, Indigenous Engagement Coordinator, Manager, ERM Licensing Support, Administrative Assistant, Manager NPD Regulatory Approvals, and Senior Advisor Indigenous Relations) and the WTFN communities (including Consultant, CLFN and HFN, Rama FN, Community Consultation, Alderville Consultation Coordinator, Mississaugas Scugog Island First Nation Community Consultation, Curve Lake First Nation, Acting Consultation lead, Hiawatha lands and resource consultation, coordinated between Curve Lake FN and CNL and open to all. CNL reminded communities it was seeking validation of the I&C tables, extended the invitation to attending the Swift Count night and provided an update on the restoration plan timing for feedback.						√			√	√
June 01, 2023 Outgoing email	This email from CNL Communications Officer to HFN following up to the 2023 March 16 email. CNL offered to coordinate a meeting to discuss further should it be desired.									√	√
June 22, 2023 Outgoing email	This email from a CNL Communications Officer to HFN following up to the 2023 March 16 email. CNL offered to coordinate a meeting to discuss further should it be desired.									√	√
June 22, 2023 Incoming email	This email from HFN to a CNL Communications Officer requesting an edit to the Interest and Concerns Table.									√	
June 27, 2023 Incoming email	This email from a CNL Communications Officer to HFN confirming the edit to the table had been made and asked if HFN would like further review.									√	
June 27, 2023 Incoming email	This email from HFN to a CNL Communications Officer validated the Table of Interest and Concerns.									√	
June 27, 2023 Incoming email	This email from HFN to a CNL Senior Communications Officer requested the removal of the term Draft on the Agreement and then for it to be sent to Hiawatha leadership for signature.										√
July 11, 2023 Outgoing Email	This email from CNL Communications Officer to all WTFN communities is to request confirmation of attendance at the 2023 July monthly meeting being held in person in Hiawatha. Communities confirmed their attendance.										√
July 12, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement Hiawatha Consultant to provide them with a copy of the final Hiawatha First Nation contribution agreement for signature.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 19, 2023 Outgoing Email	This email from CNL Communications officer to Hiawatha is to confirm logistics for the 2023 July 24 in person meeting being held in Hiawatha FN. CNL also requested information on IT supplied at the cultural centre and names of chief, councillors and elders who will be attending.										√
July 26, 2023 Meeting	This was the 19th of the monthly meetings held in person in Hiawatha between CNL (Including, Director of Engagement and Communications, Manager NPD Regulatory Approvals, Manager of Stakeholder and Indigenous Communications, Communications Officers, Indigenous Engagement Coordinator, Project Manager, and Project Coordinator) and the WTFN communities (including, CLFN Consultant, CLFN and Hiawatha FN, Rama FN, Community Consultation, Rama Acting Consultation lead, CLFN, Elder, CNLFN Consultant, Consultant, CLFN and HFN, Executive Director, MSIFN Staff, MSIFN Student, MSIFN Consultation Department), coordinated between Curve Lake FN and CNL and open to all. The meeting included a tour of Serpent Mounds, a working lunch and a monthly meeting. Topics of discussion included Project updates- NSDF, NPD, and PHAI.										√
July 27, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with the action list from the 2023 July 26 in person meeting.										√
August 21, 2023 Outgoing Email	This email from Hiawatha FN to CNL Manager, Communication and Engagement is to provide CNL with the signed Contribution agreement.										√
September 27, 2023 Outgoing Email	This email from Hiawatha FN to CNL Manager of Communications and Engagement is to confirm in the 2023 September WTFN monthly meeting is cancelled or not. CNL replied and confirmed it was cancelled.										√
October 05, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to CLFN Consultant is to provide a copy of the Hiawatha First Nation DRAFT Contribution Agreement for review - up to 2024 December.										√
October 25, 2023 Meeting	This was the 20th of the monthly meetings between CNL (Including, Director and Manager of Communications and Engagement, Indigenous Engagement Coordinator, Communications Officers, HWP Manager of Indigenous Relations Communications, Environmental and decommissioning specialist), AECL (including the Director of AECL GO-CO Procurement Process) and the WTFN communities (including, Acting Consultation lead from CLFN, Consultant, Consultation Liaison for Beausoleil First Nation, Consultation Coordinator for Alderville First Nation, Hiawatha First Nations Lands and Conservation Officer, and Consultation Advisor for Scugog First Nation) coordinated between Curve Lake FN and CNL and open to all. This meeting was to discuss CNL Updates, WTFN updates, the Indigenous Relations Procurement Strategy, the GO-CO Procurement process and the format of WTFN monthly meetings.										√
October 26, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with the action list from the 2023 October 26 WTFN Monthly meeting.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 01, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to all WTFN is to follow-up from the 2023 October monthly meeting. CNL noted for those who were unable to attend the meeting, an agenda item was tabled for discussion to move our monthly information sharing meeting to a quarterly meeting instead. The discussion result was an agreement (with those in attendance) to change to a quarterly meeting update if WTFN communities still received project updates/ milestones and/ or news in between meetings. I encourage you to provide feedback on this change. CNL also shared the GO-CO model presentation.										√
November 23, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to all WTFN is to follow-up from the 2023 November 01 email to all WTFN communities to confirm that the 2023 November 30 WTFN monthly meeting has been cancelled, and that the monthly meeting has been changed to a quarterly meeting series. The monthly meeting series has been cancelled. A quarterly meeting series has been setup, and the next meeting is on Wednesday, January 31, 2024.										√
January 31, 2024 Meeting	This meeting between CNL (including, Manager of Communications and Engagement, Communications Officers, HWP Manager of Indigenous Relations Communications, NPD Closure Project Director and Environmental and Decommissioning Specialist, Manager, HWP Environmental Management and Director, Indigenous Engagement) and WTFN (including, Alderville First Nation, Lands and Resources Consultation Officer, Curve Lake First Nation, Acting Consultation lead , Hiawatha First Nations Lands and Conservation Officer and Consultants) was to discuss CNL Updates and hear community updates. The NSDF and NPD project shared updates including the recent CNSC Decision on the NSDF and the NPD Revised Draft EIS submission date.										√

Table C-23 Record of Engagement with Mississaugas of Scugog Island First Nation

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Mississaugas of Scugog Island First Nation (FN) Chief introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5.1(c), the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* • *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	
October 24, 2016 Outgoing telephone call	This telephone call from a communications officer with CNL to the Scugog Island FN contact was to follow up on the July letter.										√
November 10, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Scugog Island FN Chief inquired about asserted rights and traditional activities in the region around CRL. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested a better understanding of Scugog Island FN's historic and/or modern day use of lands in and/or near both of the projects and asked the following questions: • *Do the Mississaugas of Scugog Island First Nation have traditional territory or reserve lands near the NSDF and/or NPD Closure Project?* • *What is the history of the Mississaugas of Scugog Island First Nation using the areas around the two projects?* • *Do you have any members of the Mississaugas of Scugog Island First Nation that currently live in close or reasonable proximity to either of the projects?* • *Do the Mississaugas of Scugog Island First Nation have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects?* • *Do the Mississaugas of Scugog Island First Nation, or any members, have sites of ceremonial significance in close proximity to either of the two sites, or more generally, any cultural activities near either of the two sites?* CNL also indicated interested in learning more about the FN and any asserted rights, interests or activities members might undertake in the local or regional areas in proximity to the project.				√	√				√	
November 15, 2017 Outgoing email	This email from a communications officer with CNL to the Mississaugas of Scugog Island FN Chief enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and environmental assessment, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 17, 2017 Outgoing email	This email from a communications officer with CNL to the Mississaugas of Scugog Island FN Chief enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: *"CNL would be pleased to update information in this current draft with input from your community."*	√	√	√	√	√	√	√	√	√	
In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
April 09, 2020 Outgoing email	This email from a communications officer with CNL to Williams Treaties First Nations (including the Scugog Island FN consultation coordinator) was to propose a virtual webinar meeting on the NPD Closure Project and the NSDF.										√
April 17, 2020 Outgoing email	This email a CNL communications officer to the Scugog Island First Nation's Consultation Coordinator was to confirm the receipt of previous emails.										√
April 17, 2020 Outgoing email	This email from a communications officer with CNL to Williams Treaties First Nations (including the Scugog Island FN consultation coordinator) was to confirm the webinar, as well as offer to test the virtual meeting platform.										√
April 29, 2020 Outgoing email	This email from a communications officer with CNL to Williams Treaties First Nations (including the Scugog Island FN consultation coordinator) enclosed a copy of the overview presentations for the webinars.										√
May 04, 2020 Outgoing email	This email from a communications officer with CNL to Williams Treaties First Nations (including the Scugog Island FN consultation coordinator) enclosed an action list.										√
May 06, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Scugog Island FN Chief enclosed a preliminary version of the 2020 EIS and an updated IER. This letter also asked for feedback in the following seven areas: • *Does Scugog Island First Nation have additional information that they would like to provide in the context of traditional territory near the NPD site?* • *Does Scugog Island First Nation have any members who currently live close or in reasonable proximity to the NPD site?* • *Does Scugog Island First Nation have historical and/or current traditional practices near the NPD site, specifically we are interested in members' traditional uses such as trapping (traditional or commercial), hunting, fishing (traditional or commercial), gathering and practicing cultural ceremonies?* • *Does Scugog Island First Nation have sites of ceremonial significance in close proximity or more generally any cultural activities near the NPD site?* • *Tell us about any important resources, uses, activities, values and interests to Scugog Island First Nation near the NPD site.* • *If there is use in close proximity to the NPD site, is current community use different than historic use and can a description of those difference be provided?* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights.* This letter also indicated an interest in meeting with Scugog Island FN to discuss any interests or concerns.	√	√	√	√	√	√	√	√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 12, 2020 Outgoing email	This email from a CNL communications officer to the Scugog Island FN Chief and Consultation Coordinator was to inquire whether there was any interest in Scugog Island FN attending the WTFN webinar meetings hosted by CNL on the NPD Closure Project and NSDF Project.										√
May 14, 2020 Outgoing email	This email from a communications officer with CNL to Williams Treaties First Nations (including the Scugog Island FN consultation coordinator) was to confirm the virtual webinar meeting date of May 19.										√
May 26, 2020 Outgoing email	This email from a communications officer with CNL to the Scugog Island FN Chief was to follow-up on the registered letter sent on May 06.										√
May 26, 2020 Outgoing email	This email from a communications officer with CNL to Williams Treaties First Nations (including the Scugog Island FN consultation coordinator) enclosed the follow-up information responding to all questions from the meeting on May 19.	√			√					√	
July 27, 2020 Outgoing email	This email from a communications officer with CNL to Williams Treaties First Nations (including the Scugog Island FN consultation coordinator) enclosing the presentation from the previous meeting in May.	√		√	√		√	√	√	√	
August 11, 2020 Incoming email	This email from Scugog Island FN consultation coordinator to a communications officer with CNL was to introduce the new Community Consultation Specialist.										√
August 14, 2020 Outgoing email	This email from a CNL communications officer to the Scugog Island Community Consultation Specialist was to inquire on whether they would like to meet with CNL to discuss the projects.										√
August 20, 2020 Virtual meeting	This virtual meeting between a communications officer with CNL and the Scugog Island FN Community Consultation Specialist was to discuss CNL projects, including the NPD Closure Project.			√							
February 12, 2021 Outgoing email	This email from a communications officer with CNL to WTFN communities (including the Scugog Island Community Consultation Specialist) was an invitation to join Curve Lake First Nation's request of a monthly update on Canadian Nuclear Laboratories (CNL) environmental remediation projects, such as the NSDF Project and NPD Closure Project, as well as Port Hope Area Initiative (PHAI) activities in Port Hope and Port Granby. The monthly meeting will take place the last Wednesday of each month starting March 2021.									√	
April 4, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
April 12, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Scugog Island FN Chief enclosed a preliminary list of commitments and indicated interest in meeting to discuss.										√
June 15, 2021 Outgoing email	This email from a communications officer with CNL to Scugog Island FN Chief was to follow-up on the April letter.										√
July 6, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
August 26, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
September 29, 2021 Incoming Email	This email from a Scugog Island FN consultant to Senior Communications Officer at CNL was to ask CNL to add their email to the mailing list to arrange the WTFN/CNL monthly meeting.										√
September 29, 2021 Outgoing Email	This email from a CNL Communications officer to a Scugog Island FN consultant was to follow up on the previous email to confirm the inclusion of their email to the mailing list to arrange CNL/WTFN monthly meetings. CNL also asked the Scugog FN consultant if they would like to participate in a meeting to discuss environmental assessment projects and to discuss ongoing engagement between CNL and WTFN so far. The Scugog Island FN consultant confirmed interest.										√
September 29, 2021 Virtual meeting	This was the seventh of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, ERM Stakeholder Relations Manager and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a discussion on CNL's responses to Curve Lake First Nation's review of the 2020 EIS.	√		√	√	√				√	√
October 05, 2021 Outgoing Email	This email from a CNL Communications officer to a Scugog Island FN consultant was to confirm the date of this proposed meeting (October 20). CNL also inquired whether Scugog Island FN would be interested in arranging a second meeting to discuss the Chalk River Projects (NPD Closure Project included). If time did not permit, CNL offered to briefly overview the Chalk River projects in the October 20th meeting.										√
October 07, 2021 Incoming Email	This email from a Scugog Island FN consultant suggested that the October 20, 2021 meeting focused on the Port Hope Area Initiative and that a future meeting for Chalk River projects, including the NPD Closure Project, be arranged in the near future.										√
October 27, 2021 Virtual meeting	This was the eight of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a discussion on small modular reactor research and technology at Chalk River Laboratories. CNL also shared an update on the NPD Closure Project.										√
November 1, 2021 Outgoing email	This email from a CNL Senior Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 24, 2021 Virtual meeting	This was the eight of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a discussion on the NSDF Project. CNL also shared an update on the NPD Closure Project.										√
January 17, 2022 Outgoing email	This email from a CNL Communications Officer to Curve Lake FN was to propose the next discussion topic on CNL's Cleanup Mission. This topic would look at CNL's company-wide approach to environmental remediation and specifically how it relates to Chalk River's future and the NSDF. As discussed at the November 2021 monthly meeting, CNL noted that they will send a list of key dates for the Projects over by the end of the week. CNL acknowledged that they may need to discuss if there are any further milestones that Curve Lake First Nation would like on that list of key dates.										√
January 21, 2022 Outgoing email	This email from a CNL Communications Officer to Curve Lake FN representatives enclosed some proposed key dates for PHAI, NPD and NSDF.										√
February 15, 2022 Outgoing email	This email from a CNL Communications Officer to Curve Lake FN representatives proposed a more open agenda for the meeting on February 23rd. CNL proposed discussing the three usual projects (NSDF, NPD and PHAI) but also a discussion around the NSDF Part 1 hearing.										√
March 8, 2022 Outgoing email	This email from Curve Lake FN to a CNL Communications Officer noted that Curve Lake FN would like to review the updated interest and concerns table before submission.									√	√
March 11, 2022 Incoming email	This email from Curve Lake FN to a CNL Communications Officer informed CNL that the meeting invitation for the next working group meeting was forwarded to a new member of the support team.										√
April 18, 2022 Outgoing email	Email invitation to Scugog FN to the CNL Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.										√
April 25, 2022 Outgoing email	Email invitation to the April 27, 2022 Williams Treaties First Nations monthly meeting. The agenda items included the following on the NPD project: • NPD Project Updates • NPD Draft EAFMP								√		
April 27, 2022 Virtual Meeting	This was the ninth of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant), Chippewas of Georgina Island First Nation (Invasive Species coordinator) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a discussion on the NSDF Project. CNL also shared an update on the NPD Closure Project.								√		√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 28, 2022 Outgoing email	This email from a CNL Senior Advisor of Indigenous Relations to the WTFN communities attached the presentation from the April 27, 2022 monthly meeting. CNL invited WTFN communities to the Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.								√		
May 06, 2022 Outgoing email	Email invitation to Scugog FN to the CNL Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain. Scugog FN replied that the invitation had been shared internally.										√
May 13, 2022 Outgoing email	This email from ERM Stakeholder Relations to the WTFN communities provided a response to technical questions asked at the April 27, 2022 monthly meeting. Q1: Please provide a breakdown of how much tritium in the Ottawa River is naturally occurring versus anthropogenic (e.g. from weapons testing in the 1960s), including a graph showing the peak of tritium from weapons testing. Q2: Please provide further information on stack contamination and the remedial actions planned at the base of the stack, with respect to potential impacts on Chimney Swifts.								√		
June 06, 2022 Outgoing email	This email from a CNL Senior Advisor of Indigenous Relations to the WTFN communities sent a proposed agenda for the tenth monthly meeting planned for June 29, 2022. The meeting is planning to be held in-person at the Port Hope Area Initiative office. On the proposed agenda the NPD Project staff will provide an update on the project.										√
June 22, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the WTFN communities provided an updated agenda for the June 29, 2022 monthly meeting. A NPD Project update was included as an agenda item.										√
June 29, 2022 Meeting	This was the tenth of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Chief, the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Alderville First Nation (Chief) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a tour of the PHAI location. CNL also shared an update on the NPD Closure Project.										√
July 14, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant proposed dates for a tour of the NSDF and NPD Facility. CNL proposed an online poll and asked for any additional dates needed. Curve Lake FN's Consultant replied and will provide alternative dates.										√
July 25, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN Communities sharing the agenda for the 11th monthly meeting on July 27, 2022. The agenda included a NPD project update.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 27, 2022 Virtual meeting	This was the 11th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant) and Rama First Nation (including a consultation workers) were in attendance. CNL shared an update on the NPD Closure Project.										√
August 22, 2022 Outgoing/Incoming emails	Emails from a CNL Senior Communications Officer to WTFN consultation representatives coordinating dates for the tour of the NSDF and NPD Facility.										√
September 16, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN consultation representatives to save the date for the WTFN tour of Chalk River Laboratories on October 25 and 26, 2022 (including the proposed NSDF site and NPD site).										√
September 21, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant sharing for review the proposed agenda or the 12th monthly meeting on September 28, 2022. The agenda included a NPD project update. Curve Lake FN accepted the agenda.										√
September 26, 2022 Outgoing email	Email from a Senior Communications Officer to WTFN communities sharing the agenda for the September 28 working group meeting. The agenda included an update on the NPD project.										√
September 28, 2022 Virtual meeting	This was the 12th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including an Elder and community consultation coordinator), Scugog Island (including a consultant) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a presentation and discussion on CNL's Integrated Waste Strategy. CNL also shared an update on the NPD Closure Project.										√
October 01, 2022 Outgoing email	Email from a Senior Communications Officer to WTFN communities sharing the agenda and presentation from the September 28, 2022 monthly meeting. Related to the presentation content, CNL have also attached a CNSC infographic that provides a description of the classes of radioactive waste.										√
October 03, 2022 Outgoing email	Email from a Senior Communications Officer to WTFN communities sharing the agenda for the October 25 and 26, 2022 tour of Chalk River Laboratories (including the proposed NSDF site and NPD site). CNL also sent information about required PPE and the link to register for the tour.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 03, 2022 Outgoing Letter	This letter addressed to Scugog First Nation's Chief from CNL's Director of Indigenous Relations provided a project update and the engagement status with Scugog First Nation. CNL stated it is committed to incorporating Scugog's interests and concerns into the EIS. CNL provided an engagement status and next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for Scugog First Nation's review. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that Scugog First Nation respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.									√	
October 19, 2022 Outgoing email	This email from a Senior Communications Officer to Scugog Island First Nation's consultation coordinator confirmed registration for the October 26, 2022 tour of the NPD facility.										√
October 19, 2022 Outgoing email	This email from a Senior Communications Officer to Scugog Island First Nation's chief followed up on the October 3, 2022 letter.									√	
October 26, 2022 Tour	WTFN communities were invite to tour the NPD facility as part of a two day visit to the Chalk River Laboratories site and area. Representatives from CNL (in particular, NPD Project staff, Communications Officers, ERM Stakeholder Relations Manager, Director of Indigenous Relations) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including Lands and Resource consultation coordinator), Scugog Island (including a consultation coordinator), Chippewas of Rama First Nation (including a councillor) and AECL (including the Director of Decommissioning and Waste Management Programme) took part in a reactor tour and site walk. The day include a smudging ceremony by the Ottawa River and relationship building.										√
October 27, 2022 Incoming email	This email from Scugog Island First Nation's consultation to a Senior Communications Officer provided updated contacts, including the Consultation Specialist. CNL acknowledged.										√
November 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities thanked the participants of the October 25 and 26, 2022 tour. As requested over the days CNL sent the archaeological assessments for the NPD site and photos from the tour.										√
November 15, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities cancelled the December monthly meeting.										√
November 28, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities sent the agenda for the November 30th, 2022 monthly meeting. The agenda included a NPD Project update, a discussion on 2023 engagement plans and a discussion on a year in review.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 30, 2022 Virtual meeting	This was the 13th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer and ERM Stakeholder Relations Manager) Curve Lake FN (including and Elder, Councillors, the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator) and Scugog Island (including consultants) were in attendance. CNL shared an update on the NPD Closure Project.										√
January 12, 2023 Emails	Emails between MSIFN's Consultation Specialist and CNL coordinating a meeting.										√
January 20, 2023 Outgoing email	This email from a CNL Communications Officer to MSIFN's Consultation Specialist to inform of the decision to postpone the submission of the NPD Closure Project's draft Environmental Impact Statement (EIS) until May 2023 to allow for additional Indigenous input. CNL proposed the next steps would be to continue working together to ensure the MSIFN's interests and concerns are reflected in the EIS by meeting to discuss the MSIFN's interest and desired involvement in the NPD project.										√
January 25, 2023 Virtual Meeting	This was the 14th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a Communications Officer and ERM Stakeholder Relations Manager, Communications Officers, the Manager of ERM Licensing Support, Man the Manager of ERM Stakeholder Relations, the Manager of NPD Regulatory Approvals, the Senior Advisor Indigenous Relations, the Director of Indigenous Relations, and the Manager of Stakeholder and Indigenous Engagement) AECL (including the Manager of Engagement and Communications) and WTFN communities, (including, Mississaugas of Scugog Island First Nation Consultant Department, Hiawatha and Curve Lake First Nation Consultant). CNL and WTFN discussed the NPD Closure Project and NSDF Project. CNL and the WTFNs discussed 2023 engagement activities including visits to Hiawatha and Scugog Island communities. CNL also introduced the RAP and Procurement Strategy; restoration was a topic for interest for 2023.										√
March 01, 2023 Virtual Meeting	This was the 15th of the monthly meetings between CNL and the Williams Treaties First Nations communities, coordinated between Curve Lake First Nation and CNL and open to all. Representatives from CNL (in particular, a Communications Officer, Indigenous Engagement Coordinator, and ERM Stakeholder Relations, the Manager of ERM Licensing Support, the Manager of ERM Stakeholder Relations, NPD Regulatory Approvals, the Senior Advisor Indigenous Relations, and the Manager of Stakeholder and Indigenous Engagement) AECL (including the Manager of Engagement and Communications) and WTFN communities, (including, Mississaugas of Scugog Island First Nation Consultation Specialist, Georgina Island Invasive Species Coordinator, Hiawatha and Curve Lake First Nation Consultant, Curve Lake First Nation Elder, Three Fires Consulting, Hiawatha Lands and Resource Coordinator). CNL and WTFN discussed NPD project update, May 2023 in-person meeting, CNL Public disclosures, and the program for Engagement with Indigenous Nations, communities and organizations.										√
March 09, 2023 Outgoing email	This email from CNL Senior Communications Officer to MSIFN's Consultation Specialist to confirm the interest in hosting the 2023 May 31 meeting in the community. MSIFN's Consultation Specialist confirmed receipt of the email and will get back to CNL after an internal discussion.										√
March 14, 2023 Outgoing email	This email from CNL Senior Communications Officer to MSIFN's Consultation Specialist with CNL's Indigenous Relations Procurement Strategy.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
March 29, 2023 Virtual Meeting	This was the 16th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. This meeting was between CNL representatives (including Communications Officers, the Indigenous engagement coordinator, the Manager of Supply Chain, the Manager of ERM Licensing Support, Manager of ERM Stakeholder Relations, the Manager of NPD Regulatory Approvals, the Senior Advisor Indigenous Relations) AECL (including the Manager of Engagement and Communications) and WTFN communities, (including, Georgina Island First Nation Invasive Species Coordinator, MSIFN's Consultation Specialist, Hiawatha and Curve Lake First Nation Consultant, and Curve Lake Elder. CNL and the WTFN discussed CNL's Indigenous Procurement Strategy.										√
April 11, 2023 Outgoing email	This email from CNL Senior Communications Officer to MSIFN's Consultation Specialist with the agenda and presentation from the monthly meeting held on 2023 March 29. CNL also looked to confirm the dates of the 2023 April 26 monthly meeting.										√
May 04 2023 Outgoing email	Email from a CNL Senior Communications Officer to Scugog Island FN to discuss the logistics of the 2023 June in-person meeting. Scugog confirmed that 2023 June 15 works for an in-person community.										√
May 31, 2023 Incoming email	Email from MSIFN to a CNL Senior Communications Officer is to inform CNL that Scugog Island FN will not be present at the 2023 May 31 CNL/WTFN monthly meeting as they are at a conference in Ottawa.										√
May 31, 2023 Meeting	This was the 17th of the monthly meetings between CNL (Including, CNL Communications Officer, Indigenous Engagement Coordinator, Manager, ERM Licensing Support, Administrative Assistant, Manager NPD Regulatory Approvals, and Senior Advisor Indigenous Relations) and the WTFN communities (including Consultant, CLFN and HFN, Rama FN, Community Consultation, Alderville Consultation Coordinator, Mississaugas Scugog Island First Nation Community Consultation, Curve Lake First Nation, Acting Consultation lead, Hiawatha lands and resource consultation, coordinated between Curve Lake FN and CNL and open to all. CNL reminded communities it was seeking validation of the I&C tables, extended the invitation to attending the Swift Count night and provided an update on the restoration plan timing for feedback.						√			√	√
June 28, 2023 Meeting	This was the 18th of the monthly meetings between CNL (Including, CNL Communications Officer, Indigenous Engagement Coordinator, Manager, ERM Licensing Support, Administrative Assistant, Manager NPD Regulatory Approvals, and Senior Advisor Indigenous Relations) and the WTFN communities (including Consultant, CLFN and HFN, Rama FN, Community Consultation, Alderville Consultation Coordinator, Mississauga's Scugog Island First Nation Community Consultation, Curve Lake First Nation, Acting Consultation lead, Hiawatha lands and resource consultation, coordinated between Curve Lake FN and CNL and open to all. The focus of this meeting was NSDF, PHAI, and NPD Project updates.										√
July 11, 2023 Outgoing Email	This email from CNL Communications Officer to all CLFN communities is to request confirmation of attendance at the 2023 July monthly meeting being held in person in Hiawatha. Communities confirmed their attendance.										√
July 11, 2023 Incoming Email	This email from MSIFN to CNL Manager Communications and Engagement is to request clarification on funding for the 2023 July in-person WTFN monthly meeting being held in Hiawatha. CNL provide a response.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 17, 2023 Incoming Email	This email from MSIFN to CNL Communications Officer is to provide attendance numbers for the 2023 July in-person WTFN monthly meeting. CNL confirmed receipt of the email.										√
July 19, 2023 Outgoing Email	This email from CNL Communications officer to Scugog is to confirm logistics and final attendance for the 2023 July 24 in person meeting being held in Hiawatha FN.										√
July 26, 2023 Meeting	This was the 19th of the monthly meetings held in person in Hiawatha between CNL (Including, Director of Engagement and Communications, Manager NPD Regulatory Approvals, Manager of Stakeholder and Indigenous Communications, Communications Officers, Indigenous Engagement Coordinator, Project Manager, and Project Coordinator) and the WTFN communities (including, CLFN Consultant, CLFN and Hiawatha FN, Rama FN, Community Consultation, Rama Acting Consultation lead, CLFN, Elder, CNLFN Consultant, Consultant, CLFN and HFN, Executive Director, MSIFN Staff, MSIFN Student, MSIFN Consultation Department), coordinated between Curve Lake FN and CNL and open to all. The meeting included a tour of Serpent Mounds, a working lunch and a monthly meeting. Topics of discussion included Project updates- NSDF, NPD, and PHAI.										√
July 27, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with the action list from the 2023 July 26 in person meeting.										√
October 25, 2023 Outgoing Email	This was the 20th of the monthly meetings between CNL (Including, Director and Manager of Communications and Engagement, Indigenous Engagement Coordinator, Communications Officers, HWP Manager of Indigenous Relations Communications, Environmental and decommissioning specialist), AECL (including the Director of AECL GO-CO Procurement Process) and the WTFN communities (including, Acting Consultation lead from CLFN, Consultant, Consultation Liaison for Beausoleil First Nation, Consultation Coordinator for Alderville First Nation, Hiawatha First Nations Lands and Conservation Officer, and Consultation Advisor for Scugog First Nation) coordinated between Curve Lake FN and CNL and open to all. This meeting was to discuss CNL Updates, WTFN updates, the Indigenous Relations Procurement Strategy, the GO-CO Procurement process and the format of WTFN monthly meetings.										√
October 26, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with the action list from the 2023 October 26 WTFN Monthly meeting.										√
November 01, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to all WTFN is to follow-up from the 2023 October monthly meeting. CNL noted for those who were unable to attend the meeting, an agenda item was tabled for discussion to move our monthly information sharing meeting to a quarterly meeting instead. The discussion result was an agreement (with those in attendance) to change to a quarterly meeting update if WTFN communities still received project updates/ milestones and/ or news in between meetings. I encourage you to provide feedback on this change. CNL also shared the GO-CO model presentation.										√
November 27, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to all WTFN is to follow-up from the 2023 November 01 email to all WTFN communities to confirm that the 2023 November 30 WTFN monthly meeting has been cancelled, and that the monthly meeting has been changed to a quarterly meeting series. The monthly meeting series has been cancelled. A quarterly meeting series has been setup, and the next meeting is on Wednesday, January 31, 2024.										√

Table C-24 Record of Engagement with Chippewas of Rama First Nation

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Chippewas of Rama First Nation (FN) Chief introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5(1)(c), the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	
October 24, 2016 Outgoing telephone call	This telephone call from a communications officer with CNL to representatives of the Chippewas of Rama FN was to follow up on the July letter.				√	√				√	
November 10, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Chippewas of Rama FN Chief inquired about asserted rights and traditional activities in the region around CRL. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested a better understanding of Rama FN's historic and/or modern day use of lands in and/or near both of the projects and asked the following questions: • *Do the Chippewas of Rama First Nation have traditional territory or reserve lands near the NSDF and/or NPD Closure Project?* • *What is the history of the Chippewas of Rama First Nation using the areas around the two projects?* • *Do you have any members of the Chippewas of Rama First Nation that currently live in close or reasonable proximity to either of the projects?* • *Do the Chippewas of Rama First Nation have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects?* • *Do the Chippewas of Rama First Nation, or any members, have sites of ceremonial significance in close proximity to either of the two sites, or more generally, any cultural activities near either of the two sites?* CNL also indicated interested in learning more about the FN and any asserted rights, interests or activities members might undertake in the local or regional areas in proximity to the project.				√	√				√	
November 16, 2016 Incoming email	This email from the Chippewas of Rama FN community consultation coordinator to a communications officer with CNL acknowledged the previous letters and stated that the information had been sent to the Williams Treaties First Nations (WTFN) Process Coordinator. This email included contact details for the WTFN Process Coordinator.										√
November 15, 2017 Outgoing email	This email from a communications officer with CNL to the Chippewas of Rama FN Chief enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and environmental assessment, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	
November 17, 2017 Outgoing email	This email from a communications officer with CNL to the Chippewas of Rama FN Chief enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: "CNL would be pleased to update information in this current draft with input from your community."	√	√	√	√	√	√	√	√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
April 09, 2020 Outgoing email	This email from CNL communications officer to representatives of the different WTFN communities (including the Chippewas of Rama FN community consultation coordinator) was to propose a virtual webinar meeting on the NPD Closure Project and the NSDF Project.										√
April 17, 2020 Outgoing email	This email from CNL communications officer to representatives of the different WTFN communities (including the Chippewas of Rama FN community consultation coordinator) was to confirm the webinar, as well as offer to test the virtual meeting platform.										√
April 29, 2020 Outgoing email	This email from CNL communications officer to representatives of the different WTFN communities (including the Chippewas of Rama FN community consultation coordinator) enclosed a copy of the overview presentations for the webinars.										√
May 04, 2020 Outgoing email	This email from CNL communications officer to representatives of the different WTFN communities (including the Chippewas of Rama FN community consultation coordinator) enclosed an action list.										√
May 05, 2020 Outgoing email	This email from a CNL communications officer to the Chippewas of Rama Community Consultation Worker was to inquire whether there was interest from Chippewas of Rama FN in attending the WTFN virtual webinar meetings hosted by CNL for the NSDF and NPD Closure Project.										√
May 06, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Chippewas of Rama FN Chief enclosed a preliminary version of the 2020 EIS and an updated IER. This letter also asked for feedback in the following seven areas: • *Does Chippewas of Rama First Nation have additional information that they would like to provide in the context of traditional territory near the NPD site?* • *Does Chippewas of Rama First Nation have any members who currently live close or in reasonable proximity to the NPD site?* • *Does Chippewas of Rama First Nation have historical and/or current traditional practices near the NPD site, specifically we are interested in members' traditional uses such as trapping (traditional or commercial), hunting, fishing (traditional or commercial), gathering and practicing cultural ceremonies?* • *Does Chippewas of Rama First Nation have sites of ceremonial significance in close proximity or more generally any cultural activities near the NPD site?* • *Tell us about any important resources, uses, activities, values and interests to Chippewas of Rama First Nation near the NPD site.* • *If there is use in close proximity to the NPD site, is current community use different than historic use and can a description of those difference be provided?* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights.* This letter also indicated an interest in meeting with Chippewas of Rama to discuss any interests or concerns.	√	√	√	√	√	√	√	√	√	

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 12, 2020 Outgoing email	This email a CNL communications officer to the Chippewas of Rama Community Consultation Worker was to inquire whether there was any interest in Chippewas of Rama FN attending the WTFN webinar meetings hosted by CNL on the NPD Closure Project and NSDF Project.										√
May 14, 2020 Outgoing email	This email from CNL communications officer to representatives of the different WTFN communities (including the Chippewas of Rama FN community consultation coordinator) was to confirm the virtual webinar meeting date of May 19.										√
May 26, 2020 Outgoing email	This email from CNL communications staff to the Chippewas of Rama FN Chief was to follow-up on the registered letter sent on May 06.										√
May 26, 2020 Outgoing email	This email from CNL communications officer to representatives of the different WTFN communities (including the Chippewas of Rama FN community consultation coordinator) enclosed the follow-up information responding to all questions from the meeting on May 19.	√			√					√	
July 27, 2020 Outgoing email	This email from CNL communications officer to representatives of the different WTFN communities (including the Chippewas of Rama FN community consultation coordinator) enclosed the presentation from the May meeting.	√		√	√		√	√	√	√	
October 08, 2020 Incoming email	This email from the Community Consultation Worker for Chippewas of Rama FN to a CNL communications officer provided information on the new Chief for the Chippewas of Rama FN and inquired whether there was ongoing engagement with the WTFN and confirmed they were consulting the CNSC. This email also indicated an interest in continuing to receive project updates.										√
October 08, 2020 Outgoing email	This email from a communications officer with CNL to the Community Consultation Worker for Rama FN confirmed that CNL also was in communication with, and provided updates, to the CNSC.										√
October 26, 2020 Outgoing letter	This letter from CNL's Manager of ERM Stakeholder Relations to the Chippewas of Rama FN Chief was to congratulate the newly elected Chief and express appreciation for the representatives of the Chippewas of Rama FN participation in recent engagements related to other CNL projects.										√
February 12, 2021 Outgoing email	This email from CNL communications officer to representatives of the different WTFN communities (including the Chippewas of Rama FN community consultation coordinator) was an invitation to join Curve Lake First Nation's request of a monthly update on Canadian Nuclear Laboratories (CNL) environmental remediation projects, such as the NSDF Project and NPD Closure Project, as well as Port Hope Area Initiative (PHAI) activities in Port Hope and Port Granby. The monthly meeting will take place the last Wednesday of each month starting March 2021.									√	
April 4, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
April 12, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Chippewas of Rama FN Chief enclosed a preliminary list of commitments and indicated interest in meeting to discuss.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 28, 2021 Virtual meeting	This was the second of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Stakeholder and Indigenous Relations with PHAI and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands and Resources Consultation Officer, a consultant and the Lands and Resource Administrative Support Worker), Hiawatha FN (including two community consultation coordinators), Alderville FN (including the Lands and Resources Communications Officer), Rama FN (including the community consultation coordinator) and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was an overview on the NPD Closure Project, the NSDF Project and the PHAI.			√	√						√
May 26, 2021 Virtual meeting	This was the third of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Stakeholder and Indigenous Relations with PHAI, an environmental specialist with the NPD Closure Project and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands and Resources Consultation Officer, a consultant and the Lands and Resource Administrative Support Worker), Hiawatha FN (including two community consultation coordinators), Rama FN (including the community consultation coordinator) and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was an overview of biodiversity at CNL and included an update on the EA process for NPD.										√
June 15, 2021 Outgoing email	This email from a communications officer with CNL to Chippewas of Rama First FN's Lands and Resources Communications Officer was to follow-up on the April letter.										√
July 6, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
August 26, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
November 1, 2021 Outgoing email	This email from a CNL Senior Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
February 21, 2022 Meeting invitation	Meeting invitation sent from a CNL Senior Communications Officer to WTFN for the monthly update and information sharing with WTFN.										√
April 18, 2022 Outgoing email	Email invitation to Chippewas of Rama FN to the CNL Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.										√
April 25, 2022 Outgoing email	Email invitation to the April 27, 2022 Williams Treaties First Nations monthly meeting. The agenda items included the following on the NPD project: • NPD Project Updates; • NPD Draft EAFMP.								√		

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 06, 2022 Outgoing email	Email invitation to Chippewas of Rama FN to the CNL Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.										√
June 06, 2022 Outgoing email	This email from a Senior Advisor of Indigenous Relations at CNL to the WTFN communities sent a proposed agenda for the tenth monthly meeting planned for June 29, 2022. The meeting is planning to be held in-person at the Port Hope Area Initiative office. On the proposed agenda the NPD Project staff will provide an update on the project.										√
June 22, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the WTFN communities provided an updated agenda for the June 29, 2022 monthly meeting. A NPD Project update was included as an agenda item.										√
July 14, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant proposed dates for a tour of the NSDF and NPD Facility. CNL proposed an online poll and asked for any additional dates needed. Curve Lake FN's Consultant replied and will provide alternative dates.										√
July 25, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN Communities sharing the agenda for the 11th monthly meeting on July 27, 2022. The agenda included a NPD project update.										√
July 27, 2022 Virtual meeting	This was the 11th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant) and Rama First Nation (including a consultation workers) were in attendance. CNL shared an update on the NPD Closure Project.										√
August 22, 2022 Outgoing/Incoming emails	Emails from a CNL Senior Communications Officer to WTFN consultation representatives coordinating dates for the tour of the NSDF and NPD Facility.										√
September 16, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN consultation representatives to save the date for the WTFN tour of Chalk River Laboratories on October 25 and 26, 2022 (including the proposed NSDF site and NPD site).										√
September 21, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant sharing for review the proposed agenda or the 12th monthly meeting on September 28, 2022. The agenda included a NPD project update. Curve Lake FN accepted the agenda.										√
October 03, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN communities sharing the agenda for the October 25 and 26, 2022 tour of Chalk River Laboratories (including the proposed NSDF site and NPD site). CNL also sent information about required PPE and the link to register for the tour.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 03, 2022 Outgoing Letter	This letter addressed to Chippewas of Rama First Nation Chief from CNL's Director of Indigenous Relations provided a project update and the engagement status with Chippewas of Rama First Nation. CNL stated it is committed to incorporating Chippewas of Rama's interests and concerns into the EIS. CNL provided an engagement status and next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for Chippewas of Rama First Nation's review. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that Chippewas of Rama First Nation respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.									√	
October 07, 2022 Incoming email	This email from Chippewas of Rama First Nation legal counsel to a CNL Senior Communications Officer confirmed receipt of the October 03, 2022 letter and commitment to continuing with engagement. Chippewas of Rama FN request a meeting to discuss the letter. Chippewas of Rama FN also noted the change in point of contact for CNL. CNL coordinated a meeting date.									√	√
October 07, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the Chippewas of Rama First Nation legal counsel shared the invitation to the October 26, 2022 WTFN tour of the NPD site.										√
October 12, 2022 Incoming email	This email from Chippewas of Rama First Nation Councillor to a CNL Senior Communications Officer requested to attend the October 26, 2022 WTFN tour of the NPD site.										√
October 12, 2022 Outgoing email	This email from a CNL Senior Communications Officer to a Chippewas of Rama First Nation Councillor provided logistical support to attend the October 26, 2022 WTFN tour of the NPD site.										√
October 26, 2022 Tour	WTFN communities were invite to tour the NPD facility as part of a two day visit to the Chalk River Laboratories site and area. Representatives from CNL (in particular, NPD Project staff, communications officers, ERM Stakeholder Relations Manager, Director of Indigenous Relations) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including Lands and Resource consultation coordinator), Scugog Island (including a consultation coordinator), Chippewas of Rama First Nation (including a councillor) and AECL (including the Director of Decommissioning and Waste Management Programme) took part in a reactor tour and site walk. The day include a smudging ceremony by the Ottawa River and relationship building.										√
November 01, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities thanked the participants of the October 25 and 26, 2022 tour. As requested over the days CNL sent the archaeological assessments for the NPD site and photos from the tour.										√
November 02, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the Chippewas of Rama First Nation legal counsel proposed an agenda for the upcoming meeting to introduce CNL's different projects.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 09, 2022 Virtual Meeting	Meeting between Representatives from CNL (in particular, NPD Project staff, communications officers, ERM Stakeholder Relations Manager, Director of Indigenous Relations) and Chippewas of Rama First Nation (including legal counsel) to discuss CNL projects.										√
November 15, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities cancelled the December monthly meeting.										√
January 20, 2023 Outgoing email	This email from a CNL Communications Officer to Rama First Nation's Legal Counsel to inform of the decision to postpone the submission of the NPD Closure Project's draft Environmental Impact Statement (EIS) until May 2023 to allow for additional Indigenous input. CNL proposed the next step would be to continue working together to finalize the commitments between Rama First Nation and CNL to ensure that the Chippewas of Rama First Nation's interests and concerns are reflected in the EIS.										√
March 14, 2023 Outgoing email	This email from a CNL Senior Communications Officer to WTFN with CNL's Indigenous Relations Procurement Strategy.										√
March 29, 2023 Virtual Meeting	This was the 16th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. This meeting was between CNL representatives (including Communications Officers, the Indigenous engagement coordinator, the Manager of Supply Chain, the Manager of ERM Licensing Support, Man the Manager of ERM Stakeholder Relations, the Manager of NPD Regulatory Approvals, the Senior Advisor Indigenous Relations) AECL (including the Manager of Engagement and Communications) and WTFN communities, (including, Georgina Island First Nation Invasive Species Coordinator, Mississaugas of Scugog Island First Nation Consultant Specialist, Hiawatha and Curve Lake First Nation Consultant, and Curve Lake Elder. CNL and the WTFN discussed CNL's Indigenous Procurement Strategy.										√
April 06, 2023 Outgoing email	This email from CNL Communications Officer to Rama First Nation's Consultation Worker with suggested next steps to finalize the commitments between CNL and the Mississauga's of Scugog Island FN to ensure that all interests and concerns are addressed and tracked to resolution.										√
April 11, 2023 Outgoing email	This email from CNL Senior Communications Officer to WTFN with the agenda and presentation from the monthly meeting held on 2023 March 29. CNL also looked to confirm the dates of the 2023 April 26 monthly meeting.										√
April 19, 2023 Emails	This email from Communications Officer and Rama First Nation Legal Counsel and Rama First Nation Community Consultation Worker to confirm a date for CNL to present on the NPD closure project. CNL and Rama FN agreed to meet for an initial NPD update meeting on 2023 April 25.										√
April 25, 2023 Virtual Meeting	This meeting was between CNL (including Communications Officers and the Manager of Regulatory Approvals for the NPD Project) and Rama First Nation (including Legal Counsel and Consultation Worker). CNL gave an introduction presentation to Rama First Nation, followed by a question-and-answer session. CNL and Rama First Nation reviewed the Commitments list.										√
May 02, 2023 Outgoing email	This email from a Communications Officer to the Rama First Nation Legal Counsel and Rama First Nation Community Consultation Worker shared action items from the NPD meeting held between CNL and Rama FN on 2023 April.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 16, 2023 Outgoing email	This email from CNL Communications Officer to RFN provided the update Table of Interests and Concerns. CNL is seeking validation. CNL respectfully requested RFN's response by 2023 June 20.									√	
May 25, 2023 Incoming	This email from RFN to a CNL Communications Officer requested updates to the Table of Interest and Concerns related to long term safety									√	
May 29, 2023 Outgoing email	This email from CNL Communications Officer to RFN provided the updated Table of Interest and Concerns. CNL added a new topic Long-term Safety to address the concern about the long-term integrity of the concrete cap and engineered barrier. CNL requested feedback on the edit.									√	
May 31, 2023 Meeting	This was the 17th of the monthly meetings between CNL (Including, CNL Communications Officer, Indigenous Engagement Coordinator, Manager, ERM Licensing Support, Administrative Assistant, Manager NPD Regulatory Approvals, and Senior Advisor Indigenous Relations) and the WTFN communities (including Consultant, CLFN and HFN, Rama FN, Community Consultation, Alderville Consultation Coordinator, Mississaugas Scugog Island First Nation Community Consultation, Curve Lake First Nation, Acting Consultation lead, Hiawatha lands and resource consultation, coordinated between Curve Lake FN and CNL and open to all. CNL reminded communities it was seeking validation of the I&C tables, extended the invitation to attending the Swift Count night and provided an update on the restoration plan timing for feedback.						√			√	√
June 07, 2023 Incoming email	This email from RFN to a CNL Communications Officer provided validation of the updated Table of Interest and Concerns.									√	
June 09, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with an updated actions list from the 2023 May 31 Monthly Meeting.										√
June 28, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with an updated actions list from the 2023 June 28 Monthly Meeting.										√
June 28, 2023 Meeting	This was the 18th of the monthly meetings between CNL (Including, CNL Communications Officer, Indigenous Engagement Coordinator, Manager, ERM Licensing Support, Administrative Assistant, Manager NPD Regulatory Approvals, and Senior Advisor Indigenous Relations, Manager, Environmental Management, Decommissioning and Environmental Specialist, and Project Manager) AECL (Directory of Communications and Government Relations) and the WTFN communities (including Consultant, CLFN and HFN, Rama FN, Community Consultation, Mississauga Scugog Island First Nation Community Consultation, Curve Lake First Nation, Acting Consultation lead) coordinated between Curve Lake FN and CNL and open to all. The focus of this meeting was to discuss NPD, PHAI, NSDF updates.										√
July 11, 2023 Outgoing Email	This email from CNL Communications Officer to all WTFN communities is to request confirmation of attendance at the 2023 July monthly meeting being held in person in Hiawatha. Communities confirmed their attendance.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 26, 2023 Meeting	This was the 19th of the monthly meetings held in person in Hiawatha between CNL (Including, Director of Engagement and Communications, Manager NPD Regulatory Approvals, Manager of Stakeholder and Indigenous Communications, Communications Officers, Indigenous Engagement Coordinator, Project Manager, and Project Coordinator) and the WTFN communities (including, CLFN Consultant, CLFN and Hiawatha FN, Rama FN, Community Consultation, Rama Acting Consultation lead, CLFN, Elder, CNLFN Consultant, Consultant, CLFN and HFN, Executive Director, MSIFN Staff, MSIFN Student, MSIFN Consultation Department), coordinated between Curve Lake FN and CNL and open to all. The meeting included a tour of Serpent Mounds, a working lunch and a monthly meeting. Topics of discussion included Project updates- NSDF, NPD, and PHAI.									√
July 27, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with the action list from the 2023 July 26 in person meeting.										√
October 26, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with the action list from the 2023 October 26 WTFN Monthly meeting.										√
November 01, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to all WTFN is to follow-up from the 2023 October monthly meeting. CNL noted for those who were unable to attend the meeting, an agenda item was tabled for discussion to move our monthly information sharing meeting to a quarterly meeting instead. The discussion result was an agreement (with those in attendance) to change to a quarterly meeting update if WTFN communities still received project updates/ milestones and/ or news in between meetings. I encourage you to provide feedback on this change. CNL also shared the GO-CO model presentation.										√
November 23, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to all WTFN is to follow-up from the 2023 November 01 email to all WTFN communities to confirm that the 2023 November 30 WTFN monthly meeting has been cancelled, and that the monthly meeting has been changed to a quarterly meeting series. The monthly meeting series has been cancelled. A quarterly meeting series has been setup, and the next meeting is on Wednesday, January 31, 2024.										√

Table C-25 Record of Engagement with Chippewas of Georgina Island First Nation

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Georgina Island First Nation (FN) Chief introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5(1)(c), the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* • *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	
October 24, 2016 Outgoing telephone call	A CNL communications officer called Georgina Island FN to follow-up on the July letter.										√
November 10, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Georgina Island FN Chief inquired about asserted rights and traditional activities in the region around CRL. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested a better understanding of Georgina Island FN's historic and/or modern day use of lands in and/or near both of the projects and asked the following questions: • *Does Georgina Island First Nation have traditional territory or reserve lands near the NSDF and/or NPD Closure Project?* • *What is the history of Georgina Island First Nation using the areas around the two projects?* • *Do you have any members of Georgina Island First Nation that currently live in close or reasonable proximity to either of the projects?* • *Does Georgina Island First Nation have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects?* • *Does Georgina Island First Nation, or any members, have sites of ceremonial significance in close proximity to either of the two sites, or more generally, any cultural activities near either of the two sites?* CNL also indicated interested in learning more about the FN and any asserted rights, interests or activities members might undertake in the local or regional areas in proximity to the project.				√	√				√	
November 15, 2017 Outgoing email	This email from a communications officer with CNL to the Georgina Island FN Chief enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and environmental assessment, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 17, 2017 Outgoing email	This email from a communications officer with CNL to the Georgina Island FN Chief enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: "*CNL would be pleased to update information in this current draft with input from your community.*"	√	√	√	√	√	√	√	√	√	
In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
April 09, 2020 Outgoing email	This email from a communications officer with CNL to representatives of the WTFN (including the Consultation Coordinator with Georgina Island FN) was to propose a virtual webinar meeting on the NPD Closure Project and the NSDF Project.										√
April 09, 2020 Incoming email	This email from Georgina Island FN's Consultation Coordinator to a communications officer with CNL was to confirm attendance and date preference for the webinar.										√
May 04, 2020 Outgoing email	This email from a communications officer with CNL to representatives of the WTFN (including the Consultation Coordinator with Georgina Island FN) enclosed an action list.										√
May 05, 2020 Outgoing email	This email from a CNL communications officer to the Georgina Island FN's Community Consultation Coordinator was to follow-up on previous correspondence and propose a virtual meeting in May, focused on the NPD Closure Project.										√
May 06, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Georgina Island FN Chief enclosed a preliminary version of the 2020 EIS and an updated IER. This letter also asked for feedback in the following seven areas: • *Does Georgina Island First Nation have additional information that they would like to provide in the context of traditional territory near the NPD site?* • *Does Georgina Island First Nation have any members who currently live close or in reasonable proximity to the NPD site?* • *Does Georgina Island First Nation have historical and/or current traditional practices near the NPD site, specifically we are interested in members' traditional uses such as trapping (traditional or commercial), hunting, fishing (traditional or commercial), gathering and practicing cultural ceremonies?* • *Does Georgina Island First Nation have sites of ceremonial significance in close proximity or more generally any cultural activities near the NPD site?* • *Tell us about any important resources, uses, activities, values and interests to Georgina Island First Nation near the NPD site.* • *If there is use in close proximity to the NPD site, is current community use different than historic use and can a description of those difference be provided?* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights.* This letter also indicated an interest in meeting with Georgina Island FN to discuss any interests or concerns.	√	√	√	√	√	√	√	√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 19, 2020 Virtual meeting	This meeting between four representatives of different WTFN communities (specifically, Hiawatha FN's Land and Resources consultation workers, Alderville FN's lands and community engagement officer, Curve Lake FN's lands and resources consultation officer and Georgina Island FN's consultation coordinator attended) and six CNL representatives (including the Manager of Stakeholder Relations, the Manager of Regulatory Approvals for the NPD Closure Project and communications officers with CNL) included an interactive webinar overview presentation on the project with the opportunity for questions. Specific topics discussed included the following: • Project overview and components; • Timeline; • Waste inventory; • Monitoring; • VCs; • Species at risk; • Traditional land and resource use; • Effects on the environment.	√		√	√		√	√	√	√	
May 26, 2020 Outgoing email	This email from a communications officer with CNL to representatives of the WTFN (including the Consultation Coordinator with Georgina Island FN) enclosed the follow-up information responding to all questions from the meeting on May 19, including the Georgina Island FN representative's questions (topics listed above). Three ACMRs and the archaeological assessment were enclosed to support CNL's response.	√			√					√	
February 12, 2021 Outgoing email	This email from CNL staff to WTFN communities (including Georgina Island FN representatives) was an invitation to join Curve Lake First Nation's request of a monthly update on Canadian Nuclear Laboratories (CNL) environmental remediation projects, such as the NSDF Project and NPD Closure Project, as well as Port Hope Area Initiative (PHAI) activities in Port Hope and Port Granby. The monthly meeting will take place the last Wednesday of each month starting March 2021.									√	
April 4, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
April 12, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Georgina Island FN Chief enclosed a preliminary list of commitments and indicated interest in meeting to discuss.										√
June 15, 2021 Outgoing email	This email from a communications officer with CNL to Georgina Island FN Consultation Coordinator was to follow-up on the April letter.										√
July 6, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
August 26, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 1, 2021 Outgoing email	This email from a CNL Senior Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
April 18, 2022 Outgoing email	Email invitation to Georgina Island First Nation to the CNL Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.										√
April 25, 2022 Outgoing email	Email invitation to the April 27, 2022 Williams Treaties First Nations monthly meeting. The agenda items included the following on the NPD project: • NPD Project Updates; • NPD Draft EAFMP.								√		
April 27 , 2022 Virtual Meeting	This was the ninth of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer and ERM Stakeholder Relations Manager) Curve Lake FN (including the Lands and Resources Consultation Officer, consultants and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Scugog Island (including a consultant), Chippewas of Georgina Island First Nation (Invasive Species coordinator) and AECL (including the Manager of Engagement and Communications) were in attendance. The focus was a discussion on the NSDF Project. CNL also shared an update on the NPD Closure Project.								√		√
April 28, 2022 Outgoing email	This email from a CNL Senior Advisor of Indigenous Relations to the WTFN communities attached the presentation from the April 27, 2022 monthly meeting. CNL invited WTFN communities to the Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.								√		
May 06, 2022 Outgoing email	Email invitation to Georgina Island First Nation to the CNL Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.										√
May 13, 2022 Outgoing email	This email from ERM Stakeholder Relations to the WTFN communities provided a response to technical questions asked at the April 27, 2022 monthly meeting. Q1: Please provide a breakdown of how much tritium in the Ottawa River is naturally occurring versus anthropogenic (e.g. from weapons testing in the 1960s), including a graph showing the peak of tritium from weapons testing. Q2: Please provide further information on stack contamination and the remedial actions planned at the base of the stack, with respect to potential impacts on Chimney Swifts.								√		
June 06, 2022 Outgoing email	This email from a Senior Advisor of Indigenous Relations at CNL to the WTFN communities sent a proposed agenda for the tenth monthly meeting planned for June 29, 2022. The meeting is planning to be held in-person at the Port Hope Area Initiative office. On the proposed agenda the NPD Project staff will provide an update on the project.										√
June 22, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the WTFN communities provided an updated agenda for the June 29, 2022 monthly meeting. A NPD Project update was included as an agenda item.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 14, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant proposed dates for a tour of the NSDF and NPD Facility. CNL proposed an online poll and asked for any additional dates needed. Curve Lake FN's Consultant replied and will provide alternative dates.										√
July 25, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN Communities sharing the agenda for the 11th monthly meeting on July 27, 2022. The agenda included a NPD project update.										√
August 22, 2022 Outgoing/Incoming emails	Emails from a CNL Senior Communications Officer to WTFN consultation representatives coordinating dates for the tour of the NSDF and NPD Facility.										√
September 16, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN consultation representatives to save the date for the WTFN tour of Chalk River Laboratories on October 25 and 26, 2022 (including the proposed NSDF site and NPD site).										√
September 21, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant sharing for review the proposed agenda or the 12th monthly meeting on September 28, 2022. The agenda included a NPD project update. Curve Lake FN accepted the agenda.										√
September 26, 2022 Outgoing email	Email from a Senior Communications Officer to WTFN communities sharing the agenda for the September 28 working group meeting. The agenda included an update on the NPD project.										√
October 01, 2022 Outgoing email	Email from a Senior Communications Officer to WTFN communities sharing the agenda and presentation from the September 28, 2022 monthly meeting. Related to the presentation content, CNL have also attached a CNSC infographic that provides a description of the classes of radioactive waste.										√
October 05, 2022 Outgoing Letter	This letter addressed to Georgina Island First Nation's Chief from CNL's Director of Indigenous Relations provided a project update and the engagement status with GIFN. CNL stated it is committed to incorporating Georgina Island's interests and concerns into the EIS. CNL provided an engagement status and next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for GIFN's review. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that GIFN respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.									√	√
October 03, 2022 Outgoing email	Email from a Senior Communications Officer to WTFN communities sharing the agenda for the October 25 and 26, 2022 tour of Chalk River Laboratories (including the proposed NSDF site and NPD site). CNL also sent information about required PPE and the link to register for the tour.										√
October 26, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Georgina Island First Nation's Chief following up on the October 03, 2022 letter.									√	
November 15, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities cancelled the December monthly meeting.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 26, 2022 Telephone call	This call from a CNL Senior Communications Officer to Georgina Island First Nation's Invasive Species Coordinator discussed the October 02, 2022 letter. CNL offered capacity for the review or a meeting and re-sent the invitation for the WTFN monthly meeting.									√	
November 26, 2022 Outgoing email	This email from a CNL Senior Communications Officer to Georgina Island First Nation's Invasive Species Coordinator shared the October 03, 2022 letter and follow-up email.									√	
November 26, 2022 Incoming email	This email from Georgina Island First Nation's Invasive Species Coordinator to a CNL Senior Communications Officer requested that CNL keep GIFN update about the project and declined to meet.									√	
November 28, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities sent the agenda for the November 30th, 2022 monthly meeting. The agenda included a NPD Project update, a discussion on 2023 engagement plans and a discussion on a year in review.										√
January 20, 2023 Outgoing email	Email from a CNL Communications Officer to Georgina Island First Nation's Invasive Species Coordinator to inform of the decision to postpone the submission of the NPD Closure Project's draft Environmental Impact Statement (EIS) until May 2023 to allow for additional Indigenous input. CNL proposed the next step would be to coordinate a meeting to discuss the NPD project.										√
January 30, 2023 Incoming email	This email from Georgina Island First Nation's Invasive Species Coordinator to a CNL Communications Officer questioning what concerns were raised to invoke the postponement of the submission date to May 2023.									√	√
January 30, 2023 Outgoing email	This email from a CNL Communications Officer to Georgina Island First Nation's Invasive Species Coordinator with more information on the postponement of the submission date to May 2023 with links to additional resources.										√
March 01, 2023 Virtual Meeting	This was the 15th of the monthly meetings between CNL and the Williams Treaties First Nations communities, coordinated between Curve Lake First Nation and CNL and open to all. Representatives from CNL (in particular, a Communications Officer, Indigenous Engagement Coordinator, and ERM Stakeholder Relations, the Manager of ERM Licensing Support, the Manager of ERM Stakeholder Relations, NPD Regulatory Approvals, the Senior Advisor Indigenous Relations, and the Manager of Stakeholder and Indigenous Engagement) AECL (including the Manager of Engagement and Communications) and WTFN communities, (including, Mississaugas of Scugog Island First Nation Consultation Specialist, Georgina Island Invasive Species Coordinator, Hiawatha and Curve Lake First Nation Consultant, Curve Lake First Nation Elder, Three Fires Consulting, Hiawatha Lands and Resource Coordinator). CNL and WTFN discussed NPD project update, May 2023 in-person meeting, CNL Public disclosures, and the program for Engagement with Indigenous Nations, communities and organizations.										√
March 14, 2023 Outgoing email	This email from CNL Senior Communications Officer to WTFN with CNL's Indigenous Relations Procurement Strategy.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
March 29, 2023 Virtual Meeting	This was the 16th of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. This meeting was between CNL representatives (including Communications Officers, the Indigenous engagement coordinator, the Manager of Supply Chain, the Manager of ERM Licensing Support, Man the Manager of ERM Stakeholder Relations, the Manager of NPD Regulatory Approvals, the Senior Advisor Indigenous Relations) AECL (including the Manager of Engagement and Communications) and WTFN communities, (including Georgina Island First Nation's Invasive Species Coordinator, Mississaugas of Scugog Island First Nation Consultation Specialist, Hiawatha and Curve Lake First Nation Consultant, and Curve Lake Elder. CNL and the WTFN discussed CNL's Indigenous Procurement Strategy.									√
April 06, 2023 Outgoing email	This email from a CNL Communications Officer to Georgina Island First Nation's Invasive Species Coordinator with suggested next steps to finalize the commitments between CNL and the Mississauga's of Mississaugas of Scugog Island First Nation to ensure that all interests and concerns are addressed and tracked to resolution.										√
April 11, 2023 Outgoing email	This email from CNL Senior Communications Officer to WTFN with the agenda and presentation from the monthly meeting held on 2023 March 29. CNL also looked to confirm the dates of the 2023 April 26 monthly meeting.										√
June 09, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with an updated actions list from the 2023 May 31 Monthly Meeting.										√
June 28, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with an updated actions list from the 2023 June 28 Monthly Meeting.										√
July 11, 2023 Outgoing Email	This email from CNL Communications Officer to all WTFN communities is to request confirmation of attendance at the 2023 July monthly meeting being held in person in Hiawatha. Communities confirmed their attendance.										√
July 21, 2023 Outgoing Email	This email from CNL Communications Officer to all WTFN communities is to request confirmation of attendance at the 2023 July monthly meeting being held in person in Hiawatha. Communities confirmed their attendance.										√
July 27, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with the action list from the 2023 July 26 in person meeting.										√
October 26, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with the action list from the 2023 October 26 WTFN Monthly meeting.										√
November 01, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to all WTFN is to follow-up from the 2023 October monthly meeting. CNL noted for those who were unable to attend the meeting, an agenda item was tabled for discussion to move our monthly information sharing meeting to a quarterly meeting instead. The discussion result was an agreement (with those in attendance) to change to a quarterly meeting update if WTFN communities still received project updates/ milestones and/ or news in between meetings. I encourage you to provide feedback on this change. CNL also shared the GO-CO model presentation.										√
November 23, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to all WTFN is to follow-up from the 2023 November 01 email to all WTFN communities to confirm that the 2023 November 30 WTFN monthly meeting has been cancelled, and that the monthly meeting has been changed to a quarterly meeting series. The monthly meeting series has been cancelled. A quarterly meeting series has been setup, and the next meeting is on Wednesday, January 31, 2024.										√

Table C-26 Record of Engagement with Beausoleil First Nation

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Beausoleil First Nation (FN) Chief introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5(1)(c), the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* • *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	
November 10, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Beausoleil FN Chief inquired about asserted rights and traditional activities in the region around CRL. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested a better understanding of Beausoleil FN's historic and/or modern day use of lands in and/or near both of the projects and asked the following questions: • *Do the Beausoleil First Nation have traditional territory or reserve lands near the NSDF and/or NPD Closure Project?* • *What is the history of the Beausoleil First Nation using the areas around the two projects?* • *Do you have any members of the Beausoleil First Nation that currently live in close or reasonable proximity to either of the projects?* • *Do the Beausoleil First Nation have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects?* • *Do the Beausoleil First Nation, or any members, have sites of ceremonial significance in close proximity to either of the two sites, or more generally, any cultural activities near either of the two sites?* CNL also indicated interested in learning more about the FN and any asserted rights, interests or activities members might undertake in the local or regional areas in proximity to the project.				√	√				√	
November 15, 2017 Outgoing email	This email from a CNL communications officer to the Beausoleil FN Chief enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and environmental assessment, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	
November 17, 2017 Outgoing email	This email from a CNL communications officer to the Beausoleil FN Chief enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: *"CNL would be pleased to update information in this current draft with input from your community."*	√	√	√	√	√	√	√	√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
April 09, 2020 Outgoing email	This email from a CNL communications officer to representatives of the different WTFN communities (including the consultation coordinator for the Beausoleil FN) was to propose a virtual webinar meeting on the NPD Closure Project and the NSDF project.										√
April 17, 2020 Outgoing email	This email from a communications officer with CNL to the Consultation Coordinator for the Beausoleil FN was to follow-up on the previous invitations to the webinar meeting with CNL.										√
April 21, 2020 Incoming email	This email from the Beausoleil First Nation Consultation Coordinator to a communications officer with CNL was to confirm they would not be in attendance for the April webinar.										√
May 05, 2020 Outgoing email	This email from a CNL communications officer to the Beausoleil FN Consultation Coordinator was to inquire whether there was interest from Beausoleil FN in attending the WTFN virtual webinar meetings hosted by CNL for the NSDF and NPD Closure Project.										√
May 06, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Beausoleil FN Chief enclosed a preliminary version of the 2020 EIS and an updated IER. This letter also asked for feedback in the following seven areas: • *Does Beausoleil First Nation have additional information that they would like to provide in the context of traditional territory near the NPD site?* • *Does Beausoleil First Nation have any members who currently live close or in reasonable proximity to the NPD site?* • *Does Beausoleil First Nation have historical and/or current traditional practices near the NPD site, specifically we are interested in members' traditional uses such as trapping (traditional or commercial), hunting, fishing (traditional or commercial), gathering and practicing cultural ceremonies?* • *Does Beausoleil First Nation have sites of ceremonial significance in close proximity or more generally any cultural activities near the NPD site?* • *Tell us about any important resources, uses, activities, values and interests to Beausoleil First Nation near the NPD site.* • *If there is use in close proximity to the NPD site, is current community use different than historic use and can a description of those difference be provided?* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights.* This letter also indicated an interest in meeting with Beausoleil FN to discuss any interests or concerns.	√	√	√	√	√	√	√	√	√	
May 12, 2020 Outgoing email	This email from a communications officer with CNL to the Beausoleil FN Chief and Consultation Coordinator was to inquire whether there was any interest in Beausoleil FN attending the WTFN webinar meetings hosted by CNL on the NPD Closure Project and NSDF Project.									√	
May 26, 2020 Outgoing email	This email from a CNL communications officer to the Beausoleil FN Chief was to follow-up on the registered letter sent on May 06.									√	
May 26, 2020 Outgoing email	This email from a CNL communications officer to representatives of the WTFN communities (including the Beausoleil FN Consultation Coordinator) enclosed the follow-up information responding to all questions from the meeting on May 19.	√			√					√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 27, 2020 Outgoing email	This email from a CNL communications officer to representatives of the WTFN communities (including the Beausoleil FN Consultation Coordinator) enclosed the presentation from the previous meeting in May.	√		√	√		√	√	√	√	
February 12, 2021 Outgoing email	This email from a CNL communications officer to representatives of the WTFN communities (including the Beausoleil FN Consultation Coordinator) was an invitation to join Curve Lake First Nation's request of a monthly update on Canadian Nuclear Laboratories (CNL) environmental remediation projects, such as the NSDF Project and NPD Closure Project, as well as Port Hope Area Initiative (PHAI) activities in Port Hope and Port Granby. The monthly meeting will take place the last Wednesday of each month starting March 2021.									√	
April 4, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
April 12, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Beausoleil FN Chief enclosed a preliminary list of commitments and indicated interest in meeting to discuss.										√
June 15, 2021 Outgoing email	This email from a communications officer with CNL to Beausoleil Consultation Coordinator was to follow-up on the April letter.										√
July 6, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
August 25, 2021 Virtual Meeting	This was the six of the monthly meetings between CNL and the WTFN communities, coordinated between Curve Lake FN and CNL and open to all. Representatives from CNL (in particular, a communications officer, the Manager of Stakeholder and Indigenous Relations with PHAI and the Manager of Regulatory Approvals for the NPD Closure Project) Curve Lake FN (including the Lands and Resources Consultation Officer, a consultant and the Lands and Resource Administrative Support Worker), Hiawatha FN (including a community consultation coordinator), Beausoleil FN (including a consultation coordinator) and AECL (including the Director of Communications and Government Reporting) were in attendance. The focus was on Port Granby and a Project update was shared about the NPD Closure Project.										√
August 26, 2021 Incoming Email	This email from a Beausoleil FN consultant to a senior communications officer from CNL was to thank CNL for the latest virtual meeting and to inform CNL of new contact information for Beausoleil FN consultation moving forward, including the Chief of Beausoleil FN.										√
August 26, 2021 Outgoing email	This email from a CNL Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
November 1, 2021 Outgoing email	This email from a CNL Senior Communications Officer to all the representatives of the William Treaties First Nations communities enclosing the agenda and presentation from the most recent monthly meeting.										√
April 25, 2022 Outgoing email	Email invitation to the April 27, 2022 Williams Treaties First Nations monthly meeting. The agenda items included the following on the NPD project: • NPD Project Updates • NPD Draft EAFMP								√		

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 28, 2022 Outgoing email	This email from a CNL Senior Advisor of Indigenous Relations to the WTFN communities attached the presentation from the April 27, 2022 monthly meeting. CNL invited WTFN communities to the Industry Day at the Chalk River Laboratories on Thursday, June, 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.								√		
May 13, 2022 Outgoing email	This email from ERM Stakeholder Relations to the WTFN communities provided a response to technical questions asked at the April 27, 2022 monthly meeting. Q1: Please provide a breakdown of how much tritium in the Ottawa River is naturally occurring versus anthropogenic (e.g. from weapons testing in the 1960s), including a graph showing the peak of tritium from weapons testing. Q2: Please provide further information on stack contamination and the remedial actions planned at the base of the stack, with respect to potential impacts on Chimney Swifts.								√		
June 06, 2022 Outgoing email	This email from a Senior Advisor of Indigenous Relations at CNL to the WTFN communities sent a proposed agenda for the tenth monthly meeting planned for June 29, 2022. The meeting is planning to be held in-person at the Port Hope Area Initiative office. On the proposed agenda the NPD Project staff will provide an update on the project.										√
June 22, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the WTFN communities provided an updated agenda for the June 29, 2022 monthly meeting. A NPD Project update was included as an agenda item.										√
July 14, 2022 Outgoing email	Email from a CNL Senior Communications Officer to Curve Lake FN's Consultant proposed dates for a tour of the NSDF and NPD Facility. CNL proposed an online poll and asked for any additional dates needed. Curve Lake FN's Consultant replied and will provide alternative dates.										√
July 25, 2022 Outgoing email	Email from a CNL Senior Communications Officer to WTFN Communities sharing the agenda for the 11th monthly meeting on July 27, 2022. The agenda included a NPD project update.										√
August 22, 2022 Outgoing/Incoming emails	Emails from a CNL Senior Communications Officer to WTFN consultation representatives coordinating dates for the tour of the NSDF and NPD Facility.										√
September 26, 2022 Outgoing email	Email from a Senior Communications Officer to WTFN communities sharing the agenda for the September 28 working group meeting. The agenda included an update on the NPD project.										√
October 04, 2022 Outgoing Letter	This letter addressed to Beausoleil First Nation's Chief from CNL's Director of Indigenous Relations provided a project update and the engagement status with BFN. CNL stated it is committed to incorporating Beausoleil's interests and concerns into the EIS. CNL provided an engagement status and next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for Beausoleil First Nation's review. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that Beausoleil First Nation respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.									√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
October 26, 2022 Outgoing email	Email from a Senior Communications Officer to Beausoleil First Nation's Chief to follow-up on the October 4, 2022 letter.									√	
November 15, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities cancelled the December monthly meeting.										√
November 26, 2022 Outgoing email	Email from a Senior Communications Officer to the Beausoleil First Nation Consultation Coordinator to follow-up on the October 4, 2022 letter.									√	
November 26, 2022 Outgoing telephone call	Telephone call from a Senior Communications Officer to the Beausoleil First Nation Consultation Coordinator to discussed the October 4, 2022 letter. The Coordinator had not received the letter. CNL offer capacity for the review.									√	
November 28, 2022 Outgoing email	This email from a CNL Senior Communications Officer to WTFN communities sent the agenda for the November 30th, 2022 monthly meeting. The agenda included a NPD Project update, a discussion on 2023 engagement plans and a discussion on a year in review.										√
January 20, 2023 Outgoing email	This email a CNL Communications Officer to Beausoleil First Nation's Chief to inform of the decision to postpone the submission of the NPD Closure Project's draft Environmental Impact Statement (EIS) until 2023 May to allow for additional Indigenous input. CNL proposed the next steps would be to discuss the Beausoleil First Nation's interest and desired involvement in the NPD project to ensure that Beausoleil FN's interest and concerns are reflected in the EIS.									√	√
January 30, 2023 Outgoing email	This email CNL to Beausoleil First Nation to inform of the decision to postpone the submission of the NPD Closure Project's draft Environmental Impact Statement (EIS) until May 2023 to allow for additional Indigenous input.										√
April 11, 2023 Outgoing email	This email from CNL Senior Communications Officer to WTFN with the agenda and presentation from the monthly meeting held on 2023 March 29. CNL also looked to confirm the dates of the 2023 April 26 monthly meeting.										√
June 09, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with an updated actions list from the 2023 May 31 Monthly Meeting.										√
June 28, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with an updated actions list from the 2023 June 28 Monthly Meeting.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 11, 2023 Outgoing Email	This email from CNL Communications Officer to all WTFN communities is to request confirmation of attendance at the 2023 July monthly meeting being held in person in Hiawatha. Communities confirmed their attendance.										√
July 27, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with the action list from the 2023 July 26 in person meeting.										√
October 25, 2023 Meeting	This was the 20th of the monthly meetings between CNL (Including, Director and Manager of Communications and Engagement, Indigenous Engagement Coordinator, Communications Officers, HWP Manager of Indigenous Relations Communications, Environmental and decommissioning specialist), AECL (including the Director of AECL GO-CO Procurement Process) and the WTFN communities (including, Acting Consultation lead from CLFN, Consultant, Consultation Liaison for Beausoleil First Nation, Consultation Coordinator for Alderville First Nation, Hiawatha First Nations Lands and Conservation Officer, and Consultation Advisor for Scugog First Nation) coordinated between Curve Lake FN and CNL and open to all. This meeting was to discuss CNL Updates, WTFN updates, the Indigenous Relations Procurement Strategy, the GO-CO Procurement process and the format of WTFN monthly meetings.										√
October 26, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to WTFN is to provide WTFN with the action list from the 2023 October 26 WTFN Monthly meeting.										√
November 01, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to all WTFN is to follow-up from the 2023 October monthly meeting. CNL noted for those who were unable to attend the meeting, an agenda item was tabled for discussion to move our monthly information sharing meeting to a quarterly meeting instead. The discussion result was an agreement (with those in attendance) to change to a quarterly meeting update if WTFN communities still received project updates/ milestones and/ or news in between meetings. I encourage you to provide feedback on this change. CNL also shared the GO-CO model presentation.										√
November 23, 2023 Outgoing Email	This email from CNL Manager, Communications and Engagement to all WTFN is to follow-up from the 2023 November 01 email to all WTFN communities to confirm that the 2023 November 30 WTFN monthly meeting has been cancelled, and that the monthly meeting has been changed to a quarterly meeting series. The monthly meeting series has been cancelled. A quarterly meeting series has been setup, and the next meeting is on Wednesday, January 31, 2024.										√

WTFN - Mapping of Key Interests and Concerns

Table C-27 presents a mapping of how the key interests and concerns relate to detailed feedback and input from the WTFN, up to March 2024.

Table C-27 has 3 columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, why it is important to the Indigenous Nation, community or organization, and connects it to a project aspect or an Aboriginal or treaty right wherever possible. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 presents details of the key interest or concern that the Indigenous Nation, community or organization has identified formally in writing and/or verbally to CNL.

Table C-27 Mapping of WTFN Key Interests and Concerns

Topic	Key Interests and Concerns	Specific feedback provided by WTFN on this interest/concern (Validated)
Alderville First Nation		
1. Protection of Flora and Fauna	a) Species at Risk Alderville First Nation expressed general concern for the protection of the Chimney Swift as it is a species that uses the NPD site as habitat and could be impacted by the decommissioning. This is a project-specific concern.	Alderville Lands and Resources staff expressed general concern for the protection of the Chimney Swift (2020 May).
Curve Lake First Nation		
1. Aquatic environment	a) Protection of the aquatic environment As stewards of the lands and waters, it is important to Curve Lake First Nation that the environment around the site of the NPD Closure Project including the Ottawa River, are protected, and that the rights and interests of Curve Lake First Nation are upheld in relation to the environment (i.e., hunting, trapping, gathering, fishing and cultural ceremonies). This is a project-specific concern.	In their July 2021 letter to CNL, enclosing review of the NPD Closure Project EIS, Curve Lake First Nation indicated that wetlands are sacred to Curve Lake First Nation, and requested an elaboration about why they are not assessed in the EIS. Also, in their July 2021 letter to CNL, Curve Lake First nation requested more information about the benthic invertebrate community in the Ottawa River
2. Archaeology and Cultural Heritage	a) Protection of burial sites Curve Lake First Nation wants to ensure that any archaeological discoveries at the NPD site are handled properly and respectfully to remain protective of Indigenous cultural rights. This is both a CNL-wide and project specific concern.	In its comments on the 2016 NPD Project Description, Curve Lake First Nation stated their concern for remains of their ancestors and pointed to obligations under the *Cemeteries Act*. Curve Lake identified that it had trained Archaeological and Environmental Liaisons available to participate in archaeological or environmental assessment (EA) activities. Curve Lake Lands and Resources staff continued to express interest in archaeological work at subsequent engagements on the project (2020 May).
3. Baseline Characterization	a) Tritium levels in the Ottawa River It is important to Curve Lake First Nation that baseline tritium levels in the Ottawa River, including soil and vegetation, are well understood for comparison of any potential impacts from the project. This is both a CNL-wide and project specific interest.	Curve Lake First Nation expressed concern about the tritium levels in the Ottawa River, including soil and vegetation, specifically what portion of tritium comes from natural sources versus anthropogenic sources (April 2022 draft follow-up monitoring plan discussion).
4. Engagement	(a) Funding for Participation in NPD EA process It is important to Curve Lake First Nation that there is meaningful engagement on the project, because the project is located within the traditional territory of Curve Lake First Nation. This is a project-specific interest.	Curve Lake First Nation has indicated their interest in capacity to support meaningful consultation, engagement, and participation in the NPD Closure Project (October 2020 letter).

Topic	Key Interests and Concerns	Specific feedback provided by WTFN on this interest/concern (Validated)
4. Engagement	(b) Holistic engagement with CNL (beyond the project-level) It is important to Curve Lake First Nation and Hiawatha First Nation to be engaging with CNL on an ongoing basis with a holistic approach that goes beyond the scope of an individual project so that Curve Lake First Nation's interests and rights can be incorporated in a meaningful way into CNL's activities. This is a CNL-wide concern.	During monthly meetings in September 2021, February 2022 and March 2022 Curve Lake First Nation indicated an interest in broader engagement with CNL as a whole and earlier involvement with planning for activities and projects at CNL.
4. Engagement	(c) Curve Lake First Nation expressed concern about the use of language within the NPD EIS and the perceived importance and priority of Indigenous engagement. This is both a CNL-wide and project-specific concern.	In their July 2021 letter to CNL, enclosing review of the NPD Closure Project EIS, Curve Lake First Nation noted several instances of colonial language in the EIS about Indigenous Engagement that are not reflective of meaningful engagement. Also the placement of the "Indigenous Engagement" section after the "Public Engagement" section gives the impression that Indigenous Engagement is a lower priority than Public engagement and does not reflect the priority of Indigenous People's rights as stated in the Constitution. In April 2021 and January 2022, Curve Lake First Nation also drew attention the characterization of nuclear as "clean" and how this did not resonate for Indigenous Peoples.
6. EA Process and Methodology	a) A request for more details on the effects assessment approach and identification of valued components It is important to Curve Lake First Nation that the VCs used for the project incorporate species important to traditional users of the land to ensure the effects on traditional land and resource use are adequately considered. This is a project-specific concern.	In their July 2021 letter to CNL, enclosing review of the NPD Closure Project EIS, Curve Lake First Nation requested a more detailed explanation of several categories of VCs: mushrooms, benthic invertebrates (how will effects be assessed) and why mussels are not identified as a VC.
7. End State, Site Restoration and Future Use of the Land	a) Engagement on Final Site Restoration It is important to Curve Lake to be engaged meaningfully about final site restoration. It is important to Curve Lake that the end state of the NPD site is safe for future land users and that the rights and interests of future Indigenous peoples are preserved. This is both a CNL-wide and project-specific concern.	In their July 2021 letter to CNL, enclosing review of the NPD Closure Project EIS, Curve Lake First Nation indicated that the discussion of final site restoration in the EIS gives the impression that Indigenous input will not be considered. During the April 27, 2022, meeting, CLFN also raised concerns about the contamination of the stack and requested confirmation that there is no contamination at the bottom of the stack and if there is, the associated plans in place to address and subsequently monitor the stack and area.
8. Protection of Flora and Fauna	(a) Curve Lake First Nation expressed general concern for the protection of Species at Risk and non-protected species. As stewards of the lands and waters, it is important to Curve Lake First Nation that the environment around the site of the NPD Closure Project including the Ottawa River, are protected in an interconnected way With respect to Species at Risk this is a project-specific concern. CNL's approach to biodiversity and the non-protected species is a CNL-wide concern.	Curve Lake Lands and Resources staff expressed interest in species at risk (May 2020 meeting) and May 2021 meeting on biodiversity Curve Lake First Nation raised concerns about protection for non-protected species and the importance of an interconnected approach to biodiversity and environmental protection work..
8. Protection of Flora and Fauna	(b) Potential impacts to Chimney Swifts from remedial and closure activities for the NPD ventilation stack. As stewards of the lands and waters, it is important to Curve Lake First Nation that the environment around the site of the NPD Closure Project including biota, are protected. This is a project-specific concern.	Curve Lake First Nation requested further information on ventilation stack contamination and the remedial actions planned at the base of the stack. This interest was focused on potential impacts on Chimney Swifts (May 2020 meeting and April 2022 draft follow-up monitoring plan discussion). During the April 27, 2022 meeting, CLFN also raised concerns about the contamination of the stack and requested confirmation that there is no contamination at the bottom of the stack and if there is, the associated plans in place to address and subsequently monitor the stack and area.

Topic	Key Interests and Concerns	Specific feedback provided by WTFN on this interest/concern (Validated)
8. Protection of the Ottawa River	a) Protection of water, the surrounding environment and natural resources for all future generations. As stewards of the lands and waters, it is important to Curve Lake First Nation that the environment around the site of the NPD Closure Project including the Ottawa River, is protected, and that the rights and interests of Curve Lake First Nation are upheld in relation to the environment (i.e., hunting, trapping, gathering, fishing and cultural ceremonies). This is a project-specific concern.	In its comments on the NPD Project Description, Curve Lake First Nation shared its deep respect for the water and surrounding environment. Through engagement, CNL understands that protection of the environment, specifically the Ottawa River, is important to Curve Lake (2020 engagements).
9. Socio-economics	a) Curve Lake expressed concern about how community statistics from NPD's neighboring Indigenous Nations, communities and organizations are portrayed. Curve Lake First Nation wants to ensure that the effects of colonialism and the Indian Act on the socio-economic conditions of Indigenous Nations, communities and organizations are recognized. This is both a CNL-wide and project specific concern.	In their July 2021 letter to CNL, enclosing review of the NPD Closure Project EIS, Curve Lake First Nation noted that statistics on income and unemployment provided in the EIS about the closest First Nation to the NPD (Pikwàkanagàn First Nation) reflect the effects of colonialism and the *Indian Act*.
Hiawatha First Nation		
1. Aquatic environment	a) Protection of the aquatic environment As stewards of the lands and waters, it is important to Hiawatha First Nation that the environment around the site of the NPD Closure Project including the Ottawa River, are protected, and that the rights and interests of Hiawatha First Nation are upheld in relation to the environment (i.e., hunting, trapping, gathering, fishing and cultural ceremonies). This is a project-specific concern.	Wetlands are sacred to the Michisaagiig people and a reason should be provided why they are not assessed in the EIS. At the July 2021 monthly meeting with WTFN, which was focused on a discussion of the summary tables of interests and concerns from the WTFN, Hiawatha First Nation concurred with this concern identified by Curve Lake First Nation in Curve Lake First Nation's EIS review. More information about the benthic invertebrate community in the Ottawa River should be provided. (Hiawatha First Nation concurred with this interest at the July 2021 monthly meeting, which was identified in the Curve Lake First Nation's review of the EIS.)
2. Engagement	(a) Holistic engagement with CNL (beyond the project-level) It is important to Curve Lake First Nation and Hiawatha First Nation to be engaging with CNL on an ongoing basis with a holistic approach that goes beyond the scope of an individual project so that Hiawatha First Nation's interests and rights can be incorporated in a meaningful way into CNL's activities. This is a CNL-wide concern.	During monthly meetings in September 2021 and February 2022 Hiawatha First Nation indicated an interest in broader engagement with CNL as a whole and earlier involvement with planning for activities and projects at CNL.
2. Engagement	(b) Hiawatha First Nation expressed concern about the use of language within the NPD EIS and the perceived importance and priority of Indigenous engagement. This is both a CNL-wide and project specific concern.	Several instances of primitive and colonial language occur in the EIS about Indigenous Engagement that are not reflective of meaningful engagement. Also the placement of the "Indigenous Engagement" section after the "Public Engagement" section gives the impression that Indigenous Engagement is a lower priority than Public engagement and does not reflect the priority of Indigenous People's rights as stated in the Constitution. (At the July 2021 monthly WTFN meeting, Hiawatha First Nation concurred with this concern, which was identified in Curve Lake First Nation's review of the EIS)
3. EA Process and Methodology	a) A request for more details on the effects assessment approach and identification of valued components It is important to Hiawatha First Nation that the VCs used for the project incorporate species important to traditional users of the land to ensure the effects on traditional land and resource use are adequately considered. This is a project-specific concern.	A more detailed explanation of several categories of VC is required: mushrooms, benthic invertebrates (how will effects be assessed) and why mussels are not identified as a VC. (Hiawatha First Nation concurred with this concern at the July 2021 monthly WTFN meeting identified in Curve Lake First Nation's review of the EIS.)

Topic	Key Interests and Concerns	Specific feedback provided by WTFN on this interest/concern (Validated)
4. End State, Site Restoration and Future Use of the Land	a) Engagement on Final Site Restoration It is important to Hiawatha that it is engaged meaningfully about final site restoration. It is important to Hiawatha that the end state of the NPD site is safe for future land users and that the rights and interests of future Indigenous peoples are preserved. This is both a CNL-wide and project-specific concern.	The discussion of final site restoration in the EIS gives the impression that Indigenous input will not be considered. (Hiawatha First Nation concurred with this concern identified in the July 16, 2021, letter from Curve Lake First Nation to CNL.)
5. Protection of Flora and Fauna	(a) Hiawatha expressed interest in CNL's plans for the NPD ventilation stack in relation to caretaking of the environment, and maintaining this habitat for the Chimney Swift with a secondary interest in the impact of a stack collapse and proximity of this structure to the Ottawa River. This is a project-specific interest.	At a meeting and discussion between the WTFN and CNL in 2020, the Hiawatha First Nation Lands and Resources staff expressed a particular interest in the NPD ventilation stack in particular its design life and stack collapse.
5. Protection of Flora and Fauna	(b) Hiawatha First Nation expressed concern about potential accumulation of contamination in large game animals. As stewards of the lands and waters, it is important to Hiawatha First Nation that the environment, including flora and fauna around the CRL and NPD sites is protected, to ensure the rights and interests of Hiawatha First Nation are upheld in relation to the environment (i.e., hunting). This is both a CNL-wide and project specific concern.	The Hiawatha First Nation Lands and Resources staff, at a meeting in March 2022, expressed concern about what deer (or other large game) might consume on CNL properties that might be subsequently consumed by hunters and whether there is an accumulation of contamination seen in large game.
6. Monitoring	a) Hiawatha First Nation expressed interest in the monitoring plans for the NPD site. This interest stems from the importance of environmental stewardship to Hiawatha First Nation. As stewards of the lands and waters, it is important to Hiawatha First Nation that the environment around the site of the NPD Closure Project including the Ottawa River, are protected, and that the rights and interests of Hiawatha First Nation are upheld in relation to the environment (i.e., hunting, trapping, gathering, fishing and cultural ceremonies). This is a project-specific interest.	The Hiawatha First Nation Lands and Resources staff at a meeting in May 2020, expressed a particular interest in monitoring at the NPD site.
7. Socio-economics	a) Hiawatha (and Curve Lake) expressed concern about how community statistics from NPD's neighboring Indigenous Nations, communities and organizations are portrayed. Hiawatha First Nation wants to ensure that the effects of colonialism and the Indian Act on the socio-economic conditions of Indigenous Nations, communities and organizations are recognized. This is both a CNL-wide and project specific concern.	Statistics on income and unemployment provided in the EIS about the closest First Nation to the NPD (Pikwàkanagàn First Nation) reflect the effects of colonialism and the *Indian Act*. (Hiawatha First Nation concurred with this concern identified in the July 16 2021 letter from Curve Lake First Nation to CNL.)

Topic	Key Interests and Concerns	Specific feedback provided by WTFN on this interest/concern (Validated)
Chippewas of Rama First Nation		
1. Alternatives	a) Range of alternatives considered and overall suitability of the In-Situ Disposal concept Rama First Nation was concerned that CNL evaluate a range of options and that the design allows for reversibility if improved waste disposal options become available in the future. Rama wants to ensure that changes can be made in the future to ensure the environment remains protected. This is a project-specific concern.	The Rama First Nation consultation worker at a meeting in April 2023, was interested to understand what alternatives were considered for the project. Rama also asked about research into new waste disposal options and the retrievability of the waste.
1. Alternatives	b) Is In-Situ Disposal a Proven Technology Rama First Nation was interested in seeing examples of ISD used elsewhere and the performance of the technology. Rama wants confidence that this technology will protect humans and the environment. This is a project-specific concern.	The Rama First Nation legal counsel at a meeting in April 2023 was interested to know more about other sites that had used in-situ disposal.
2. End State, Site Restoration and Future Use of the Land	a) Long-term liability of the site beyond decommissioning. Rama is interested to know when the site will be safe for reuse. It is important to Rama that the end state of the NPD site is safe for future land users. This is a project-specific interest.	The Rama First Nation legal counsel at a meeting in April 2023 was interested to know when the site would be safe for re-use.
3. Long-term Safety	a) Long-term Integrity of the Concrete Cap and Engineered Barrier As long-term stewards and users of the land and waters, it is important to Rama First Nation that the design life of the protective layers for the proposed NPD Disposal Facility are sufficient over time to provide confidence that the environment is protected. This is a project-specific interest.	The Rama First Nation legal counsel at a meeting in April 2023 was interested to know how long it would take before the protective layer degrades.
4. Monitoring	a) Impacts from site operation Rama is interested to understand CNL's past environmental performance at the NPD site. Rama wishes to ensure the environment has not been impacted by past operations. This is a project-specific concern.	The Rama First Nation consultation worker at a meeting in April 2023, expressed a particular interest in historic monitoring data for the NPD site.
4. Monitoring	b) Design of follow-up monitoring It is important that Rama has an opportunity to review the monitoring plans to ensure transparency and promote confidence in these activities. This is project –specific interest.	The Rama First Nation consultation worker at a meeting in April 2023, expressed a particular interest in monitoring plans for the NPD site.

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Williams Treaties First Nations (WTFN) – Summary of Interests and Concerns

Table C-28 below summarizes the key interests and concerns that the WTFN communities raised on the 2016 Project Description, participation in webinars in 2020, and through ongoing engagement with CNL up to March 2024.

Curve Lake First Nation submitted comments on the Project Description that can be found online: Curve Lake First Nation.

Table C-28 has five columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, why it is important to the Indigenous Nation, community or organization, and connects it to a project aspect or an Aboriginal or treaty right wherever possible. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 summarizes CNL's response or conclusions as well as CNL's efforts to address this key interest or concern
- Column 4 identifies where in the EIS the key interest or concern is addressed, and whether any changes were made to the EIS in response to the interest/concern. If these changes resulted in a different outcome in the EIS, this is also discussed;
- Column 5 summarizes the "Status" of the key interest or concern and the anticipated Next Steps towards achieving resolution of the key interest or concern. Not all concerns can be quickly or easily resolved, as some concerns go beyond the scope of the EA process, or there may divergent perspectives on certain interests or concerns. Note: this column does not, unless specifically confirmed by the Indigenous Nation, community or organization, mean that they have verified that the interest or concern has been dealt with to their satisfaction.

Table C-28 WTFN Interests and Concerns

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
Alderville First Nation				
1) Protection of Flora and Fauna	a) Species at Risk Alderville First Nation expressed general concern for the protection of the Chimney Swift as it is a species that uses the NPD site as habitat and could be impacted by the decommissioning. This is a project-specific concern.	In May 2020, the WTFN and CNL met for a discussion and presentation sharing information on the NPD Closure Project. Species at risk was a key focus of the discussion and representatives of Curve Lake First Nation had a number of follow-up question after the meeting. In response, CNL provided the Chimney Swift TSD as well as specific answers to questions from Curve Lake First Nation, Hiawatha First Nation and Alderville First Nation on the ventilation stack and Chimney Swifts. At the May 2021 monthly project update and information sharing meeting between CNL and WTFN, an overview of CNL's biodiversity program was discussed. Additional opportunities: In May 2019, Indigenous Nations, communities and organizations and the public were invited to participate in the National Chimney Swift Roost Counts. Chimney Swifts were the focus topic of the June 2019 breakfast briefing to which Alderville First Nation was invited. In May 2020, Indigenous Nations, communities and organizations and the public were invited to NPD's virtual Chimney Swift count night. In May 2021, Indigenous Nations, communities and organizations and the public were invited to NPD's virtual Chimney Swift count night. CNL Response: Early in the NPD Closure Project, CNL undertook investigation of the viability of ventilation stack removal. It was decided that ventilation stack retention would mitigate the risk of roost abandonment by the Chimney Swift. CNL has applied for a species at risk permit from ECCC for the potential harm and harassment of chimney swifts during decommissioning activities. The draft conditions of that permit (mitigations for the protection of the Chimney Swift) are included in the EIS.	Where is this topic discussed in the EIS? **Section 9.6.3.2** of the EIS includes comprehensive mitigations to ensure effects on Chimney Swifts are minimized. What changes have been made (and where)? The EIS includes additional mitigations for Chimney Swifts that are aligned with the conditions in the draft permit from ECCC.	Status: Resolved CNL considers this concern has been addressed with the information shared to Alderville First Nation after the May 2020 webinar meeting. CNL remains committed to ongoing engagement with Alderville First Nation.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
Curve Lake First Nation				
1) Aquatic environment	a) Protection of the aquatic environment As stewards of the lands and waters, it is important to Curve Lake First Nation that the environment around the site of the NPD Closure Project including the Ottawa River, are protected, and that the rights and interests of Curve Lake First Nation are upheld in relation to the environment (i.e., hunting, trapping, gathering, fishing and cultural ceremonies). This is a project-specific concern.	CNL has responded in writing to Curve Lake comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL offered a focused discussion on proposed groundwater monitoring activities and a dedicated session on the draft follow-up monitoring plans (including groundwater) was held in 2022 April. CNL provided a summary of the benthic invertebrate study that was conducted offshore of NPD in 2020, and NPD provided the complete report to Curve Lake First Nation. CNL responded to follow up questions on the benthic invertebrate study. Curve Lake First Nation visited the NPD site in 2022 October. The visit included a facility tour and walk to the river. <u>CNL Response:</u> CNL has studied and modelled groundwater flow at the NPD site. The groundwater source of the wetlands is not affected at all by groundwater from the NPD facility. Groundwater on the NPD site flows towards the Ottawa River, so groundwater that interacts with the NPD facility flows away from the wetland, towards the Ottawa River. CNL undertook baseline studies of benthic macroinvertebrate, sediment quality and water quality in the Ottawa River in the summer of 2020. Samples were taken upstream, downstream and adjacent to the NPD facility. This study sets the baseline that will be used for EA follow-up monitoring activities. The results of this study support the description of the baseline aquatic environment in the EIS. CNL's assessment addressed potential effects to VCs in the aquatic environment. The assessment covered the aquatic VCs of interest to Indigenous Nations, communities and organizations, including the fish species identified during Indigenous engagement activities. The assessment concluded that there are no adverse residual effects on the aquatic environment expected from the project.	<u>Where is this topic discussed in the EIS?</u> **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment, including the aquatic environment. **Section 9.3.3.2** of the EIS provides a series of mitigation measures focused on protection of surface water and ultimately the aquatic environment. Mitigation measures for the protection of surface water have been updated and expanded from the 2017 draft EIS. The EIS does not predict any adverse residual effects on the aquatic environment (**Section 9.4.3.5**) as a result of the NPD Closure Project. <u>What changes have been made (and where)?</u> No changes have been made to the EIS.	<u>Status:</u> Resolution in Progress CNL considers this interest resolved by its responses to the July 2021 letter, sharing of the benthic invertebrate study, draft follow-up monitoring plan discussion and pending the completion of the next steps outlined below. CNL remains committed to ongoing engagement on this topic. <u>Next Steps:</u> CNL and Curve Lake First Nation to consider opportunities for CNL to build awareness of cultural keystone species for Curve Lake First Nation. CNL and Curve Lake First Nation to consider opportunities for future site visits (either to the NPD site or to the community) as part of ongoing engagement and relationship-building.
2) Archaeology and Cultural Heritage	a) Protection of burial sites Curve Lake First Nation wants to ensure that any archaeological discoveries at the NPD site are handled properly and respectfully to remain protective of Indigenous cultural rights. This is both a CNL-wide and project specific concern.	Curve Lake First Nation requested the archaeological report through comments on the Project Description. CNL shared the report with Curve Lake First Nation in February 2017. At that time Curve Lake First Nation had no comments on the archaeological assessment. In May 2020, CNL provided WTFN with an interactive webinar discussion and presentation sharing information on the NPD Closure Project. Key topic areas were: project overview and timeline, waste inventory, monitoring, VCs, species at risk, traditional land and resource use and effects on the environment. New representatives from Curve Lake First Nation attended and requested the archaeological assessment, which CNL also provided in May 2020. <u>CNL Response:</u> CNL has conducted a Stage 1 archaeological assessment and share the report with Curve Lake First Nation. No further archaeological work is planned for NPD. CNL includes in the proposed mitigation measures for the project an immediate stop work and engagement of appropriately licensed resources if archaeological resources are discovered. This is in line with CNL's procedure on Management of Cultural Resources.	<u>Where is this topic discussed in the EIS?</u> The NPD EIS includes a summary of the archaeological assessment (**Section 8.11.4**). CNL describes proposed mitigation measures that will be employed if undocumented archaeological resources (including burial sites) are discovered during the project in **Section 9.9.3.2** of the EIS. The EIS does not predict any adverse residual effects on the socio-economic environment (**Section 9.11.3.5**) or traditional land and resource use (**Section 9.9.3.5**) (encompassing archaeological resources). <u>What changes have been made (and where)?</u> In **Section 9.9.3.2** of the EIS, CNL added proposed mitigation measures that will be employed if undocumented archaeological resources are discovered during the project.	<u>Status:</u> Resolved CNL has received no further inquiries from Curve Lake on this topic and remains available to discuss the archaeology of the NPD site further with Curve Lake First Nation, if requested in the future.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
3) Baseline Characterization	a) Tritium levels in the Ottawa River It is important to Curve Lake First Nation that baseline tritium levels in the Ottawa River, including soil and vegetation, are well understood for comparison of any potential impacts from the project. This is both a CNL-wide and project specific interest.	CNL has responded in writing with information to address the questions on baseline tritium concentrations. CNL Response: Tritium is produced naturally from interactions of cosmic rays with gases in the upper atmosphere. Levels of naturally produced tritium in surface water are estimated to be between 0.24 and 1.18 Bq/L (depending on geographical area). The major source of anthropogenic tritium in surface water is from weapons testing in the 1960s. The specific percent of natural versus anthropogenic tritium (from weapons testing) in the Ottawa River is not available. For reference and to show the decay of anthropogenic tritium following weapons testing, CNL shared a graph of tritium concentrations in the Great Lakes showing the tritium peak from weapons testing in the 1960s with a subsequent decline in the years following the cessation of weapons testing. The tritium peak and subsequent decay would be similar for the Ottawa River. Tritium levels in the Ottawa River near NPD, measured upstream and downstream of NPD averaged approximately 2.5 Bq/L over the past five years, which indicates no measurable impact on tritium levels in the Ottawa River from NPD.	Where is this topic discussed in the EIS? Baseline conditions for surface water quality (including the Ottawa River) are found in **Section 8.3.4** of the EIS. What changes have been made (and where)? No changes have been made to the EIS.	Status: Resolved CNL believes this concern has been substantially addressed by the response and information shared that provides explanation of natural and anthropogenic sources of tritium. Continuing Next Steps: Curve Lake First Nation and CNL will continue sharing information about tritium levels in the Ottawa River and the local environment including soil and vegetation. This information sharing will support an improved understanding of natural and anthropogenic sources of tritium, including historic anthropogenic sources.
4) Engagement	(a) Funding for Participation in NPD EA process It is important to Curve Lake First Nation that there is meaningful engagement on the project, because the project is located within the traditional territory of Curve Lake First Nation. This is a project-specific interest.	CNL met with Curve Lake First Nation in November and December 2020 and January 2021 to discuss capacity and establishing a contribution agreement to support Curve Lake First Nation's participation in CNL's Environmental Remediation Projects, including the NPD Closure Project. A letter was sent to Curve Lake First Nation in April 2021 to provide a summary of CNL commitments, including discussions on a contribution agreement, made to Curve Lake First Nation through engagement on the NPD Closure Project. CNL has not received any feedback from Curve Lake on the commitments. Monthly meetings (including a project update) between CNL and Curve Lake First Nation (and other WTFN communities) began in March 2021. The contribution agreement between CNL and Curve Lake First Nation was entered into in November 2021 and remains in effect. CNL Response: CNL has committed to open, transparent and continuing engagement with Curve Lake First Nation. CNL and Curve Lake First Nation worked together to put in place a contribution agreement that provides capacity to Curve Lake First Nation for their participation in the NPD EA Process. As part of this contribution agreement CNL and Curve Lake (and other WTFN) meet monthly for a project update and discussion. Curve Lake has requested and CNL has made specific presentations and had various subject matter experts available to discuss the topics of interest identified by Curve Lake (and other WTFN).	Where is this topic discussed in the EIS? **Section 6.2.10.2** of the EIS summarizes CNL engagement with Curve Lake First Nation to date. What changes have been made (and where)? CNL has updated **Section 6.2.4.10 and 6.5** of the EIS to reflect new and planned engagement activities to support Curve Lake's meaningful participation in the environmental assessment (EA) process.	Status: Resolved CNL believes this concern is substantially addressed by the signing of the contribution agreement that supports meaningful participation of Curve Lake First Nation on the NPD Closure Project EA.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
4) Engagement	(b) Holistic engagement with CNL (beyond the project-level) It is important to Curve Lake First Nation and Hiawatha First Nation to be engaging with CNL on an ongoing basis with a holistic approach that goes beyond the scope of an individual project so that Curve Lake First Nation's interests and rights can be incorporated in a meaningful way into CNL's activities. This is a CNL-wide concern.	In 2022 October, CNL (NPD representatives and others) were invited to visit Curve Lake First Nation. CNL's visit to the community was a day of listening and experiencing the cultural values of the community; CNL visited and observed the historic and sacred Petroglyphs site, shared in a smudging ceremony. The group congregated at the Curve Lake Community Centre and met with the Chief and council. Also in 2022 October, Curve Lake First Nation visited the NPD site. The visit included a facility tour and walk to the river. CNL Response: CNL is committed to open, transparent and continuing engagement with Curve Lake First Nation. CNL has expanded its engagement with Curve Lake First Nation through monthly meetings that are focused on topics chosen by the WTFN community representatives. Meeting focuses have included the Small Modular Reactor (SMR) Program and Siting at CNL, the Cleanup Mission and the Approach to Biodiversity at CNL. CNL is committed to engaging at a broader level with Curve Lake First Nation in the way the community wishes to be engaged. This includes beginning to incorporate in-person meetings at CNL-managed sites, where there is interest from Curve Lake First Nation or any of the other WTFN communities. CNL will continue to engage with Curve Lake First Nation at a corporation to First Nation level, on interests beyond individual projects.	Where is this topic discussed in the EIS? Not applicable. What changes have been made (and where)? No changes have been made to the EIS.	Status: Resolution in Progress Next Steps: CNL and Curve Lake First Nation to consider opportunities for: • CNL to build awareness of cultural keystone species for Curve Lake First Nation. • Site assessment, sampling and monitoring activities to gather baseline Indigenous and local knowledge. • Future site visits (either to the NPD site or to the community) as part of ongoing engagement and relationship-building.
4) Engagement	(c) Curve Lake First Nation expressed concern about the use of language within the NPD EIS and the perceived importance and priority of Indigenous engagement. This is both a CNL-wide and project-specific concern.	Phrases in the EIS with colonial language were replaced with phrases that emphasize the importance and priority of Indigenous engagement and the revised text shared with Curve Lake First Nation. The order of the Indigenous Engagement Section and the Stakeholder Engagement Section has been switched. CNL Response: CNL appreciates the feedback from Curve Lake First Nation on its EIS language and its use of culturally relevant language when engaging with First Nations. CNL is committed to continuously improving its relationship with Indigenous peoples and progressing reconciliation. Specifically, CNL is working on a company-wide Reconciliation Action Plan.	Where is this topic discussed in the EIS? Indigenous Engagement is discussed in **Section 6** of the EIS. What changes have been made (and where)? CNL has revised its EIS to remove the colonial language and aspects identified by Curve Lake to appropriately reflect the importance of meaningful engagement. The Indigenous Engagement Section is now Section 6 and the Stakeholder Engagement section is now Section 7.	Status: Resolved CNL considers this interest resolved by changes in the order of EIS sections and revised wording. It is noted that this topic extends beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project.
5) EA Process and Methodology	a) A request for more details on the effects assessment approach and identification of valued components It is important to Curve Lake First Nation that the VCs used for the project incorporate species important to traditional users of the land to ensure the effects on traditional land and resource use are adequately considered.	CNL has responded in writing to Curve Lake comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL has provided an explanation about the broad categories of VCs, which encompass several species (e.g. the "mushroom" VC include all mushroom species, and the "benthic invertebrates" VC includes mussels.) A summary of the benthic invertebrate study was provided to Curve Lake First Nation, noting that the benthic invertebrate study will be repeated once after decommissioning activities are complete to test the EIS prediction of no adverse effects to benthic invertebrates. CNL has shared the complete benthic study report with Curve Lake First Nation and has responded to follow up questions this topic.	Where is this topic discussed in the EIS? The EIS does not predict any adverse residual effects on the aquatic environment (**Section 9.4.3.3**) or the terrestrial environment (**Section 9.6.3.3**). CNL has developed mitigation measures and monitoring plans for the protection of the Ottawa River (**Sections 9.3.3.2 and 12.3** of the EIS) and for the protection of valued component species (**Sections 9.4.3.2, 9.6.3.2 and 12.3** of the EIS**).** What changes have been made (and where)?	Status: Resolution in Progress CNL considers this interest resolved by its responses to the July 2021 letter, sharing of the benthic invertebrate study and summary of this work. CNL remains committed to ongoing engagement on this topic. Next Steps:

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
	This is a project-specific concern.	Curve Lake First Nation visited the NPD site in 2022 October. The visit included a facility tour and walk to the river. CNL Response: CNL undertook baseline studies of benthic macroinvertebrate, sediment quality and water quality in the Ottawa River in the summer of 2020. Samples were taken upstream, downstream and adjacent to the NPD facility. This study sets the baseline that will be used for EA follow-up monitoring activities. The results of this study support the description of the baseline aquatic environment in the EIS. CNL's assessment addressed potential effects to VCs in the aquatic and terrestrial environments. The assessment covered the aquatic and terrestrial VCs of interest to Indigenous Nations, communities and organizations, including mushrooms and mussels. The assessment concluded that there are no adverse residual effects on the aquatic or terrestrial environment expected from the project.	No changes have been made to the EIS.	Further follow-up discussion on VC identification, if requested, by Curve Lake First Nation. CNL and Curve Lake First Nation to consider opportunities for future site visits (either to the NPD site or to the community) as part of ongoing engagement and relationship-building.
6) End State, Site Restoration and Future Use of the Land	a) Engagement on Final Site Restoration It is important to Curve Lake to be engaged meaningfully about final site restoration. It is important to Curve Lake that the end state of the NPD site is safe for future land users and that the rights and interests of future Indigenous peoples are preserved. This is both a CNL-wide and project-specific concern.	CNL has responded in writing to Curve Lake comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL Response: Future land use is a discussion topic that requires the participation of AECL as the owner of the NPD site, in consultation with Indigenous Nations, communities, and organizations, the public, as well as industry and government. As the licensee, CNL is committed to engagement and consultation with Curve Lake First Nation on future end state and land use. Future land use and land transfer are beyond the scope of the EA for the NPD Closure Project. CNL recognizes that the importance of this matter to Curve Lake First Nation, and therefore CNL has committed to sharing the draft site restoration plan with Curve Lake First Nation for feedback.	Where is this topic discussed in the EIS? General plans for restoration and end state are described in **Section 4.3.1.9** of the EIS. What changes have been made (and where)? No changes have been made to the EIS.	Status: Resolved CNL considers this interest resolved via clarification of EIS wording with Curve Lake First Nation and pending the completion of the next steps outlined below. CNL remains committed to ongoing engagement with the Curve Lake First Nation. Next Steps: CNL will share the draft restoration plan with Curve Lake First Nation and other Indigenous Nations, communities and organizations once it is complete.
7) Protection of Flora and Fauna	(a) Curve Lake First Nation expressed general concern for the protection of Species at Risk and non-protected species. As stewards of the lands and waters, it is important to Curve Lake First Nation that the environment around the site of the NPD Closure Project including the Ottawa River, are protected in an interconnected way With respect to Species at Risk this is a project-specific concern. CNL's approach to biodiversity and the non-protected species is a CNL-wide concern.	In May 2020, the WTFN and CNL met for a discussion and presentation sharing information on the NPD Closure Project. Species at risk was a key focus of the discussion and representatives of Curve Lake First Nation had a number of follow-up question after the meeting. In response, CNL provided the Chimney Swift TSD as well as specific answers to questions from Curve Lake First Nation, Hiawatha First Nation and Alderville First Nation on the ventilation stack and Chimney Swifts. At the May 2021 monthly project update and information sharing meeting between CNL and WTFN, an overview of CNL's biodiversity program was discussed. Curve Lake First Nation visited the NPD site in 2022 October. The visit included a facility tour and walk to the river. Additional opportunities: In May 2019, Indigenous Nations, communities and organizations and the public were invited to participate in the National Chimney Swift Roost Counts.	Where is this topic discussed in the EIS? Collectively, mitigation measures for the protection of flora and fauna, specifically species at risk are outlined in **Section 9.6.3.2** (Terrestrial Environment). No residual effects for the terrestrial environment are predicted (**Section 9.6.3.5**). What changes have been made (and where)? As a result of feedback, monarch butterflies were added as a VC (see **Appendix B** of the EIS). Habitat effects on the monarch butterfly are considered and mitigations are outlined in **Section 9.6.3.2** of the EIS. The EIS includes additional mitigations related to milkweed (important habitat for monarch butterflies), migratory birds, bats, chimney swifts and milksnakes.	Status: Resolved CNL considers this concern has been addressed with the information shared to Curve Lake First Nation as there were no further follow-up questions related to specific species at risk. CNL remains committed to ongoing engagement with Curve Lake First Nation on non-protected species. Next Steps: CNL and Curve Lake First Nation to consider opportunities for CNL to build awareness of cultural keystone species for Curve Lake First Nation.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		Chimney Swifts were the focus topic of the June 2019 breakfast briefing to which the Curve Lake First Nation was invited. In May 2020, Indigenous Nations, communities and organizations and the public were invited to NPD's virtual Chimney Swift count night. In May 2021, Indigenous Nations, communities and organizations and the public were invited to NPD's virtual Chimney Swift count night. <u>CNL Response:</u> CNL is committed to the protection of species at risk and has and will apply for any necessary permits from ECCC. In its effects assessment, when considering species at risk, CNL considers impacts to an individual and not just the overall population. Several species at risk have been identified at the NPD site and key aspects of CNL's plan to protect these species are included below. Early in the NPD Closure Project, CNL undertook investigation of the viability of ventilation stack removal. It was decided that ventilation stack retention would mitigate the risk of abandonment by the Chimney Swift. CNL has applied for a species at risk permit from ECCC for the potential harm and harassment of chimney swifts during decommissioning activities. The draft conditions of that permit (mitigations for the protection of the Chimney Swift) are included in the EIS. In response to observations of milkweed at the NPD site, monarch butterfly has been added as a valued component to the EIS and mitigations are in place to preserve and reseed with milkweed (critical habitat). CNL does not predict any adverse residual effects to the chimney swift, monarch and other species at risk.		CNL and Curve Lake First Nation to consider opportunities for future site visits (either to the NPD site or to the community) as part of ongoing engagement and relationship-building.
7) Protection of Flora and Fauna	(b) Potential impacts to Chimney Swifts from remedial and closure activities for the NPD ventilation stack. As stewards of the lands and waters, it is important to Curve Lake First Nation that the environment around the site of the NPD Closure Project including biota, are protected. This is a project-specific concern.	CNL responded in writing with additional information on the planned modifications to the ventilation stack. <u>CNL Response:</u> The ventilation stack at NPD is 46 m in height. Chimney Swifts spend the spring and summer months in the area. They arrive in early May and migrate south at the end of August. At the NPD site, swifts roost in the top few metres of the stack. The swifts don't build nests in the stack; swifts that are ready to nest leave the stack and live in the forest during the breeding season (June-July) The level of contamination in the concrete at the top of the stack (where the swifts roost) was measured in 2014 using thermoluminescent dosimeters and the dose was at background levels. CNL is planning to empty water/sludge from the base of the stack to enable inspection of the stack base. This work is planned to take place within the next few months. Pumping out of the water/sludge will take place at a time when swifts are not in the stack. The sludge is composed of rainwater and biological waste from the swifts. It contains tritium and gross beta radioactivity due to contact with the stack concrete. CNL will prepare an "environmental review" document for this activity which will outline the timing restrictions to the work to ensure minimal impact to chimney swifts, and outline other measures that must be taken to prevent adverse	<u>Where is this topic discussed in the EIS?</u> General plans for the ventilation stack are described in **Section 4.3.1.6** of the EIS. **Section 9.6.3.2** of the EIS includes comprehensive mitigations to ensure effects on Chimney Swifts are minimized. <u>What changes have been made (and where)?</u> No changes have been made to the EIS.	<u>Status:</u> Resolution in Progress CNL believes this concern has been substantially addressed by the response and information shared on plans for the ventilation stack. <u>Next Steps:</u> CNL will continue sharing information with CLFN as project activities progress with the NPD ventilation stack and provide opportunities to participate in the activities where safe to do so.

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		impacts to the environment (e.g. preventing spills from vehicles). This waste will be managed at the Sewage Treatment Plant at the Chalk River Laboratories site. Once the proposed in-situ decommissioning is complete, the ground level around the ventilation stack will be higher due to the engineered barrier that is proposed to cover the facility. CNL plans to grout the base of the ventilation stack up to a level approximately 8-10 feet above the current ground level. This will isolate the ventilation stack from the rest of the NPD facility and create a new higher "bottom" of the ventilation stack. Several holes will be cored in the stack at the level of the new base to allow the draining of any rain and melt water that might enter the stack from the opening at the top, and to allow for periodic camera inspections of the interior, if required. The holes will also help induce an airflow up the ventilation stack, due to stack effect, that is intended to mimic the current passive airflow present in the ventilation stack. Animal-resistant louvers are proposed to be placed over the drain holes, to ensure free drainage of water while denying animals access to the stack interior. The ventilation stack will be inspected periodically for signs of degradation and will be removed when no longer structurally suitable for continued use as a chimney swift roost. For planning purposes, this is assumed to be 50 years following completion of decommissioning.		
8) Protection of the Ottawa River	a) Protection of water, the surrounding environment and natural resources for all future generations. As stewards of the lands and waters, it is important to Curve Lake First Nation that the environment around the site of the NPD Closure Project including the Ottawa River, is protected, and that the rights and interests of Curve Lake First Nation are upheld in relation to the environment (i.e., hunting, trapping, gathering, fishing and cultural ceremonies). This is a project-specific concern.	In May 2020, CNL provided WTFN with an interactive webinar discussion and presentation sharing information on the NPD Closure Project. Key topic areas were: project overview and timeline, waste inventory, monitoring, VCs, species at risk, traditional land and resource use and effects on the environment. Curve Lake First Nation attended. Based on questions and comments from Curve Lake First Nation CNL understands that protection of the Ottawa River is important to Curve Lake First Nation. CNL Response: CNL has assessed in situ disposal of the waste at as safe for the public and the environment, particularly the Ottawa River, over both short and long-term periods (e.g., 100,000 years). If the facility is approved, the CNSC will require CNL to monitor and control access to the site during the Institutional Control period currently proposed for a minimum of 100 years. Once the regulator allows for Institutional Controls to cease, there will be no requirement for future monitoring or maintenance as the in-design features or passive barriers of the disposal facility, such as the grout, will help protect the public and the environment from radioactive and non-radioactive wastes.	Where is this topic discussed in the EIS? **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment including the Ottawa River. **Section 9.3.3.2** of the EIS provides a series of mitigation measures focused on protection of surface water (including the Ottawa River). Mitigation measures for the protection of surface water have been updated and expanded from the 2017 draft EIS. The EIS (**Section 9.3.3.5**) does not predict any adverse residual effects on the surface water environment (encompassing the Ottawa River). What changes have been made (and where)? Note that this concern was raised at the Project Description stage and therefore no changes were made to the EIS as the above assessment has been present since the initial draft.	Status: Resolved CNL considers this concern addressed by the revisions to the EIS. CNL remains committed to ongoing engagement with Curve Lake First Nation.
9) Socio-economics	a) Curve Lake expressed concern about how community statistics from NPD's neighboring Indigenous Nations, communities and organizations are portrayed. Curve Lake First Nation wants to ensure that the effects of colonialism and the Indian Act on the socio-economic conditions of Indigenous Nations, communities and organizations are recognized.	CNL has responded in writing to Curve Lake comments on this topic, citing relevant sections of the EIS as part of the comment responses. CNL understands Curve Lake's concern and has communicated to Curve Lake First Nation that CNL is working directly with AOPFN on EIS content and Algonquin perspective. CNL Response: CNL acknowledges that economic challenges faced by some Indigenous Nations, communities and organizations are likely related to legacies of colonialism and the	Where is this topic discussed in the EIS? **Sections 8.10 and 9.10** of the EIS focus on Indigenous socio-economic conditions, including economy and employment. **Section 8.10** summarizes current economic and employment conditions, and **Section 9.10** assesses potential effects and discusses CNL's plan to fully realize the potential for economic and employment benefits to Indigenous Nations, communities and organizations.	Status: Resolved CNL considers this interest resolved via clarification of the basis for inclusion of Indigenous socio-economic content within the EIS. It is noted that this topic extends beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project.

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	This is both a CNL-wide and project specific concern.	*Indian Act*. CNL has and continues to want to offer opportunities and benefits to Indigenous individuals and communities that will enhance their economic well-being. CNL clarified that the inclusion of socio-economic information was in response to comments on the 2017 draft EIS from Indigenous Nations, communities and organizations.	What changes have been made (and where)? No changes have been made to the EIS.	
Hiawatha First Nation				
1) Aquatic environment	a) Protection of the aquatic environment As stewards of the lands and waters, it is important to Hiawatha First Nation that the environment around the site of the NPD Closure Project including the Ottawa River, are protected, and that the rights and interests of Hiawatha First Nation are upheld in relation to the environment (i.e., hunting, trapping, gathering, fishing and cultural ceremonies). This is a project-specific concern.	CNL has responded in writing to Curve Lake comments on this topic and shared these responses with Hiawatha First Nation, citing relevant sections of the EIS as part of the comment responses. CNL offered a focused discussion on proposed groundwater monitoring activities. CNL provided a summary of the benthic invertebrate study that was conducted offshore of NPD in 2020, and NPD provided the complete report to Hiawatha (and Curve Lake) First Nations. CNL responded to follow up questions on the benthic invertebrate study. Hiawatha First Nation visited the NPD site in 2022 October. The visit included a facility tour and walk to the river. CNL Response: CNL has studied and modelled groundwater flow at the NPD site. The groundwater source of the wetlands is not affected at all by groundwater from the NPD facility. Groundwater on the NPD site flows towards the Ottawa River, so groundwater that interacts with the NPD facility flows away from the wetland, towards the Ottawa River. CNL undertook baseline studies of benthic macroinvertebrate, sediment quality and water quality in the Ottawa River in the summer of 2020. Samples were taken upstream, downstream and adjacent to the NPD facility. This study sets the baseline that will be used for EA follow-up monitoring activities. The results of this study support the description of the baseline aquatic environment in the EIS. CNL's assessment addressed potential effects to VCs in the aquatic environment. The assessment covered the aquatic VCs of interest to Indigenous Nations, communities and organizations , including the fish species identified during Indigenous engagement activities. The assessment concluded that there are no adverse residual effects on the aquatic environment expected from the project.	Where is this topic discussed in the EIS? **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment, including the aquatic environment. **Section 9.3.3.2** of the EIS provides a series of mitigation measures focused on protection of surface water and ultimately the aquatic environment. Mitigation measures for the protection of surface water have been updated and expanded from the 2017 draft EIS. The EIS does not predict any adverse residual effects on the aquatic environment (**Section 9.4.3.5**) as a result of the NPD Closure Project. What changes have been made (and where)? No changes have been made to the EIS.	Status: Resolution in Progress CNL considers this interest resolved by its responses to the July 2021 letter, sharing of the benthic invertebrate study and summary of this work. CNL remains committed to ongoing engagement on this topic. Next Steps: Focused follow-up discussion on proposed groundwater monitoring activities. CNL and Hiawatha First Nation to consider opportunities for future site visits (either to the NPD site or to the community) as part of ongoing engagement and relationship-building.
2) Engagement	(a) Holistic engagement with CNL (beyond the project-level) It is important to Curve Lake First Nation and Hiawatha First Nation to be engaging with CNL on an ongoing basis with a holistic approach that goes beyond the scope of an individual project so that Hiawatha First Nation's interests and rights can be incorporated in a meaningful way into CNL's activities. This is a CNL-wide concern.	Hiawatha First Nation visited the NPD site in 2022 October. The visit included a facility tour and walk to the river. A CNL visit to Hiawatha First Nation is planned for summer 2023. CNL Response: CNL is committed to open, transparent and continuing engagement with Hiawatha First Nation. CNL has expanded its engagement with Hiawatha First Nation through monthly meetings that are focused on topics chosen by the WTFN community representatives. Meeting focuses have included the Small Modular Reactor (SMR)	Where is this topic discussed in the EIS? Not applicable. What changes have been made (and where)? No changes have been made to the EIS.	Status: Resolution in Progress Next Steps: CNL and Hiawatha First Nation to consider opportunities for: • CNL community visit to Hiawatha First Nation for a cultural awareness session and community engagement session, as well as future visits to the NPD site.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		Program and Siting at CNL, the Cleanup Mission and the Approach to Biodiversity at CNL. CNL is committed to engaging at a broader level with Hiawatha First Nation in the way the community wishes to be engaged. This includes beginning to incorporate in-person meetings at CNL-managed sites, where there is interest from Hiawatha First Nation or any of the other WTFN communities. CNL will continue to engage with Hiawatha First Nation at a corporation to First Nation level, on interests beyond individual projects.		• CNL and Hiawatha First Nation to seek opportunities for site assessment, sampling and monitoring activities to gather baseline Indigenous and local knowledge.
2) Engagement	(b) Hiawatha First Nation expressed concern about the use of language within the NPD EIS and the perceived importance and priority of Indigenous engagement. This is both a CNL-wide and project specific concern.	Phrases in the EIS with colonial language were replaced with phrases that emphasize the importance and priority of Indigenous engagement and the revised text shared with Hiawatha First Nation. The order of the Indigenous Engagement Section and the Stakeholder Engagement Section has been switched. <u>CNL Response:</u> CNL appreciates the feedback from Hiawatha (and Curve Lake) First Nations on its EIS language. CNL is committed to continuously improving its relationship with Indigenous peoples and progressing reconciliation. Specifically, CNL is working on a company-wide Reconciliation Action Plan.	<u>Where is this topic discussed in the EIS?</u> Indigenous Engagement is discussed in **Section 6** of the EIS. <u>What changes have been made (and where)?</u> CNL has revised the EIS language and aspects identified by Hiawatha (and Curve Lake) to appropriately reflect the importance of meaningful engagement. The Indigenous Engagement Section is now Section 6 and the Stakeholder Engagement section is now Section 7.	<u>Status:</u> Resolved CNL considers this interest resolved by changes in the order of EIS sections and revised wording. It is noted that this topic extends beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project.
3) EA Process and Methodology	a) A request for more details on the effects assessment approach and identification of valued components It is important to Hiawatha First Nation that the VCs used for the project incorporate species important to traditional users of the land to ensure the effects on traditional land and resource use are adequately considered. This is a project-specific concern.	CNL has responded in writing to Curve Lake comments on this topic and shared these responses with Hiawatha, citing relevant sections of the EIS as part of the comment responses. CNL has provided an explanation about the broad categories of VCs, which encompass several species (e.g. the “mushroom” VC include all mushroom species, and the “benthic invertebrates” VC includes mussels.) A summary of the benthic invertebrate study was provided to Hiawatha (and Curve Lake) First Nations, noting that the benthic invertebrate study will be repeated once after the decommissioning activities are complete to test the EIS prediction of no adverse effects to benthic invertebrates. CNL has shared the complete benthic study report with Hiawatha (and Curve Lake) First Nations and has responded to follow up questions this topic. <u>CNL Response:</u> CNL undertook baseline studies of benthic macroinvertebrate, sediment quality and water quality in the Ottawa River in the summer of 2020. Samples were taken upstream, downstream and adjacent to the NPD facility. This study sets the baseline that will be used for EA follow-up monitoring activities. The results of this study support the description of the baseline aquatic environment in the EIS. CNL’s assessment addressed potential effects to VCs in the aquatic and terrestrial environments. The assessment covered the aquatic and terrestrial VCs of interest to Indigenous Nations, communities and organizations , including mushrooms and mussels. The assessment concluded that there are no adverse residual effects on the aquatic or terrestrial environment expected from the project.	<u>Where is this topic discussed in the EIS?</u> The EIS does not predict any adverse residual effects on the aquatic environment (**Section 9.4.3.5**) or the terrestrial environment (**Section 9.6.3.5**). CNL has developed mitigation measures and monitoring plans for the protection of the Ottawa River (**Sections 9.3.3.2 and 12.3** within the EIS) and for the protection of valued component species (**Sections 9.4.3.2 and 9.6.3.2 and 12.3** within the EIS**).** <u>What changes have been made (and where)?</u> No changes have been made to the EIS.	<u>Status:</u> Resolution in Progress CNL considers this interest resolved by its responses to the July 2021 letter, sharing of the benthic invertebrate study and summary of this work. CNL remains committed to ongoing engagement on this topic. <u>Next Steps:</u> Further follow-up discussion on VC identification, if requested, by Hiawatha FN. Coordinate a visit to the NPD site for Hiawatha FN representatives, as requested, to verify that there are no impacts to rights. Future visits to the community can also be planned for as part of ongoing engagement and relationship-building.

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4) End State, Site Restoration and Future Use of the Land	a) Engagement on Final Site Restoration It is important to Hiawatha that it is engaged meaningfully about final site restoration. It is important to Hiawatha that the end state of the NPD site is safe for future land users and that the rights and interests of future Indigenous peoples are preserved. This is both a CNL-wide and project-specific concern.	CNL has responded in writing to Curve Lake comments on this topic and shared the responses with Hiawatha, citing relevant sections of the EIS as part of the comment responses. CNL Response: Future land use is a discussion topic that requires the participation of AECL as the owner of the NPD site, in consultation with Indigenous Nations, communities, and organizations, the public, as well as industry and government. As the licensee, CNL is committed to engagement and consultation with Hiawatha First Nation on future end state and land use. Future land use and land transfer are beyond the scope of the EA for the NPD Closure Project. CNL recognizes that the importance of this matter to Hiawatha First Nation, and therefore CNL has committed to sharing the draft site restoration plan with Hiawatha First Nation for feedback.	Where is this topic discussed in the EIS? General plans for restoration and end state are described in **Section 4.3.1.9** of the EIS. What changes have been made (and where)? No changes have been made to the EIS.	Status: Resolved CNL considers this interest resolved via clarification of EIS wording with Curve Lake and Hiawatha FN. CNL remains committed to ongoing engagement with the Hiawatha First Nation. Next Steps: CNL will share the draft restoration plan with Hiawatha First Nation and other Indigenous Nations, communities and organizations once it is complete.
5) Protection of Flora and Fauna	(a) Hiawatha expressed interest in CNL's plans for the NPD ventilation stack in relation to caretaking of the environment, and maintaining this habitat for the Chimney Swift with a secondary interest in the impact of a stack collapse and proximity of this structure to the Ottawa River. This is a project-specific interest.	In May 2020, the WTFN and CNL met for a discussion and presentation sharing information on the NPD Closure Project. Species at risk was a key focus of the discussion and representatives of Curve Lake First Nation had a number of follow-up question after the meeting. In response, CNL provided the Chimney Swift TSD as well as specific answers to questions from Curve Lake First Nation, Hiawatha First Nation and Alderville First Nation on the ventilation stack and Chimney Swifts. At the May 2021 monthly project update and information sharing meeting between CNL and WTFN, an overview of CNL's biodiversity program was discussed. CNL Response: CNL undertook investigation of the viability of ventilation stack removal. It was decided that ventilation stack retention would mitigate the risk of abandonment by the chimney swift. CNL has applied for a species at risk permit from ECCC for the potential harm and harassment of chimney swifts during decommissioning activities. CNL examines the probability of a stack collapse in the Decommissioning Safety Assessment (DecomSA) TSD (Section 9.6.6) focusing on 3 potential causes: earthquake, tornado and heavy equipment operation. The DecomSA TSD also presents the maximum dose to a receptor resulting from a potential collapse of the Ventilation stack. Should the stack collapse, its height (of 45 m) means that it would land on the main terrace where the facility is located. For reference the base of the stack is about 140 m away from the shore of the Ottawa River. CNL has a surveillance plan in place at current that will continue for as long as the stack is maintained whereby periodic inspections of the stack are performed to ensure it remains in satisfactory condition.	Where is this topic discussed in the EIS? **Section 9.6.3.2** of the EIS includes comprehensive mitigations to ensure effects on Chimney Swifts are minimized. What changes have been made (and where)? No changes have been made to the EIS.	Status: Resolved CNL considers this concern has been addressed with the information shared to Hiawatha First Nation. CNL remains committed to ongoing engagement with Hiawatha First Nation.
5) Protection of Flora and Fauna	(b) Hiawatha First Nation expressed concern about potential accumulation of contamination in large game animals. As stewards of the lands and waters, it is important to Hiawatha First Nation that the environment, including flora and fauna around the CRL	CNL's Environmental Protection experts responded directly to the question about large game animals during the monthly meeting. CNL Response: For the CRL site, samples of large game like deer, moose, and black bear are obtained from animals who succumbed as a result of vehicle collisions on the CRL	Where is this topic discussed in the EIS? The draft follow-up monitoring plans for the NPD Closure project are included in **Section 12** of the EIS. What changes have been made (and where)? No changes have been made to the EIS.	Status: Resolution in Progress CNL considers this concern has been addressed with the information shared to Hiawatha First Nation. CNL remains committed to ongoing engagement with Hiawatha First Nation.

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	and NPD sites is protected, to ensure the rights and interests of Hiawatha First Nation are upheld in relation to the environment (i.e., hunting). This is both a CNL-wide and project specific concern.	site and from harvested animals (donated by local hunters) from areas within 25 km of CRL. The samples are analyzed for radioactivity and a dose from consumption is calculated. Although radioactivity in large game animals is slightly higher on and within 25 km of the Chalk River site than beyond it, the dose from consuming game animals from on or around the CRL site is a small fraction of the public dose limit of 1 millisieverts/year, indicating a very low risk. Game animals are not sampled around the NPD site because the low emissions to the environment from NPD do not warrant a sampling campaign. The Postclosure Safety Assessment (PostSA) technical supporting document (TSD) addresses potential concerns about food safety. The PostSA and EIS (and other supporting studies) demonstrate that, there are no concerns about the accessibility or safety of the NPD site in the long term based on several different future use scenarios, including self-sufficient Indigenous receptors (encompassing hunting). The proposed NPD Closure Project activities will result in an enhancement of current conditions at the NPD site and will improve the ability to practice traditional activities in the area surrounding the NPD site. These findings, which will be confirmed by monitoring, may reduce concerns about food safety. The follow-up monitoring program for the NPD Closure Project will monitor the environmental pathways whereby contamination may be accessible to biota (e.g., surface water).		It is noted that this topic extends beyond the scope of the NPD Closure Project.
6) Monitoring	a) Hiawatha First Nation expressed interest in the monitoring plans for the NPD site. This interest stems from the importance of environmental stewardship to Hiawatha First Nation. As stewards of the lands and waters, it is important to Hiawatha First Nation that the environment around the site of the NPD Closure Project including the Ottawa River, are protected, and that the rights and interests of Hiawatha First Nation are upheld in relation to the environment (i.e., hunting, trapping, gathering, fishing and cultural ceremonies). This is a project-specific interest.	In May 2020, the WTFN and CNL met for a discussion and presentation sharing information on the NPD Closure Project. Key focus areas were: project overview and timeline, waste inventory, monitoring, VCs, species at risk, traditional land and resource use and effects on the environment. Hiawatha First Nation participated in this webinar and shared a number of questions with CNL related to environmental monitoring. CNL followed up with specific answers to questions from the Hiawatha Lands and Resources staff monitoring, as well as three Annual Compliance and Monitoring reports from 2016, 2017 and 2018. CNL Response: The follow up monitoring program is described at a high level in Section 12 of the EIS with significant details developed compared to the 2017 draft EIS. These details come through the development of the 3 draft follow-up monitoring plans for effluent, environment and groundwater. CNL is seeking to work together with Indigenous Nations, communities and organizations, the public and stakeholders regarding their feedback before finalizing the EA Follow-up Program (**Section 12** of the EIS). CNL has indicated that it is willing to involve all Indigenous Nations, communities and organizations in its monitoring programs.	Where is this topic discussed in the EIS? The draft follow-up monitoring plans for the NPD Closure project are included in **Section 12** of the EIS. What changes have been made (and where)? No changes have been made to the EIS.	Status: Resolved CNL considers this concern has been addressed with the information shared to Hiawatha First Nation. CNL remains committed to ongoing engagement with Hiawatha First Nation. CNL is planning workshops to gather feedback on the draft follow-up monitoring plans for summer 2023.
7) Socio-economics	a) Hiawatha (and Curve Lake) expressed concern about how community statistics from NPD's neighboring Indigenous Nations, communities and organizations are portrayed.	CNL has responded in writing to Curve Lake comments on this topic and shared these responses with Hiawatha First Nation, citing relevant sections of the EIS as part of the comment responses. CNL has communicated to Hiawatha First Nation that is working directly with AOPFN on EIS content and Algonquin perspective.	Where is this topic discussed in the EIS? **Sections 8.10 and 9.10** of the EIS focus on Indigenous socio-economic conditions, including economy and employment. **Section 8.10** summarizes current economic and employment conditions, and **Section 9.10** assesses potential effects and	Status: Resolved CNL considers this interest resolved via clarification of the basis for inclusion of Indigenous socio-economic content within the EIS.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
	Hiawatha First Nation wants to ensure that the effects of colonialism and the Indian Act on the socio-economic conditions of Indigenous Nations, communities and organizations are recognized. This is both a CNL-wide and project specific concern.	CNL Response: CNL acknowledges that economic challenges faced by some Indigenous Nations, communities and organizations are likely related to legacies of colonialism and the *Indian Act*. CNL understands this concern and continues to want to offer opportunities and benefits to Indigenous individuals and communities that will enhance their economic well-being. CNL clarified that the inclusion of socio-economic information was in response to comments on the 2017 draft EIS from Indigenous Nations, communities and organizations.	discusses CNL's plan to fully realize the potential for economic and employment benefits to Indigenous Nations, communities and organizations. What changes have been made (and where)? No changes have been made to the EIS.	It is noted that this topic extends beyond the scope of *CEAA* (2012) and the EA for the NPD Closure Project.
Chippewas of Rama First Nation				
1. Alternatives	a) Range of alternatives considered and overall suitability of the In-Situ Disposal concept. Rama First Nation was concerned that CNL evaluate a range of options and that the design allows for reversibility if improved waste disposal options become available in the future. Rama wants to ensure that changes can be made in the future to ensure the environment remains protected. This is a project-specific concern.	CNL provided an overview of the alternatives and indicated that ISD is meant to be a permanent solution and that there is no intention to retrieve waste in the future. This response was provided verbally to Rama during a project update in April 2023. CNL Response: The waste at NPD has been there for over 55 years. CNL is reducing the waste liability by converting the waste into a form that provides safe, permanent waste disposal. CNL has assessed the suitability of ISD for NPD, and the EIS demonstrates that such disposal is safe for human health and the environment in the short term and long term. CNL has considered national and international standards and guidelines and continues to believe that the NPD facility has characteristics that support ISD.	Where is this topic discussed in the EIS? The in-situ disposal approach is described in **Section 3.2** of the EIS. Alternative means are discussed in the **Alternative Means Assessment TSD** (64-509200-ASD-002 Revision 1) and **Section 4.2** of the EIS. What changes have been made (and where)? No changes have been made to the EIS.	Status: Resolved CNL considers this concern has been addressed with the information shared to Rama First Nation. CNL remains committed to ongoing engagement with Rama First Nation through the William's Treaty First Nations monthly update.
1. Alternatives	b) Is In-Situ Disposal a Proven Technology Rama First Nation was interested in seeing examples of ISD used elsewhere and the performance of the technology. Rama wants confidence that this technology will protect humans and the environment. This is a project-specific concern.	CNL shared its report summarizing worldwide examples of In-situ disposal as a follow-up to the 2023 April project update meeting. CNL Response: CNL has written a report that summarizes facilities worldwide that use In-situ Disposal. The report is not limited to nuclear reactors or processing facilities but includes mines and hazardous waste sites. The report also describes what each of the facilities have in common, why in-situ disposal is the preferred approach and how it applies to NPD. 16 projects are described, the majority of the examples are reactors and all are permanent disposal solutions. CNL has assessed the suitability of ISD for NPD, and the EIS demonstrates that such disposal is safe for human health and the environment in the short term and long term. CNL has considered national and international standards and guidelines and continues to believe that the NPD facility has characteristics that support ISD.	Where is this topic discussed in the EIS? **Section 11.2** of the EIS confirms that in-situ disposal is a proven technology in use for over 50 years. What changes have been made (and where)? No changes have been made to the EIS.	Status: Resolved CNL considers this concern has been addressed with the information shared to Rama First Nation. CNL remains committed to ongoing engagement with Rama First Nation through the William's Treaty First Nations monthly update.
2. End State, Site Restoration and Future Use of the Land	a) Long-term liability of the site beyond decommissioning. Rama is interested to know when the site will be safe for reuse. It is	CNL summarized the range of scenarios considered and that the results that the site is safe for a variety of uses following the Institutional Control period. This response was provided verbally to Rama during a project update in April 2023.	Where is this topic discussed in the EIS? **Sections 9.8 and 9.10** of the EIS include a summary of the results of the PostSA TSD and the potential impacts of the project on human and more specifically Indigenous health.	Status: Resolved CNL considers this concern has been addressed with the information shared to Rama First Nation.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
	important to Rama that the end state of the NPD site is safe for future land users. This is a project-specific interest.	CNL Response: CNL acknowledges Rama's interest in being able to reuse the site in the future. The Postclosure Safety Assessment (PostSA) technical supporting document (TSD) demonstrates that the impact beyond the Institutional Controls period on the public, Indigenous and the environment is negligible under all scenarios. CNL notes that the final end state is the only time when changes to access will occur; the final end state of the NPD site will be an improvement from current conditions. To instill confidence in the EIS findings and the effectiveness of the follow-up monitoring, CNL will involve Indigenous Nations, communities and organizations in the monitoring program, which aims to confirm the predictions of the EIS.	What changes have been made (and where)? No changes have been made to the EIS.	CNL remains committed to ongoing engagement with Rama First Nation through the William's Treaty First Nations monthly update.
3. Long-term Safety	a) Long-term integrity of the concrete cap and engineered barrier As long-term stewards and users of the land and waters, it is important to Rama First Nation that the design life of the protective layers for the proposed NPD Disposal Facility are sufficient over time to provide confidence that the environment is protected. This is a project-specific interest.	CNL and Rama First Nation had initial discussions on this topic during the April 2023 project update meeting. CNL is happy to share the Institutional Control Surveillance Plan and additional high-level information about the concrete cap and engineered barrier with Rama First Nation if needed during the WTFN monthly meetings. CNL Response: The proposed NPD Disposal Facility is designed to hold the radionuclides within the facility as long as possible so that they have time to decay away. This is achieved by the use of multiple barriers and defense in depth. The main features containing the radionuclides, are the thick concrete walls of the facility and the fact that the majority of the radioactivity is present within the matrix of steels and zircaloy that will corrode very slowly in the chemical environment of the decommissioned facility. For example, steels in the reactor are predicted to take 30,000 years to corrode due to the alkaline conditions in the facility. The grout backfill is also a contributor to safety. The grout and concrete constrain water flow and also limits the mobility of the waste as the waste will sorb to the grout. Even once the concrete and grout has degraded such that its structural properties are no longer effective, the alkaline environment provided by the cement will remain in place for thousands of years. A reinforced concrete cap will be placed over the Nuclear Area of the facility as a barrier following the completion of grouting. The concrete cap is designed to support the loads of the Engineered Barrier and its construction. The cap has a thickness of 0.40 m (1'-4") at the edge, and rises to a thickness of 0.71 m (2'-4") at the center. The area of the cap is approximately 600 m^2 (6430 ft^2), and it is dowelled to the foundation walls of the existing structure for anchorage. A multi-layered engineered cover will be placed over the grouted facility, following placement of the concrete cap. The engineered cover consists of a compacted layer of select fill at the bottom a minimum of 1.2 m thick. This bottom layer is overlain by a very low permeability membrane called a geosynthetic clay liner (GCL) and a geogrid, and covered by a 0.15 m thick sand cushion supporting a 0.15 m thick layer of clear stone. The GCL is designed to intercept water percolating through the top of the engineered cover and direct the water to the outside of the engineered cover where it can drain away. The clear stone serves as a drainage layer while the sand	Where is this topic discussed in the EIS? **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the proposed NPD Disposal Facility to ensure protection of the surrounding environment. **Section 4.3.1** of the EIS describes the Concrete Cap and Engineered Cover and Long Term Care and Maintenance. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback (received May 2023).	Status: Resolved CNL considers this concern has been addressed with the information shared to Rama First Nation. CNL remains committed to ongoing engagement with Rama First Nation through the William's Treaty First Nations monthly update.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		cushion also provides some drainage capability and acts as a protective layer to the GCL. Over the clear stone, a geotextile will be placed and covered by a 0.3 m thick layer of select fill, upon which 0.15 m of topsoil is placed and seeded, to form a shallow-rooted vegetative cover at the top of the engineered cover. The design life of the cap and cover system is 100 years. The Institutional Control Surveillance Plan has been developed to verify the integrity of accessible passive barriers and support structures, and to enable the prompt identification of conditions that may lead to a migration or release of radionuclides or other contaminants to the environment. The plan outlines the maintenance program to be executed to ensure accessible features of the new disposal facility are maintained (e.g. periodic inspection of the cover and maintenance when required) over the Institutional Control period. The only mechanism that would require the replacement of the cover would be a catastrophic failure of both the GCL and the geotextile membrane in conjunction with levels of tritium released in excess of acceptance criteria. Disruptive events beyond 100 years were not dismissed. The PostSA TSD examines scenarios and calculations developed systematically using FEPs (Features, Events and Processes) where 200 FEPs were compiled and categorized by potential consequences and probabilities. The PostSA shows that the decommissioned facility can be expected to contain the dominant radionuclides effectively. Even after 50,000 years, more than 96% of the remaining radioactivity is still contained within the proposed NPD Disposal Facility. CNL's technical assessment shows that there are no long-term effects resulting from the NPD Closure Project as shown through the use of multiple barriers and defense in depth. Continued engagement with Rama First Nation may result in additional commitments that will enhance confidence and trust in CNL's assessment. CNL remains committed to ongoing engagement with Rama First Nation within CNL's role as the project proponent.		
4. Monitoring	a) Impacts from site operation Rama is interested to understand CNL's past environmental performance at the NPD site. Rama wishes to ensure the environment has not been impacted by past operations. This is a project-specific concern.	CNL shared a link to the annual summary or environmental performance as a follow-up to the 2023 April project update meeting. CNL would be pleased to share any other historic monitoring data as requested by Rama. <u>CNL Response:</u> CNL conducts a rigorous monitoring program and is committed to ensuring that the environment around the NPD site, including the Ottawa River, is protected. Monitoring of the environment (a) Ottawa River water: Radioactivity measured in the Ottawa River upstream and downstream of the NPD site are very low (<0.01% of the derived release limit). (b) Surface soil and Vegetation: Tritium in soil and vegetation on the NPD site is very low (< 0.01% of the derived release limit). The results demonstrate that the public and the environment around the NPD site continues to be protected.	<u>Where is this topic discussed in the EIS?</u> Historic environmental monitoring is summarized in the description of the existing environment (**Section 8**) of the EIS. Specifically, EIS **Sections 8.2** – Atmospheric Environment, **8.3** Surface Water Environment, **8.5.6** Groundwater Quality and **8.7** Ambient Radioactivity. <u>What changes have been made (and where)?</u> No changes have been made to the EIS.	<u>Status:</u> Resolved CNL considers this concern has been addressed with the information shared to Rama First Nation. CNL remains committed to ongoing engagement with Rama First Nation through the William's Treaty First Nations monthly update.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		In addition to the CNL monitoring program, the CNSC leads an Independent Environmental Monitoring Program (IEMP) designed to verify that the public and the environment around licensed nuclear facilities are protected. As part of its IEMP, the CNSC samples and analyzes surface water upstream and downstream of the NPD site (including sampling for non-radiological parameters). The CNSC IEMP results confirm that the public and the environment around the NPD site are protected and that there are no expected health impacts.		
4. Monitoring	b) Design of follow-up monitoring It is important that Rama has an opportunity to review the monitoring plans to ensure transparency and promote confidence in these activities. This is project –specific interest.	CNL shared the draft monitoring plans with Rama First Nation as a follow-up to the 2023 April project update meeting. CNL Response: The follow up monitoring program is described at a high level in Section 12 of the EIS with significant details developed compared to the 2017 draft EIS. These details come through the development of the 3 draft follow-up monitoring plans for effluent, environment and groundwater. CNL is seeking to work together with Indigenous Nations, communities and organizations, the public and stakeholders regarding their feedback before finalizing the EA Follow-up Program (**Section 12** of the EIS). CNL has indicated that it is willing to involve all Indigenous Nations, communities and organizations in its monitoring programs.	Where is this topic discussed in the EIS? The follow-up monitoring program is described at a high level in **Section 12** of the EIS, details of which derive from the development of the effluent, environment and groundwater draft follow-up monitoring plans. What changes have been made (and where)? No changes have been made to the EIS.	Status: Resolved CNL considers this concern has been addressed with the information shared to Rama First Nation. CNL remains committed to ongoing engagement with Rama First Nation through the William's Treaty First Nations monthly update.

Appendix C.6– Record of Engagement and Tables of Interests and Concerns for the Algonquin Nation Secretariat

This appendix provides a complete record of all engagement between CNL and Algonquin Nation Secretariat from June 2016 to March 2024 (Table C-29). Table C-29 includes the date and method of the communication/engagement, the topics discussed and participants. The table also highlights engagements where key EA topics were discussed. The key EA topics align with "Generic Guidelines for Preparation of an Environmental Impact Statement Pursuant to the *Canadian Environmental Assessment Act*, 2012" as well as the requirements of REGDOC 3.2.2 "Indigenous Engagement" and guidance specific to NPD provided by the CNSC in January 2021 (e-doc # 6467843).

Section 6.2.4.16.1 of the EIS summarizes the engagement activities that have taken place to date between CNL and the Algonquin Nation Secretariat.

Table C-29 Record of Engagement with the Algonquin Nation Secretariat

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Algonquin Nation Secretariat's Director General introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5(1)(c), the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* • *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	
October 24, 2016 Outgoing telephone call	This was a telephone call from a communications officer with CNL to the office of the Director General of the Algonquin Nation Secretariat.										√
November 10, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Algonquin Nation Secretariat Director General inquired about asserted rights and traditional activities in the region around CRL. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested a better understanding of Algonquin Nation Secretariat's historic and/or modern day use of lands in and/or near both of the projects and asked the following questions: • *Does the Algonquin Nation Secretariat have traditional territory or reserve lands near the NSDF and/or NPD Closure Project?* • *What is the history of Algonquin Nation Secretariat using the areas around the two projects?* • *Do you have any members of the Algonquin Nation Secretariat that currently live in close or reasonable proximity to either of the projects?* • *Does the Algonquin Nation Secretariat have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects?* • *Does the Algonquin Nation Secretariat, or any members, have sites of ceremonial significance in close proximity to either of the two sites, or more generally, any cultural activities near either of the two sites?* CNL also indicated interested in learning more about the Algonquin Nation Secretariat and any asserted rights, interests or activities members might undertake in the local or regional areas in proximity to the project.				√	√				√	

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 15, 2017 Outgoing email	This email from a communications officer to the Algonquin Nation Secretariat Director General enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and environmental assessment, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	
November 17, 2017 Outgoing email	This email from a communications officer with CNL to the Algonquin Nation Secretariat Director General enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: "CNL would be pleased to update information in this current draft with input from your community."	√	√	√	√	√	√	√	√	√	
In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
May 06, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Algonquin Nation Secretariat Director General enclosed a preliminary version of the 2020 EIS and an updated IER. This letter also asked for feedback in the following seven areas: • *Does Algonquin Nation Secretariat have additional information that they would like to provide in the context of traditional territory near the NPD site?* • *Does Algonquin Nation Secretariat have any members who currently live close or in reasonable proximity to the NPD site?* • *Does Algonquin Nation Secretariat have historical and/or current traditional practices near the NPD site, specifically we are interested in members' traditional uses such as trapping (traditional or commercial), hunting, fishing (traditional or commercial), gathering and practicing cultural ceremonies?* • *Does Algonquin Nation Secretariat have sites of ceremonial significance in close proximity or more generally any cultural activities near the NPD site?* • *Tell us about any important resources, uses, activities, values and interests to Algonquin Nation Secretariat near the NPD site.* • *If there is use in close proximity to the NPD site, is current community use different than historic use and can a description of those difference be provided?* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights.* This letter also indicated an interest in meeting with Algonquin Nation Secretariat to discuss any interests or concerns.	√	√	√	√	√	√	√	√	√	
May 26, 2020 Outgoing email	This email from a communications officer with CNL to the Algonquin Nation Secretariat Director General was to follow-up on the registered letter sent on May 06.										√
May 26, 2020 Incoming email	This email from the former Algonquin Nation Secretariat Director General to a communications officer with CNL was to advise of the new Algonquin Nation Secretariat Director General and share their contact information.										√
May 26, 2020 Outgoing email	This email from a communications officer with CNL to the new Algonquin Nation Secretariat Director General enclosed the letter from May 06, 2020 and offered a meeting.	√	√	√	√	√	√	√	√	√	
April 12, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Director General of the Algonquin Nation Secretariat enclosed a preliminary list of commitments and indicated interest in meeting to discuss.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 15, 2021 Outgoing email	This email from a communications officer with CNL to the Director General of the Algonquin Nation Secretariat was to follow-up on the April letter.										√
April 18, 2022 Outgoing email	This email from a Communications officer at CNL to Algonquin Nation Secretariat consultation was to inform Algonquin Nation Secretariat about Industry Day on June 2, 2022 at CRL.										√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Algonquin Nation Secretariat – Summary of Interests and Concerns

Algonquin Nation Secretariat has not submitted any written comments on the NPD Project Description or the 2017 draft EIS, or provided any comments verbally. As such, CNL has not included an interests and concerns table. CNL has attempted to engage with the Algonquin Nation Secretariat on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to ongoing engagement with Algonquin Nation Secretariat.

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Appendix C.6.1 – Record of Engagement and Tables of Interests and Concerns for Wolf Lake First Nation

This appendix provides a complete record of all engagement between CNL and Wolf Lake First Nation (a member nation of Algonquin Nation Secretariat) from June 2022 to March 2024 (Table C-30). Communications with Wolf Lake First Nation (WLFN) between June 2016 and June 2022 were via the Algonquin Nation Secretariat (Table C-29). At the NSDF Hearing in 2022 June, CNL heard that the individual rights bearing communities needed to be engaged independently from the Algonquin Nation Secretariat, regarding CNL related projects and activities.

Table C-30 includes the date and method of the communication/engagement, the topics discussed and participants. This table also highlights engagements where key EA topics were discussed. The key EA topics align with "Generic Guidelines for Preparation of an Environmental Impact Statement Pursuant to the *Canadian Environmental Assessment Act*, 2012" as well as the requirements of REGDOC 3.2.2 "Indigenous Engagement" and guidance specific to NPD provided by the CNSC in January 2021 (e-doc # 6467843).

Following the record of engagement is a mapping of how the summary of interests and concerns were compiled (Table C-31), as well as a summary of interests and concerns raised by WLFN (Table C-32).

Section 6.2.4.17.1 of the EIS summarizes the engagement activities that have taken place to date between CNL and WLFN.

Table C-30 Record of Engagement with the Wolf Lake First Nation

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 12, 2022 Outgoing email	This email from a CNL Communications Officer to the WLFN's Chief was to inquire if WLFN would be interested in meeting CNL and acknowledging WLFN's intervention for the NSDF licensing hearing. CNL asked WLFN to confirm the appropriate contact for engagement and asked how WLFN would like to engage CNL moving forward.										
May 24, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the WLFN's Chief was follow-up on the previous email and to inquire whether there was interest in meeting CNL.										√
June 22, 2022 Outgoing email	This email from CNL's Indigenous Relations Director to the WLFN Chief stated an interest in engagement and meeting with WLFN.										√
June 22, 2022 Outgoing email	This email from CNL's Indigenous Relations Director to the WLFN's Legal Counsel stated an interest in engagement (including the NPD project) and meeting with WLFN to discuss WLFN's interest in the NSDF project.										√
June 22, 2022 Outgoing Telephone call	CNL's Indigenous Relations Director called the WLFN Chief and left a voicemail asking the Chief to get in touch by email for phone to set up a meeting.										√
June 23, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to the Chiefs of ABL, TFN and WLFN was to indicate CNL's interest in meeting with each community either collectively or together and to share information on CNL's activities and projects including the NPD project.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 24, 2022 Incoming letter	This letter from WLFN's Legal Counsel to CNL's Director of Indigenous Relations. The letter requests that CNL assess the strength of WLFN's Aboriginal rights and title assertion in proximity to the NSDF project. Of importance to the NPD project, the letter discussed CNL's lack of engagement and consultation with WLFN and the duty to consult. The letter references previous correspondence with the federal government.										√
June 24, 2022 Incoming email	This email from WLFN's Chief to CNL's Director of Indigenous Relations offered a meeting to discuss the relationship.										√
June 24, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to the WLFN Chief thanked WLFN for the letter and indicated interest in an initial meeting in August.										√
July 07, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to the WLFN Chief indicated CNL was reviewing and would be responding to the letter of June 24, 2022 and indicated an interest in setting a meeting date for August in the meantime.										√
July 20, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to the WLFN Legal Counsel requested assistance in setting up a meeting between CNL and WLFN.										√
July 25, 2022 Incoming email	This email from the WLFN Legal Counsel to CNL's Director of Indigenous Relations stated they would be reaching out to the WLFN to coordinate. CNL confirmed receipt.										√
July 28, 2022 Outgoing letter	This letter from CNL's Director of Indigenous Relations to the WLFN Legal Counsel responded to WLFN's letter of June 24. This letter articulated that CNL was not the Crown and did not have the duty to consult in the case of the NSDF project. This letter also stated an interest in engagement, working together and meeting in the near term to discuss interests. This letter speaks to the relationship between CNL and WLFN and is important for engagement related to the NPD project.										√
August 05, 2022 Incoming email	This email from the WLFN Legal Counsel to CNL's Director Indigenous Relations confirmed that WLFN would meet with CNL on August 10 to discuss WLFN's assertions. The email also requested CNL correspond directly with WLFN and not the Algonquin Nation Secretariat.										√
August 05, 2022 Incoming email	This email from the WLFN Legal Counsel to CNL's Director Indigenous Relations gave a final specific meeting place in Ottawa.										√
August 05, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to the WLFN Legal Counsel confirmed CNL's attendance for the August 10 meeting. CNL also confirmed that all future correspondence will be sent the Chief at WLFN, and not Algonquin Nation Secretariat.										√
August 09, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to the WLFN's Chief provided details about the August 10, 2022 meeting logistics.										√

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Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
August 10, 2022 Meeting	This meeting between WLFN (including the WLFN Chief and Legal Counsel), CNL (including the Director of Indigenous Relations, Manager of ERM Stakeholder Relations and the NSDF project staff), and AECL (including the Vice-President, Decommissioning and Waste Management Oversight) was to discuss the CNL and WLFN relationship and the NPSD project. CNL provided information on the NPD project.										√
August 17, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to the WLFN's Chief thanked WLFN for the opportunity to meet and share information on the NSDF and NPD projects. CNL enclosed information in follow-up to the meeting.										√
October 03, 2022 Outgoing letter	This letter addressed to the WLFN's Chief from CNL's Director of Indigenous Relations provided a project update and the engagement status with the WFLF, CNL noted that the next step is a meeting to discuss enabling capacity funding for WLFN's involvement in the NPD and NSDF projects. CNL also sent a draft Contribution Agreement template.									√	√
October 26, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the WLFN's Chief was to follow-up on the October 3, 2022 letter.									√	√
November 13, 2022 Incoming email	This email from the WLFN Legal Counsel is in response to a CNL Senior Communications Officer to schedule a zoom call to discuss options for capacity funding to address CNL's outstanding projects. WLFN requested capacity funding to specifically hire a third party to review both the technical requirements of the project(s) and a review of the environmental assessment report. Once those reviews have been completed WLFN will be able to provide its comments and request any accommodation that may be required to ensure its asserted Aboriginal and title rights are not impacted.									√	√
November 18, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the WLFN Legal Counsel requesting a few dates and times that would work for WLFN for a virtual meeting to discuss CNL project(s).									√	√
November 30, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the WLFN Legal Counsel following up on email sent November 18 requesting a few dates and times that would work for WLFN for a virtual meeting to discuss CNL project(s), including the NPD project.									√	√
November 30, 2022 Incoming email	This email from the WLFN Legal Counsel is in response to a CNL Senior Communications Officer confirmed receipt of meeting request and will confirm the meeting soon.									√	√

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
December 07, 2022 Incoming Email	This email from WLFN legal counsel to CNL Senior Communications Officer requesting the most recent version of the Environmental Impact Statement for the NPD Closure Project.										√
December 07, 2022 Incoming Email	This email from WLFN legal counsel to CNL Senior Communications Officer with suggested dates for a virtual meeting to discuss the next steps in finalizing a Capacity Funding Agreement, timelines and deliverables.										√
December 07, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to WLFN's legal counsel providing dates to meet and confirming the request for the Nuclear Power Demonstration Environmental Impact Statement (EIS).										√
December 07, 2022 Incoming Email	This email from WLFN legal counsel to the CNL Senior Communications Officer with CNL confirming a meeting date of 2022 December 12.										√
December 07, 2022 Outgoing Email	This email from CNL Senior Communications Officer to WLFN Legal Counsel sharing names of whom to send the invitations of the 2022 December 12 meeting.										√
December 07, 2022 Incoming Email	This email from WLFN legal counsel to ERM Stakeholder Relations containing a meeting invitation and link for a virtual meeting to be held on 2022 December 12.										√
December 07, 2022 Outgoing Email	This email from CNL Senior Communications Officer to WLFN Legal Counsel confirming if they received the link to download the NPD Environmental Impact Statement.										√
December 07, 2022 Incoming Email	This email from the WLFN Legal Counsel in response to CNL Senior Communications Officer to confirm that they did not receive a link for the Environmental Impact Statement (EIS).										√
December 09, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to WLFN Legal Counsel resending the NPD Environmental Impact Statement (EIS).										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
December 09, 2022 Incoming Email	This email from the WLFN Legal Counsel in response to CNL Senior Communications Officer to confirm that WLFN Legal Counsel has successfully downloaded the Environmental Impact Statement (EIS) document.										√
December 12, 2022 Virtual Meeting	This meeting between representative of Wolfe Lake FN (including the chief and legal counsel) and CNL (NPD project staff, NSDF project staff, ERM Stakeholder Relations, CNL legal counsel and Director of Indigenous Relations) to discuss Federal Environmental Assessments for NSDF and NPD. CNL and WLFN also discussed a Contribution Agreement.										√
December 13, 2022 Incoming Email	This email from the WLFN Legal Counsel to a CNL Senior Communications Officer requesting CNL provides WLFN with the other third-party environmental reviews.										√
December 15, 2022 Outgoing Email	This email from a CNL Senior Communications Officer to WLFN Legal Counsel containing links to third-party environmental reviews.										√
December 16, 2022 Incoming Email	This email from the WLFN Legal Counsel to CNL containing quotes for the draft budget in the Capacity Funding Agreement.										√
December 16, 2022 Outgoing Email	This email from CNL Legal Counsel to WLFN Legal Counsel containing comments for consideration on the draft Capacity Funding Agreement.										√
December 20, 2022 Incoming Email	This email from WLFN Legal Counsel to CNL Legal Counsel confirming there are no further comments on the draft Capacity Funding Agreement so CNL can proceed with signatures and finalization of the document before office holiday closure.										√
December 20, 2022 Outgoing Email	This email from CNL Legal Counsel to WLFN Legal Counsel confirming there will be no further comments at this time for the draft Capacity Funding Agreement.										√
December 20, 2022 Incoming Email	This email from the WLFN Legal Counsel to CNL Legal Counsel containing a copy of the Capacity Funding Agreement signed by the Wolf Lake First Nation Chief.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
December 20, 2022 Outgoing Email	This email from CNL Legal Counsel to WLFN Legal Counsel requesting the documents used to create the execution version of the Capacity Funding Agreement.										√
December 20, 2022 Incoming Email	This email from the WLFN Legal Counsel to CNL containing the documents requested by CNL in an earlier email on 2022 December 20.										√
December 21, 2022 Outgoing Email	This email from CNL Legal Counsel to WLFN Legal Counsel with an attached copy of the fully executed Capacity Funding Agreement between Wolf Lake First Nation and CNL.										√
December 20, 2022 Incoming Email	This email from WLFN Legal Counsel to CNL legal counsel confirming receipt of the fully executed copy of the Capacity Funding Agreement between Wolf Lake First Nation and CNL.										√
January 17, 2023 Incoming Email	This email from WLFN Legal Counsel to a Communications Officer at CNL and confirming the submission date of 2023 January 20 for comments on the Environmental Impact Statement (EIS) for the NPD Closure Project.										√
January 18, 2023 Outgoing Email	This email from CNL Senior Communications Officer to WLFN Legal Counsel confirming the decision to postpone the NPD Environmental Impact Statement (EIS) submission and provided a new date of 2023 May.										√
January 18, 2023 Incoming Email	This email from the WLFN Legal Counsel to a CNL Senior Communications Officer requesting additional time to further refine its submission of the NPD EIS.										√
January 18, 2023 Outgoing Email	This email from a CNL Senior Communications Officer to WLFN Legal Counsel suggesting a feedback submission for the end of February 2023 in the interest of working together for the 2023 May submission.										√
January 18, 2023 Incoming Email	This email from WLFN Legal Counsel to CNL Communications Officer confirming a date of 28 February 2023 to submit any feedback on the Environmental Impact Statement (EIS).										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
January 18, 2023 Outgoing Email	This email from CNL to Senior Communications Officer to WLFN Legal Counsel suggesting a feedback submission for the end of 2023 February in the interest of working together for the 2023 May submission.										√
January 20, 2023 Outgoing Email	This email from CNL Communications Officer to WLFN Legal Counsel to inform of the decision to postpone the submission of the NPD Closure Project's draft Environmental Impact Statement (EIS) until 2023 May to allow for additional Indigenous input. CNL proposed the next step would be receiving the EIS comments in February 2023.										√
January 28, 2023 Emails between WLFN and CNL (2 emails)	This email from WLFN Legal Counsel to CNL in follow-up and response to the email sent from CNL to WLFN on 2023 January 18. WLFN emailed CNL with a request to extend the submission date of the Wolf Lake First Nation's submissions on the EIS for the NPD Closure Project to 2023 March 02. CNL confirmed that a submission date of 2023 March 08 is acceptable.										√
March 03, 2023 Incoming Email	This email from WLFN Legal Counsel to a CNL Senior Communications Officer indicating that they will deliver the Wolf Lake FN submission to CNL on 2023 March 08 instead of 2023 March 02.										√
March 08, 2023 Incoming Email	This email from WLFN's Legal Counsel to a CNL Senior Communications Officer providing Wolf Lake's final submission on the NPD Closure Project EIS. CNL confirmed receipt.	√	√	√	√	√	√	√	√	√	√
March 14, 2023 Outgoing Email	This email from a CNL Senior Communications Officer to WLFN's Chief sharing CNL's Indigenous Relations Procurement Strategy.										√
March 22, 2023 Outgoing Email	Emails between CNL and WLFN concerning WLFN comments on the Near Surface Disposal Facility (NSDF) project and NPD Closure project Environmental Impact Statements (EIS). CNL requested a meeting virtually to discuss the next steps for each of the two projects before the 2023 July Environmental Impact Statement draft submission date.										√
April 13, 2023 Outgoing Email	This email from CNL Senior Communications Officer to WLFN looking to follow up on an email sent on 2023 March 22, to possibly coordinate a time to meet virtually.										√
April 13, 2023 Emails between CNL and WLFN (3 Emails)	Emails between CNL Senior Communications Officer and WLFN concerning an upcoming virtual meeting and questions regarding CNL's capacity to cover these types of meetings under the capacity agreement.										√

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
May 04, 2023 Outgoing Email	These emails between CNL Senior Communication Officer and WLFN concerning an upcoming in-person meeting to be held at Wolf Lake or in Ottawa. CNL confirmed their interest in going to an in-person meeting in the community and wanted to confirm if Wolf Lake was interested in an NSDF and NPD update. Wolf Lake confirmed they would like to hear updates for both NSDF and NPD. CNL proposed possible dates in 2023 May.										√
May 16, 2023 Outgoing Email	This email from a CNL Senior Communication Officer to WLFN is to follow up on a previous email sent on 2023 May 04 concerning an upcoming in-person meeting to be held at Wolf Lake or in Ottawa and possible dates for the meeting.										√
June 07, 2023 Outgoing Email	This email from a CNL Communications Officer to WLFN providing responses to the comments and recommendations from WLFN on the EIS. CNL shared that they are looking to confirm that CNL accurately recorded the interests and concerns of WLFN related to the NPD Closure Project. CNL shared the current version of the WLFN Interests and Concerns Table (WLFN I&C) for WLFN verification. CNL also included a mapping table that indicates where/how the interest was received (WLFN Mapping). CNL requested WLFN verify its completeness and accuracy by 2023 June 20.	√	√	√	√	√	√	√	√	√	
June 29, 2023 Outgoing Email	This email from CNL Communications Officer to WLFN is to follow up on the email from CNL sent on 2023-06-06 to confirm with WLFN that CNL accurately recorded the interests and concerns of WLFN related to the NPD Closure Project.										√
July 20, 2023 Outgoing Email	This email from CNL Communications Officer to WLFN is to follow up on the email from CNL sent on 2023-06-06. CNL noted their continued interest in meeting with WLFN to discuss both the NSDF and NPD Closure projects.										√
October 17, 2023 Outgoing Email	This email from CNL Manager of Communications and Engagement to Wolf Lake FN is to provide an invite to the 2023 October 20 Career Fair being held In Pembroke.										√

WLFN - Mapping of Key Interests and Concerns

Table C-31 presents a mapping of how the key interests and concerns relate to detailed feedback and input from Wolf Lake First Nation (WLFN), up to March 2024.

Table C-31 has 3 columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, why it is important to the Indigenous Nation, community or organization, and connects it to a project aspect or an Aboriginal or treaty right wherever possible. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 presents details of the key interest or concern that the Indigenous Nation, community or organization has identified formally in writing and/or verbally to CNL.

Table C-31 Mapping of WLFN Key Interests and Concerns

Topic	Project Aspects of Interest/Concern	Specific feedback provided by WLFN on this interest/concern
1. Aquatic Environment	(a) Importance of wetlands WLFN highlights that wetlands are significant in facilitating organic decay, filtration of water and contaminants and every effort should be made to not disturb them. Wetlands are connected to surface waters that are significant to WLFN, including the Ottawa River. This is a project-specific concern.	In their comments on the draft EIS, received March 2023, WLFN highlighted that the importance of wetlands cannot be overstated. They are significant in facilitating organic decay, filtration of water and contaminants and every effort should be made as to not disturb them. There are surface waters within their traditional territory that are significant to WLFN, including the Ottawa River. The water provides not only life, but the waterways were major transportation routes to visit family, access trade goods and resources.
2. Baseline Characterization	(a) Characterization of aquatic and terrestrial biota. It is important to WLFN that baseline conditions in the Ottawa River are accurate, well understood and protected in order to adequately assess potential impacts to WLFN rights and traditional land and resource uses. This is a project-specific concern.	In their comments on the draft EIS, received March 2023, WLFN requested that CNL include fish tissue sampling within their monitoring programs. WLFN was concerned that proper baseline studies of contaminants in the Ottawa River be completed.
2. Baseline Characterization	(b) Contamination of the aquatic environment WLFN is concerned about radioactivity/bioaccumulation of radionuclides in fish and within the plant communities in the near shore of the Ottawa River. An education and awareness strategy would help achieve greater understanding of baseline values for the NPD site. This is a project-specific concern.	In their comments on the draft EIS, received March 2023, WLFN recommended that CNL and WLFN build on an education and awareness strategy aimed at mutual understating of baseline values for radioactivity/bioaccumulation of radionuclides in fish, and within the plant communities in the near shore of the Ottawa River.
3. Engagement	(a) Long-term relationship building WLFN is concerned that the EIS assumes that Algonquin communities on the Quebec side of the river have a similar perspective to Ontario communities. WLFN is interested in obtaining capacity to support a long-term relationship with CNL. This is a project-specific concern.	In their comments on the draft EIS, received March 2023 WLFN was concerned with CNL's statement that "the EIS assumes that Algonquin communities on the Quebec side of the river have a similar perspective". WLFN commits to building a longer-term relationship with CNL provided that capacity resources are available. This is an important matter to WLFN, its citizens and CNL as engagement continues to expand.
3. Engagement	(b) Continued meaningful engagement using best practices. It is important to WLFN that its members be meaningfully engaged on the project, because the project is located within WLFN traditional territory This is a project-specific concern.	In their comments on the draft EIS, received March 2023 WLFN recommended CNL and WLFN continue to work on building a relationship founded on trust that ensures information, data, results, and findings are shared. Any anomalies or concerns will be discussed and remediated to ensure uncertainties are addressed.
4. Environmental Effects and Mitigations	(a) Accommodation and compensation measures WLFN are interested in discussing accommodations and compensatory measures with CNL in the event that WLFN's valued components are found to be impacted by the proposed project. This is a project-specific concern.	In their comments on the draft EIS, received March 2023 WLFN requested support and funding for WLFN to complete a land use & occupancy study that would include their value components identified and further protect traditional, cultural and heritage sites for future generations. It is understood there will be overlapping values with other First Nations, and this can be key to identifying the significant and true value of the value components in question. WLFN is also interested to understand how First Nations are accommodated if values are impacted.

Topic	Project Aspects of Interest/Concern	Specific feedback provided by WLFN on this interest/concern
5. Impacts to Rights	(a) Concerns about assessment of impacts to rights and traditional land and resource use Fish and wildlife represent the expression of WLFN's rights and their ability to exercise their Aboriginal right to hunt, fish, and trap. The ecosystem as a whole should be considered in making decisions that may potentially impact Aboriginal rights and lead to uncertainties and fear for using staple food sources. This is a project-specific concern.	In their comments on the draft EIS, received March 2023 WLFN expressed concern that Fish and Wildlife do not recognize borders and migrate through the lands and waters owned by CNL, which represent the expression on WLFN's rights and their ability to exercise their Aboriginal right to hunt, fish, and trap. Traditional land use occurs on what are known by the federal and provincial governments as Crown Lands, or with permission, on privately owned land. The ecosystem as a whole should be considered in making decision that may potentially impact Aboriginal rights. Cumulative effects impact and impede on the exercising of rights by First Nations by affecting their staple food sources, following traditional teachings and leading to uncertainties, feeding fear- resulting in avoidance of the areas. Further, WLFN recommended that CNL and WLFN work together on measures that ensure impacts are not infringing the rights of WLFN; and impacts are minimized and WLFN's interests accommodated. Measures are also required that consider cumulative impacts and ensure that they will not result in food security issues or concerns. Sufficient and continued resources are required to maintain a healthy way of life. There are concerns about contamination of the land, water, flora and fauna.
6. Long-term Safety	(a) Long-term site integrity WLFN is concerned about the long-term management and monitoring of legacy radioactive contamination sites such as NPD. WLFN is looking to ensure the vault safety and durability, as well as understand how the landscape will respond to external forces present a few thousand years after disposal. This is a project-specific concern.	In their comments on the draft EIS, received March 2023, WLFN expressed concern about long-term vault safety and durability. The facility should have a post closure environmental safety case that includes a detailed analysis and modelling of a geological environment that contemplates significant, ongoing, projected changes. There also needs to be an assessment of the human health and environmental impacts. WLFN is also concerned that there are significant geological processes interacting with the surface environment and the potential waste site. It is critical to understand the disposal system in terms of both short and long-term performance. WLFN suggests that understanding landscape responses to external forces and further research is needed to have a detailed model of the first few thousand years after disposal. This is significant to the long-term management of legacy radioactive contamination sites.
7. Monitoring	(a) Involvement in additional monitoring and information sharing WLFN are interested in being involved in follow up monitoring and sharing of reported results for the NPD Closure Project in order to minimize fear and uncertainty for those who may resume using the site for a range of uses in the future. This is a project-specific concern.	In their comments on the draft EIS, received March 2023, WLFN highlighted that follow-up monitoring and sharing of reported results will be a key element in changing public perceptions. Uncertainties bring fear to people who are not aware or educated on this proposed project.
7. Monitoring	(b) Comprehensive baseline monitoring WLFN is interested in beginning an enhanced information sharing protocol to better understand the landscape from both world perspectives: "Western Science & Traditional Knowledge" to allow a more comprehensive baseline monitoring to take place for the NPD Closure Project. This is a project-specific concern.	In their comments on the draft EIS, received March 2023, WLFN recommended that CNL and WLFN develop an enhanced information sharing protocol to better understand the landscape from both world perspectives: "Western Science & Traditional Knowledge". This would allow a more comprehensive baseline monitoring to take place for the NPD Closure Project.
7. Monitoring	(c) Periodic review of the proposed NPD Closure Project every 5 years WLFN has requested to be included in a periodic review of the proposed project following the final closure- as part of the long-term relationship building. This will ensure that WLFN traditional territory is not negatively impacted, and that they uphold their sacred responsibility to Mother Earth and her gifts (the land, water, fish, wildlife, plants, trees), thus protecting the health and well-being of citizens and the environment that sustains them. This is a project-specific concern.	In their comments on the draft EIS, received March 2023, WLFN requested to be included in the periodic review, every 5 years, following the final closure- as part of the long-term relationship building. WLFN's primary concern is that their traditional territory is not negatively impacted, and that they uphold their sacred responsibility to Mother Earth and her gifts, (the land, water, fish, wildlife, plants, trees), thus protecting the health and well-being of citizens and the environment that sustains them. The citizens of WLFN have a connection with all the Algonquin Nations in both Ontario and Quebec.
8. National Policy	(a) Modernization of Canada's nuclear waste policy WLFN are of the view that the Auditor General's nuclear waste management audit and NRCan's policy modernization process should conclude before the NPD facility is decommissioned.	In their comments on the draft EIS, received March 2023, WLFN requested that the Auditor General's nuclear waste management audit and NRCan's policy modernization process should conclude before the NPD facility is decommissioned. Findings from the audit and hearings may help prevent the proposed project from becoming a

Topic	Project Aspects of Interest/Concern	Specific feedback provided by WLFN on this interest/concern
	This concern is out of scope for the NPD Closure Project	financial and environmental disaster that has the potential to impact the Ottawa River and traditional territory of WLFN.
9. Protection of the Ottawa River	(a) Radioactive waste should not be present near the vicinity of water bodies, like the Ottawa River and St. Lawrence River Basin WLFN is concerned about perceived contamination due to the project's proximity to the Ottawa River, which has great importance to WLFN This is a project-specific and a broader concern.	In their comments on the draft EIS, received March 2023, WLFN requested that the principle of no radioactive waste near the vicinity of water bodies, like the Ottawa River and St. Lawrence River Basin be followed.
10. Technical	(a) WLFN is interested in knowing the point source for contamination exceedances in sediment This is a project-specific concern.	In their comments on the draft EIS, received March 2023, WLFN expressed concern with the recorded high concentration levels of several metals found in the sediment samples. The EIS identifies these levels as baseline conditions however WLFN remains concerned that this contamination is occurring from the NPD site. WLFN wishes to better understand where CNL believes this contamination occurred from, as the sediment contamination exceedances must have a point source?
10. Technical	(b) Emissions and discharges It is important to WLFN that emissions to and contaminants within the atmospheric environment are properly assessed, and are mitigated and monitored as appropriate. This is a project-specific concern.	In their comments on the draft EIS, received March 2023, WLFN requested that reports from the air monitoring stations within the Regional Study Area be shared with WLFN to demonstrate compliance with regulatory requirements and that there is no evidence of cumulative impacts that affects the traditional territory of WLFN.
10. Technical	(c) Transport of contaminants in groundwater WLFN is concerned about groundwater intrusion that will eventually saturate the grout and come in contact with contamination, and the dissolved contaminates will reach the Ottawa River. There are some uncertainties about the impacts to surface water quality. Long-term exposure to contaminants is unacceptable even in small doses that do not exceed the acceptance criteria. This is a project-specific concern.	In their comments on the draft EIS, received March 2023, WLFN expressed concern about the transport of contaminants through groundwater and ultimately to the Ottawa river. WLFN highlighted, that in relation to the vault, there will be groundwater intrusion that will eventually saturate the grout and come in contact with contamination, and the dissolved contaminants will reach the Ottawa River. When the vault is completely saturated with groundwater, the infrastructure will be compromised and will transport contaminated groundwater to the Ottawa River. Further WLFN has identified that long-term exposure to contaminants is unacceptable even in small doses that do not exceed the acceptance criteria.
11. Traditional Land and Resource Use and Cultural Impacts	(a) Safety of harvested and gathered foods WLFN are concerned about the accumulated effects and impacts to First Nations who are using the area for hunting and gathering during the postclosure period. This is a project-specific concern.	In their comments on the draft EIS, received March 2023, WLFN recommended that CNL share the results and findings and ensure that citizen uncertainties are addressed through education and awareness that continues from generation to generation for an anticipated 550-year project life span. Further, WLFN recommended that CNL and WLFN work collaboratively to avoid and mitigate impacts to value components identified by WLFN.
11. Traditional Land and Resource Use and Cultural Impacts	(b) Impact of perceived contamination in the Ottawa River and the environment on the inherent and protected rights of WLFN citizens The NPD site is important to WLFN since its citizens use these lands and waters. WLFN traditional territory must be protected from legacy, present and future contamination. Perceived contamination plays a key role in the way First Nations practice harvesting activities that can influence the safety and acceptability of the proposed project. This is a project-specific concern.	In their comments on the draft EIS, received March 2023, WLFN identified that perceived contamination plays a key role in the way First Nations practice harvesting activities that can influence the safety and acceptability of the proposed project. WLFN is not certain that their traditional territory is protected from legacy, present and future contamination, which is impacting the way WLFN citizens are exercising their inherent and protected rights. Language used within the EIS does not make the First Nation confident that their traditional territory, and flora and fauna that is relied upon, is not going to be impacted. WLFN cannot positively support the project when statements like "reasonably achievable measures' or "prevent or minimize harm to workers, the public and the environment" are being stated in the reports. These statements assume that impact or influence, that will or may occur, is acceptable provided it is in small doses. Further, the NPD Closure project is significant to WLFN. The proposed project is located on federally owned lands situated on the Ottawa River. Directly North and East across the River is Quebec that consists of gently

Topic	Project Aspects of Interest/Concern	Specific feedback provided by WLFN on this interest/concern
		rolling hills interspaced with many small lakes. WLFN citizens in both Ontario and Quebec use these lands and waters, which have the potential to be impacted by the proposed project. This is especially challenging for WLFN, given negotiations for their reserve land base have yet to be resolved. Despite no resolution in the negotiations, Canada continues to decide on projects that have the potential to contaminate the traditional territory of WLFN. Such conduct is not supportive of reconciliation efforts being promoted by both Federal and Provincial governments.
11. Traditional Land and Resource Use and Cultural Impacts	(c) Algonquin traditional knowledge should be collected and incorporated into the EIS WLFN is interested in documenting traditional knowledge, land use, occupancy, and values to demonstrate how the proposed project may impact WLFN's land use, occupancy, rights, traditional food harvesting, and citizens. This includes collaborating to take an inventory of the areas of significance. This is important to WLFN citizens who historically and currently continue to use the lands and waters around the proposed NPD Closure Project and other CNL sites. This is a project-specific concern.	In their comments on the draft EIS, received March 2023, WLFN recommended that CNL support WLFN in completing a Diet and Harvesting Study that will look at the importance of traditional food harvesting and the way of life from WLFN's perspective. Further, WLFN recommends using the same research parameters as WLFN's previous Land Use Study which has specific community data standards that are kept consistent and can be used in future data sharing if required between Nations, and CNL. WLFN looks at potentially keeping the 50 km radius from the site of the proposed NPD Closure Project; including the Kichi-Sìbì (Ottawa River) and a good representation for the Quebec region. WLFN does maintain land use, occupancy and values that are in both the provinces of Ontario and Quebec. WLFN has also recommended that CNL support WLFN in establishing a process that will document traditional knowledge, land use, occupancy, and values within a site radius to be determined by WLFN. WLFN citizens historically and currently continue to use the lands and waters around the proposed NPD Closure Project and other CNL sites. WLFN and CNL to collaborate and take an inventory of the areas of significance, use and occupancy, using a proximity of 50km. This study must be in line with data collected. Data sharing with and among First Nations in the future may be significant if rights are impacted by the project.
12. Valued Components	(a) Engagement, input and participation in VC selection WLFN requires the opportunity to provide values identified by the community. A priority concern is any potential changes in local fishery species as they are an important and significant indicator of understanding the potential and cumulative effects on inherent rights for harvesting natural resources, fish and wildlife species, and medicine. This is a project-specific concern.	In their comments on the draft EIS, received March 2023, WLFN highlighted that WLFN needs an opportunity to provide values identified by the community. Some values that are very similar have been identified by other First Nations. A priority concern is any potential changes in local fishery species; as they are an important and significant indicator of understanding the potential effects and cumulative effects on inherent and protected rights from the proposed NPD Closure Project. WLFN has also highlighted that First Nations have traditional harvesting, and intercommunity harvesting protocols that need to be taken into account. Many of the species at risk listed within the valued components have a connection to WLFN where knowledge and stories that reflect the natural operations of various ecosystems, are held.

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Wolf Lake First Nation – Summary of Interests and Concerns

Table C-32 below summarizes the key interests and concerns that Wolf Lake First Nation (WLFN) raised on the NPD Closure Project, up to March 2024.

Table C-32 has five columns:

- Column 1 identifies the topic, i.e., the subject area the key interest(s) or concern(s) falls under.
- Column 2 presents a key interest or concern, why it is important to the Indigenous Nation, community or organization, and connects it to a project aspect or an Aboriginal or treaty right wherever possible. This may be a summary of multiple related interests or concerns that have been expressed by the Indigenous Nation, community or organization.
- Column 3 summarizes CNL's response or conclusions as well as CNL's efforts to address this key interest or concern
- Column 4 identifies where in the EIS the key interest or concern is addressed, and whether any changes were made to the EIS in response to the interest/concern. If these changes resulted in a different outcome in the EIS, this is also discussed;
- Column 5 summarizes the "Status" of the key interest or concern and the anticipated Next Steps towards achieving resolution of the key interest or concern. Not all concerns can be quickly or easily resolved, as some concerns go beyond the scope of the EA process, or there may divergent perspectives on certain interests or concerns. Note: this column does not, unless specifically confirmed by the Indigenous Nation, community or organization, mean that they have verified that the interest or concern has been dealt with to their satisfaction.

Table C-32 Wolf Lake First Nation Interests and Concerns

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
1. Aquatic Environment	(a) Importance of wetlands WLFN highlights that wetlands are significant in facilitating organic decay, filtration of water and contaminants and every effort should be made to not disturb them. Wetlands are connected to surface waters that are significant to WLFN, including the Ottawa River. This is a project-specific concern.	CNL Response The potential for contamination to reach the Ottawa River is assessed in the EIS and is supported by detailed groundwater modelling and long term performance modelling for the proposed disposal facility. The groundwater source of the wetlands is not affected at all by groundwater from the NPD facility. Groundwater on the NPD site flows towards the Ottawa River, so groundwater that interacts with the NPD facility flows away from the wetlands onsite, towards the Ottawa River. The EIS predicts no effects to surface water (including the Ottawa River). To verify that the engineered barriers are performing as expected/designed, CNL will monitor groundwater. Groundwater wells will be located between the NPD facility and the Ottawa River in order to monitor groundwater quality after it interacts with the facility and before it reaches the Ottawa River. CNL will conduct monitoring for as long as necessary to verify the results of the assessment in the EIS. CNL is interested in engagement with WLFN to gain a greater understanding of their concerns about watershed sustainability related to the NPD Closure Project.	Where is this topic discussed in the EIS? **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the proposed NPD Disposal Facility to ensure protection of the surrounding environment including the Ottawa River. Mitigation measures for the protection of surface water (**Section 9.3.3.2**) (including the Ottawa River) have been updated and expanded from the 2017 draft EIS. The EIS does not predict any adverse residual effects on the aquatic environment (**Section 9.4.3.5**) as a result of the NPD Closure Project. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.
2. Baseline Characterization	(a) Characterization of aquatic and terrestrial biota. It is important to WLFN that baseline conditions in the Ottawa River are accurate, well understood and protected in order to adequately assess potential impacts to WLFN rights and traditional land and resource uses. This is a project-specific concern.	CNL Response Species detected as part of baseline biodiversity surveys within a 200 m area beyond the perimeter of the project footprint have been included as Valued Components for the NPD Closure Project, and mitigation measures, including buffers, have been developed for protection. To supplement baseline data, a study of sediment, benthic invertebrates and fish habitat features was undertaken upstream, adjacent to and downstream of the NPD site in 2020. CNL is happy to provide the report to WLFN.	Where is this topic discussed in the EIS? **Appendix B** and **Section 8.6** of the EIS indicate which species have been observed on the NPD site. Historic environmental monitoring is summarized in the description of the existing environment (**Section 8**) of the EIS. Specifically, EIS **Sections 8.2** – Atmospheric Environment, **8.3** Surface Water Environment, **8.5.6** Groundwater Quality and **8.7** Ambient Radioactivity.	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		The study determined that the Ottawa River benthic invertebrate community near the NPD site is healthy and typical of what is observed in many large, soft-bottomed, relatively deep river systems. This study can be repeated when decommissioning is complete, to verify if the project has had an impact. CNL is planning to regularly monitor the Ottawa River water quality before the project begins. CNL is willing to discuss fish tissue sampling with WLFN and review past studies of fish tissue in the NPD area.	What changes have been made (and where)? No changes have been made to the EIS in response to this feedback	Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.
2. Baseline Characterization	(b) Contamination of the aquatic environment WLFN is concerned about radioactivity/bioaccumulation of radionuclides in fish and within the plant communities in the near shore of the Ottawa River. An education and awareness strategy would help achieve greater understanding of baseline values for the NPD site. This is a project-specific concern.	In response to comments from Indigenous Nations, communities and organizations, CNL completed sediment and benthic invertebrate sampling and fish habitat surveys to establish the baseline for follow-up monitoring. CNL is happy to provide the report to WLFN. CNL is open and willing to work together with WLFN to build an education and awareness strategy aimed at mutual understanding of baseline values for the NPD site. CNL Response: To supplement baseline data, a study of sediment, benthic invertebrates and fish habitat features was undertaken upstream, adjacent to and downstream of the NPD site in 2020. The study determined that the Ottawa River benthic invertebrate community near the NPD site is healthy and typical of what is observed in many large, soft-bottomed, relatively deep river systems. This study can be repeated when decommissioning is complete, to verify if the project has had an impact. CNL is planning to regularly monitor the Ottawa River water quality before the project begins. CNL is willing to discuss fish tissue sampling with WLFN and review past studies of fish tissue in the NPD area. Species detected as part of baseline biodiversity surveys within a 200m area beyond the perimeter of the project footprint have been included as Valued Components for the NPD Closure Project, and mitigation measures, including buffers, have been developed for protection. As shown in the EIS, there are no adverse impacts from the project on the Ottawa River shoreline or on any fish, wildlife or plants within the riparian and aquatic ecosystems. CNL is continuing its efforts to address these concerns by involving the Indigenous Nations, communities and organizations in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help build confidence that the decommissioning strategy and mitigation measures are effective. The development of risk communication tools is also important to achieve a greater understanding of the NPD Closure Project.	Where is this topic discussed in the EIS? **Appendix B** and **Section 8.6** of the EIS indicate which species have been observed on the NPD site. Historic environmental monitoring is summarized in the description of the existing environment (**Section 8**) of the EIS. Specifically, EIS **Sections 8.2** – Atmospheric Environment, **8.3** Surface Water Environment, **8.5.6** Groundwater Quality and **8.7** Ambient Radioactivity. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.

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3. Engagement	(a) Long-term relationship building WLFN is concerned that the EIS assumes that Algonquin communities on the Quebec side of the river have a similar perspective to Ontario communities. WLFN is interested in obtaining capacity to support a long-term relationship with CNL. This is a project-specific concern.	Summary of Engagement: In December 2022, WLFN requested to review the NPD EIS. On December 20, 2022, a Capacity Funding Agreement was signed by WLFN and CNL to support WLFN's involvement in the Environmental Assessment (EA) process for the NPD Closure Project. In March 2023, WLFN provided their comments to CNL on the NPD EIS. CNL Response CNL is committed to collaborative, two-way engagement with the WLFN on the NPD Closure Project in the means that WLFN would like to be engaged. CNL has much to learn and hopes to build trust and seek guidance from WLFN. Through meaningful engagement activities, CNL is happy to share information, data, results, and findings, as well as discuss and address issues and concerns with WLFN. CNL has heard WLFN's request to establish a longer-term relationship. As a starting point, CNL is very interested in working together with WLFN to develop a work plan and capacity for NPD specific activities.	Where is this topic discussed in the EIS? CNL presents its record of engagement with all Indigenous Nations, communities and organizations in **Section 6.2.4** of the EIS. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback.	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.
3. Engagement	(b) Continued meaningful engagement using best practices. It is important to WLFN that its members be meaningfully engaged on the project, because the project is located within WLFN traditional territory This is a project-specific concern.	Summary of Engagement: In December 2022, WLFN requested to review the NPD EIS. On December 20, 2022, a Capacity Funding Agreement was signed by WLFN and CNL to support WLFN's involvement in the EA process for the NPD Closure Project. In March 2023, WLFN provided their comments to CNL on the NPD EIS. An in-person discussion of WLFN recommendations is planned in community in 2023 June. CNL Response CNL is committed to collaborative, two-way engagement with the WLFN on the NPD Closure Project in the means that WLFN would like to be engaged. CNL has much to learn and hopes to build trust and seek guidance from WLFN. Through meaningful engagement activities, CNL is happy to share information, data, results, and findings, as well as discuss and address issues and concerns with WLFN.	Where is this topic discussed in the EIS? CNL presents its record of engagement with all Indigenous Nations, communities and organizations in **Section 6.2.4** of the EIS. What changes have been made (and where)? Engagement activities with WLFN has been added to **Section 6.2.4.17** of the EIS.	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.
4. Environmental Effects and Mitigations	(a) Accommodation and compensation measures WLFN are interested in discussing accommodations and compensatory measures with CNL in the event that WLFN's valued components are found to be impacted by the proposed project.	CNL Response CNL acknowledges WLFN's concerns about the potential impacts on the rights of the WLFN to practice traditional activities on, and in the vicinity of, the NPD site. CNL recognizes that, while we don't have the full historical records, we know that the NPD site was very likely	Where is this topic discussed in the EIS? CNL presents its record of engagement with all Indigenous Nations, communities and organizations in **Section 6.2.4** of the EIS. The EIS includes a section on Indigenous engagement related to VC selection (**Section 6.3.1.1**)	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has

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	This is a project-specific concern.	established without consulting Indigenous Peoples. As the licensee for AECL owned sites, CNL is working to understand all of the considerations around the future of the sites, including considerations for Indigenous consultations through engagements with Indigenous Peoples. While we can't change the past, we can look forward and work to establish positive and mutually beneficial relationship with the WLFN. CNL stands by its conclusion that the project will not interfere with traditional activities or have a negative impact on the biological resources on which they are dependent. Ultimately, the decision of impacts to rights rests with the CNSC. If the CNSC finds any potential impacts to WLFN's Indigenous and/or treaty rights, CNL remains committed to understanding these rights and working collaboratively to ensure that they are appropriately mitigated to the greatest extent possible. CNL is very interested in continuing dialogue with the WLFN to foster a greater understanding of concerns on lost use and occupancy of the land. We look forward to continued engagement to enable the development of both project-specific and CNL commitments. CNL is very interested in working together with the WLFN to identify WLFN valued components and develop mitigation measures to address interests and concerns related to VCs.	What changes have been made (and where)? No changes have been made to the EIS in response to this feedback.	attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.
5. Impacts to Rights	(a) Concerns about assessment of impacts to rights and traditional land and resource use Fish and wildlife represent the expression of WLFN's rights and their ability to exercise their Aboriginal right to hunt, fish, and trap. The ecosystem as a whole should be considered in making decisions that may potentially impact Aboriginal rights and lead to uncertainties and fear for using staple food sources. This is a project-specific concern.	As part of CNL's engagement activities, we seek to understand the interests and concerns of Indigenous Nations, communities and organizations while building awareness and understanding of NPD Closure Project activities. CNL seeks to develop a mutual understanding of the perceived effects of NPD Closure Project activities on the environment and any potential negative impacts on Aboriginal and/or treaty rights. This includes, but is not limited to, rights to trap, hunt, fish, gather, or harvest as well as the continuation and uninterrupted access to cultural and spiritual activities on the lands and waters. CNL Response: CNL acknowledges WLFN's concerns about assessment of impacts to rights and traditional land and resource use, driven by distrust in the safety of the land and water. CNL is open to increased engagement, education and participatory involvement in monitoring activities at its sites to address these concerns. The proposed NPD Closure Project has the potential to help reduce concerns of alienation and/or fears. The proposed project involves a long-term solution to ensure the waste that currently resides at the NPD site is effectively contained and	Where is this topic discussed in the EIS? CNL presents its record of engagement with all Indigenous Nations, communities and organizations in **Section 6.2.4** of the EIS. The EIS notes in **Table 6.2-2** that the NPD site is located within the vicinity of known traditional territory. The EIS does not predict any adverse residual effects to traditional land and resource use (**Section 9.9.3.5**). What changes have been made (and where)? No changes have been made to the EIS in response to this feedback.	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.

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		isolated from the environment, ensuring public safety. This solution has the potential to result in additional lands being freed up for traditional harvest or other uses by Indigenous peoples or the public. CNL stands by its conclusion that the project will not interfere with traditional activities or have a negative impact on the biological resources on which they are dependent. Ultimately, the decision of impacts to rights rests with the CNSC. If the CNSC finds any potential impacts to WLFN's Indigenous and/or treaty rights, CNL remains committed to understanding these rights and working collaboratively to ensure that they are appropriately mitigated to the greatest extent possible.		
6. Long-term Safety	(a) Long-term site integrity WLFN is concerned about the long-term management and monitoring of legacy radioactive contamination sites such as NPD. WLFN is looking to ensure the vault safety and durability, as well as understand how the landscape will respond to external forces present a few thousand years after disposal. This is a project-specific concern.	CNL is open and willing to discuss some of the geologic and site investigation undertaken to support the project during a dedicated meeting with WLFN. CNL is also willing to share the Geosynthesis report for the project. <u>CNL Response:</u> CNL acknowledges WLFN's concerns about the long-term safety of the NPD site. CNL has assessed the probabilities and potential impacts of flooding, seismic activity, above-ground natural hazards and extreme temperature change through all project phases (Decommissioning Execution, Institutional Controls and Post-Institutional Controls), and has concluded that these events will have no undue effects on people or the environment around the site. CNL models several scenarios in its Postclosure Safety Assessment (PostSA) technical supporting document (TSD) which take into account how accidents and natural hazards could affect the facility. These scenarios are called disruptive events. One such case models severe erosion (flood) while another models extreme degradation of the facility (the concrete structure and the grout). In both of these cases the predicted doses to receptors are still well below the dose criterion. In 2018/19, CNL undertook a geoscientific fieldwork campaign to sample and characterize the bedrock around the NPD facility. The fieldwork included coring of 10 boreholes to a depth of 50 meters into bedrock and several overburden boreholes, with installation of wells for sampling and hydraulic property determinations. The Geoscientific Characterization Report was used to revise the Geosynthesis report and the various models (i.e., Groundwater Model, Resaturation Model). The results of these reports were incorporated into the PostSA TSD enabling CNL to assess potential effects to valued components (VC) in the aquatic and terrestrial ecosystems. The additional field investigations	<u>Where is this topic discussed in the EIS?</u> **Section 8.5** of the EIS presents the geological baseline data. **Section 8.12** of the EIS discusses the relevant natural disasters to which NPD may be exposed. **Section 9.14** of the EIS discusses the potential effects on the project of climate change, forest fires, floods, earthquakes, severe weather such as tornados, lightning strikes, ice storms, and changes to the Ottawa River. The follow-up monitoring program is described at a high level in **Section 12** of the EIS, details of which derive from the development of the effluent, environment and groundwater draft follow-up monitoring plans. Additional details and a range of scenarios that encompass the potential impacts from extreme weather and natural hazards are examined in the DecomSA TSD and the PostSA TSD. <u>What changes have been made (and where)?</u> No changes have been made to the EIS in response to this feedback.	<u>Status</u>: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. <u>Next Steps:</u> CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.

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		and updated models support the conclusion that the NPD Closure Project is protective of human health and the environment. CNL acknowledges that, as the licensee, it is responsible for the long-term management of the site during the Institutional Controls period, which will last a minimum of 100 years and will be extended as long as is necessary to ensure protection of people and the environment. The EIS predicts no effects to surface water (including the Ottawa river); CNL will conduct monitoring for as long as necessary to verify the results of the assessment in the EIS.		
7. Monitoring	(a) Involvement in additional monitoring and information sharing WLFN are interested in being involved in follow up monitoring and sharing of reported results for the NPD Closure Project in order to minimize fear and uncertainty for those who may resume using the site for a range of uses in the future. This is a project-specific concern.	CNL is open and willing to have a dedicated discussion with WLFN on their desired level of involvement in monitoring. CNL is happy to share technical reports that are available for the project. CNL Response: CNL acknowledges WLFN's concerns about the long-term safety of the NPD site and the potential impacts on the rights of the WLFN and other Indigenous Nations, communities and organizations to practice traditional activities around the NPD site. The PostSA TSD demonstrates that the impact beyond the Institutional Controls period on the public, Indigenous and the environment is negligible under all scenarios. The proposed NPD Closure Project has the potential to help reduce concerns of alienation and/or fears. The proposed project involves a long-term solution to ensure the waste that currently resides at the NPD site is effectively contained and isolated from the environment, ensuring public safety. This solution has the potential to result in additional lands being freed up for traditional harvest or other uses by Indigenous peoples or the public. At the project level, follow-up monitoring for the NPD Closure Project will include monitoring of environmental components critical to WLFN such as monitoring of surface water, groundwater and air quality. CNL will conduct monitoring for as long as necessary to verify the results of the assessment in the EIS. CNL is continuing its efforts to address these concerns by: (i) Involving Indigenous Nations, communities and organizations, in monitoring activities that will confirm the conclusions of the EIS. An Indigenous-driven monitoring program can help to reduce fear or anxiety associated with traditional uses occurring adjacent to and near CNL operated sites	Where is this topic discussed in the EIS? CNL presents its record of engagement with all Indigenous Nations, communities and organizations in **Section 6.2.4** of the EIS. The EIS does not predict any adverse residual effects to traditional land and resource use (**Section 9.9.3.5**). The follow-up monitoring program is described at a high level in **Section 12** of the EIS, details of which derive from the development of the effluent, environment and groundwater draft follow-up monitoring plans. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback.	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.

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		and build confidence that the decommissioning strategy and mitigation measures are effective. (ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project to promote understanding of the EIS results and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern.		
7. Monitoring	(b) Comprehensive baseline monitoring WLFN is interested in beginning an enhanced information sharing protocol to better understand the landscape from both world perspectives: "Western Science & Traditional Knowledge" to allow a more comprehensive baseline monitoring to take place for the NPD Closure Project. This is a project-specific concern.	In response to WLFN's EIS comments, CNL will share a link to the annual summary of environmental performance available on CNL's website. CNL would be pleased to share any other historic monitoring data as requested by WLFN. CNL is open and willing to work together with WLFN to incorporate Traditional Knowledge into its Western Science practices. CNL Response: CNL conducts a rigorous monitoring program and is committed to ensuring that the environment around the NPD site, including the Ottawa River, is protected. Monitoring of the environment (a) Ottawa River water: Radioactivity measured in the Ottawa River upstream and downstream of the NPD site are very low (<0.01% of the derived release limit). (b) Surface soil and Vegetation: Tritium in soil and vegetation on the NPD site is very low (< 0.01% of the derived release limit). The results demonstrate that the public and the environment around the NPD site continues to be protected. In addition to the CNL monitoring program, the CNSC leads an Independent Environmental Monitoring Program (IEMP) designed to verify that the public and the environment around licensed nuclear facilities are protected. As part of its IEMP, the CNSC samples and analyzes surface water upstream and downstream of the NPD site (including sampling for non-radiological parameters). The CNSC IEMP results confirm that the public and the environment around the NPD site are protected and that there are no expected health impacts.	Where is this topic discussed in the EIS? The follow-up monitoring program is described at a high level in **Section 12** of the EIS, details of which derive from the development of the effluent, environment and groundwater draft follow-up monitoring plans. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback.	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.
7. Monitoring	(c) Periodic review of the proposed NPD Closure Project every 5 years WLFN has requested to be included in a periodic review of the proposed project following the final closure- as part of the long-term relationship building. This will ensure that WLFN traditional territory is not negatively impacted, and that they uphold their sacred responsibility to Mother	CNL Response CNL is open to working with WLFN to ensure WLFN involvement in reviewing the draft follow-up monitoring plans and recognizes how such a review can support long-term monitoring programs. CNL invites WLFN for further engagement with CNL on this topic.	Where is this topic discussed in the EIS? The EIS update includes additional detail on the VC-related engagement process and how Indigenous interests have been incorporated into the VCs selected for the NPD Closure Project.	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple

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	Earth and her gifts (the land, water, fish, wildlife, plants, trees), thus protecting the health and well-being of citizens and the environment that sustains them. This is a project-specific concern.	CNL is willing to involve WLFN and other Indigenous Nations, communities and organizations in the monitoring program, which will help ensure transparency and lend confidence to monitoring activities and results. The aim of monitoring activities are to confirm the accuracy of the EIS predictions around potential effects and develop mitigation measures as needed.	Mitigation measures for Indigenous Land and Resource Use are presented in **Section 9.9.3.2** and for Indigenous Socio-Economic and Health in **Section 9.10.1.3.2**. **Section 12** of the EIS summarizes the follow-monitoring plans developed for the project. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback.	occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.
8. National Policy	(a) Modernization of Canada's nuclear waste policy WLFN are of the view that the Auditor General's nuclear waste management audit and NRCan's policy modernization process should conclude before the NPD facility is decommissioned. This concern is out of scope for the NPD Closure Project.	CNL Response: This interest is generally beyond the scope of the project. The proposal to create a disposal facility on the NPD reactor site through in-situ decommissioning has been chosen as a safe and immediate decommissioning option for the NPD reactor with respect to the environment, workers and the public. It is important to highlight that this closure will reduce historic nuclear liabilities for Canada and, at the same time, reduce the footprint of the NPD site.	Where is this topic discussed in the EIS? **Section 3.5** of the EIS summarizes the regulatory framework for the NPD Closure Project. **Section 6.4** outlines CNL's approach and commitment to reconciliation. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback.	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.
9. Protection of the Ottawa River	(a) Radioactive waste should not be present near the vicinity of water bodies, like the Ottawa River and St. Lawrence River Basin. WLFN is concerned about perceived contamination due to the project's proximity to the Ottawa River, which has great importance to WLFN. This is a project-specific and a broader concern.	CNL Response: The potential for contamination to reach the Ottawa River is assessed in the EIS and is supported by long term modelling and detailed groundwater modelling. The EIS predicts no effects to surface water (including the Ottawa river). CNL is open and willing to have a dedicated discussion with WLFN on its conclusion of no adverse impacts on the Ottawa River. CNL has added information to the EIS about the washout pit and historic water discharges from the wells area sump. Monitoring results capture the effects of historic activities. Groundwater modelling was conducted for the NPD site. The PostSA TSD incorporates the results of groundwater modelling and, where necessary, uses conservative assumptions, (e.g., the tile drains remain functional and	Where is this topic discussed in the EIS? **Section 8.5** of the EIS presents the geological baseline data. The follow-up monitoring program is described at a high level in **Section 12** of the EIS, details of which derive from the development of the effluent, environment and groundwater draft follow-up monitoring plans. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback.	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		serve as a faster pathway to the Ottawa River), and considers the tile drains to have failed (so that the facility resaturates more quickly). The PostSA concludes that no residual effects are expected from potential contaminant migration in groundwater. Follow up monitoring will be implemented to confirm the predictions presented in the EIS. To verify that the engineered barriers as a whole are performing as expected/designed, CNL will monitor groundwater. Groundwater wells will be located between the NPD facility and the Ottawa River in order to monitor groundwater quality after it interacts with the facility and before it reaches the Ottawa River.		Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.
10. Technical	(a) WLFN is interested in knowing the point source for contamination exceedances in sediment This is a project-specific concern.	In response to WLFN's EIS comments, CNL will share a link to the annual summary of environmental performance available on CNL's website. CNL would be pleased to share any other historic monitoring data as requested by WLFN. However, CNL notes that impacts from past operations are out of scope of this EA. CNL Response: CNL conducts a rigorous monitoring program and is committed to ensuring that the environment around the NPD site, including the Ottawa River, is protected. The results demonstrate that the public and the environment around the NPD site continues to be protected. In addition to the CNL monitoring program, the CNSC leads an Independent Environmental Monitoring Program (IEMP) designed to verify that the public and the environment around licensed nuclear facilities are protected. As part of its IEMP, the CNSC samples and analyzes surface water upstream and downstream of the NPD site (including sampling for non-radiological parameters). The CNSC IEMP results confirm that the public and the environment around the NPD site are protected and that there are no expected health impacts.	Where is this topic discussed in the EIS? Historic environmental monitoring is summarized in the description of the existing environment (**Section 8**) of the EIS. Specifically, **Sections 8.2** – Atmospheric Environment, **8.3** Surface Water Environment, **8.5.6** Groundwater Quality and **8.7** Ambient Radioactivity. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback.	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.
10. Technical	(b) Emissions and discharges. It is important to WLFN that emissions to and contaminants within the atmospheric environment are properly assessed, and are mitigated and monitored as appropriate. This is a project-specific concern.	In response to WLFN's EIS comments, CNL will share a link to the annual summary of environmental performance available on CNL's website. CNL would be pleased to share any other historic monitoring data as requested by WLFN. CNL Response: CNL conducts a rigorous monitoring program and is committed to ensuring that the environment around the NPD site, including the Ottawa River, is protected. The results demonstrate that the public and the environment around the NPD site continues to be protected.	Where is this topic discussed in the EIS? The follow-up monitoring program is described at a high level in **Section 12** of the EIS, details of which derive from the development of the effluent, environment and groundwater draft follow-up monitoring plans. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback.	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		Air releases of substances that will not be removed from the facility prior to decommissioning are assessed in the DecomSA TSD and are below relevant criteria. Monitoring of the environment (a) Ottawa River water: Radioactivity measured in the Ottawa River upstream and downstream of the NPD site are very low (<0.01% of the derived release limit). (b) Surface soil and Vegetation: Tritium in soil and vegetation on the NPD site is very low (< 0.01% of the derived release limit). In addition to the CNL monitoring program, the CNSC leads an Independent Environmental Monitoring Program (IEMP) designed to verify that the public and the environment around licensed nuclear facilities are protected. As part of its IEMP, the CNSC samples and analyzes surface water upstream and downstream of the NPD site (including sampling for non-radiological parameters). The CNSC IEMP results confirm that the public and the environment around the NPD site are protected and that there are no expected health impacts. The EIS does not predict any adverse residual effects on the aquatic or terrestrial environment as a result of potential emissions during the NPD Closure Project.		<u>Next Steps:</u> CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.
10. Technical	(c) Transport of contaminants in groundwater WLFN is concerned about groundwater intrusion that will eventually saturate the grout and come in contact with contamination, and the dissolved contaminates will reach the Ottawa River. There are some uncertainties about the impacts to surface water quality. Long-term exposure to contaminants is unacceptable even in small doses that do not exceed the acceptance criteria. This is a project-specific concern.	<u>CNL Response</u> The potential for contamination to reach the Ottawa River is assessed in the EIS and is supported by long term modelling and detailed groundwater modelling. The EIS predicts no effects to surface water (including the Ottawa river) and follow up monitoring will be implemented to confirm these predictions. Groundwater modelling was conducted for the NPD site. The PostSA TSD incorporates the results of groundwater modelling and, where necessary, uses conservative assumptions, (e.g., the tile drains remain functional and serve as a faster pathway to the Ottawa River), and considers the tile drains to have failed (so that the facility resaturates more quickly). The PostSA concludes that no residual effects are expected from potential contaminant migration in groundwater. The tile drain system is expected to fail at some point during the Institutional Controls phase. To verify that the engineered barriers as a whole are performing as expected/designed, CNL will monitor groundwater. Groundwater wells will be located between the NPD facility and the Ottawa River in order to monitor	<u>Where is this topic discussed in the EIS?</u> **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment, including the Ottawa River. **Section 4.3** of the EIS describes the project activities and presents CNL's plans with respect to surface drainage. **Section 4.5** of the EIS describes CNL's plans for handling project-related liquid releases. **Sections 9.3 and 9.5** of the EIS presents the assessment of potential impacts to surface water and groundwater respectively. Mitigation measures for the protection of surface water and groundwater are provided, including CNL's process for non-routine discharges. No un-assessed liquid effluent releases are permitted. The EIS does not predict any adverse residual effects on the surface water or groundwater environments. **Section 12** of the EIS summarizes the Monitoring Plans developed for the project.	<u>Status</u>: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. <u>Next Steps:</u> CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		groundwater quality after it interacts with the facility and before it reaches the Ottawa River.	What changes have been made (and where)? No changes have been made to the EIS in response to this feedback.	
11. Traditional Land and Resource Use and Cultural Impacts	(a) Safety of harvested and gathered foods WLFN are concerned about the accumulated effects and impacts to First Nations who are using the area for hunting and gathering during the postclosure period. This is a project-specific concern	CNL Response CNL acknowledges WLFN's concern about the effects on the Kichi-Sìbì and NPD site from various activities in the past, present and future. CNL has assessed potential effects related to the safety of harvesting and consuming local foods, and no significant adverse effects were identified in the assessment. CNL suggests a dedicated conversation to review the Indigenous receptor evaluated as part of the EA for the project.	Where is this topic discussed in the EIS? The EIS presents the PostSA results for the Indigenous receptor group in **Section 9.10.2.** **Section 9.13** of the EIS describes the process for evaluating cumulative effects and presents CNL's assessment of cumulative effects for the NPD Closure Project. What changes have been made (and where)? No changes have been made to the EIS in response to this feedback.	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.
11. Traditional Land and Resource Use and Cultural Impacts	(b) Impact of perceived contamination in the Ottawa River and the environment on the inherent and protected rights of WLFN citizens The NPD site is important to WLFN since its citizens use these lands and waters. WLFN traditional territory must be protected from legacy, present and future contamination. Perceived contamination plays a key role in the way First Nations practice harvesting activities that can influence the safety and acceptability of the proposed project. This is a project-specific concern.	Summary of Engagement: In December 2022, WLFN requested to review the NPD EIS, and a meeting was held to discuss drafting a Contribution Agreement for WLFN's involvement in the EA process for the NPD Closure Project. On December 20, 2022, a Capacity Funding Agreement was signed by WLFN and CNL. In March 2023, WLFN provided their comments to CNL on the NPD EIS. CNL Response CNL acknowledges WLFN's concerns about perceived effects from the NPD site. CNL has assessed potential nuisance effects related to dust and noise, loss of connection to the land, safety of harvesting and consuming local foods, and changes to access to the land; no significant adverse effects were identified in the assessment. The potential for contamination to reach the Ottawa river is assessed in the EIS and is supported by long term modelling and detailed groundwater modelling. The EIS predicts no effects to surface water (including the Ottawa river) and follow up monitoring will be implemented to confirm these predictions.	Where is this topic discussed in the EIS? **Section 3.5** of the EIS summarizes the regulatory framework for the NPD Closure Project. **Section 6.4** outlines CNL's approach and commitment to reconciliation. **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment, including the Ottawa River. CNL presents its record of engagement with all Indigenous Nations, communities and organizations in **Section 6.2.4** of the EIS. **Section 8.9** of the EIS presents information about traditional land and resource use. **Section 9.9** of the EIS assesses risk to traditional land and resource use VCs. The EIS discusses concerns about potential loss of connection to land and water (e.g., feeling of discomfort or concern), and loss of land and water use in **Section 9.9.5**.	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		CNL stands by its conclusion that the project will not interfere with traditional activities nor impact biological resources upon which they are dependent. The EIS and supporting studies have assumed that traditional uses do occur adjacent to the NPD site, whether on the Ottawa River or outside the restricted/fenced area. CNL has also assumed that in the future there is an interest to re-establish traditional use activities on the NPD site. CNL is attempting to address these concerns by: (i) Involving the Indigenous Nations, communities and organizations in monitoring activities that will confirm the conclusions of the EIS and that the decommissioning strategy and mitigation measures are effective; and (ii) Developing an Indigenous-driven risk-informed communications program for the NPD Closure Project, to promote understanding of the EIS results, and to help alleviate the concerns related to negative perceptions and feelings of discomfort and concern. CNL is committed to building positive long-term relationships with Indigenous Nations and communities who have treaty and Aboriginal rights on the lands for the proposed NPD disposal facility, as well as working with other interested Indigenous Nations, communities and organizations. It is important to CNL that we continue our efforts to build a relationship with WLFN through meaningful engagement to address any potential issues and concerns on the proposed project.	The follow-up monitoring program is described at a high level in **Section 12** of the EIS. What changes have been made (and where)? Engagement activities with WLFN has been added to **Section 6.2.4** of the EIS.	
11. Traditional Land and Resource Use and Cultural Impacts	(c) Algonquin traditional knowledge should be collected and incorporated into the EIS WLFN is interested in documenting traditional knowledge, land use, occupancy, and values to demonstrate how the proposed project may impact WLFN's land use, occupancy, rights, traditional food harvesting, and citizens. This includes collaborating to take an inventory of the areas of significance. This is important to WLFN citizens who historically and currently continue to use the lands and waters around the proposed NPD Closure Project and other CNL sites. This is a project-specific concern.	CNL Response CNL agrees that traditional knowledge from WLFN and other Indigenous Nations, communities and organizations should be integrated into the EIS. The Near Surface Disposal Facility (NSDF) and NPD Projects have provided capacity to the Algonquin community closest to the NPD site (the AOPFN). AOPFN also completed a Traditional Knowledge and Land Use Study (AKLUS) and a Culture and Rights Study. CNL is open and willing to discuss this topic further with WLFN to fully understand WLFN-specific interests. The EIS and supporting studies have assumed that traditional uses do occur adjacent to the NPD site, whether on the Ottawa River or outside the restricted/fenced area. CNL has also assumed that there will be future interest in re-establishing traditional use activities on the NPD site.	Where is this topic discussed in the EIS? CNL presents its record of engagement with all Indigenous Nations, communities and organizations in **Section 6.2.4** of the EIS. **Appendix B** and **Section 8.6** of the EIS indicate which species have been observed on the NPD site. **Section 8.9** of the EIS presents information about traditional land and resource use. **Section 9.9** of the EIS assesses risk to traditional land and resource use VCs, including new VCs (**Sections 6.3 and 9.9** of the EIS). What changes have been made (and where)? No changes have been made to the EIS in response to this feedback.	Status: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. Next Steps: CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to

Topic	Key Interests and Concerns	Response to the interest/concern	Changes to the EIS and/or EA process	Status of the Concern
		CNL understands the importance of establishing a unique relationship with WLFN to ensure that they may bring forward any concerns or interest they have specific to the rights held collectively by the Nation. CNL is committed to building positive long-term relationships with Indigenous Nations and communities who have treaty and Aboriginal rights on the lands for the proposed NPD disposal facility, as well as working with other interested Indigenous Nations, communities and organizations.		work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.
12. Valued Components	(a) Engagement, input and participation in VC selection WLFN requires the opportunity to provide values identified by the community. A priority concern is any potential changes in local fishery species as they are an important and significant indicator of understanding the potential and cumulative effects on inherent rights for harvesting natural resources, fish and wildlife species, and medicine. This is a project-specific concern.	<u>CNL Response</u> CNL is open and willing to discuss capacity support and funding with WLFN to seek input on VCs and incorporate WLFN's VCs into the NPD Closure Project. The EIS outlines how Indigenous engagement and input has influenced the VCs used in the assessment. The EIS addressed potential effects to VCs in the aquatic environment. The assessment covered the aquatic VCs of interest to Indigenous Nations, communities and organizations, including the fish species identified during Indigenous engagement activities. The assessment concluded that there are no adverse residual effects on the aquatic environment expected from the project. CNL is interested in working together with the WLFN to identify WLFN valued components, address interests and concerns related to VCs, and develop project commitments.	<u>Where is this topic discussed in the EIS?</u> The EIS now includes a section on Indigenous engagement related to VC selection (**Section 6.3.1.1**). **Section 4.1** of the EIS highlights the in-design mitigation measures that act to isolate and contain the waste inventory within the NPD Disposal Facility to ensure protection of the surrounding environment, including the aquatic environment. **Section 9.3.3.2** of the EIS provides a series of mitigation measures focused on protection of surface water and ultimately the aquatic environment. Mitigation measures for the protection of surface water have been updated and expanded from the 2017 draft EIS. The EIS does not predict any adverse residual effects on the aquatic environment (**Section 9.4.3.5**) as a result of the NPD Closure Project. <u>What changes have been made (and where)?</u> No changes have been made to the EIS in response to this feedback.	<u>Status</u>: CNL received EIS comments and recommendations from WLFN on March 7, 2023. CNL sent responses to WLFN comments and recommendations and sent a draft I&C table (and mapping table) on June 7, 2023. No response has been received from WLFN. CNL has attempted to engage with the WLFN on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to engagement with WLFN within CNL's role as the project proponent to support WLFN's meaningful participation in the EA process. <u>Next Steps:</u> CNL wishes to continue discussions with WLFN to better understand the community's perspective, values, or concerns associated with the NPD site. CNL proposes to work together with WLFN to develop a work plan and capacity for future activities related to the NPD Closure Project.

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Appendix C: Record of Engagement and Tables of Interests and Concerns

Appendix C.6.2 – Record of Engagement and Tables of Interests and Concerns for Timiskaming First Nation

This appendix provides a complete record of all engagement between CNL and Timiskaming First Nation (a member nation of Algonquin Nation Secretariat) from June 2022 to March 2024 (Table C-33). Communications with Timiskaming First Nation between June 2016 and June 2022 were via the Algonquin Nation Secretariat (Table C-29). At the NSDF Project Hearing in 2022 June, CNL heard that the individual rights bearing communities needed to be engaged independently from the Algonquin Nation Secretariat, regarding CNL related projects and activities.

Table C-33 includes the date and method of the communication/engagement, the topics discussed and participants. This table also highlights engagements where key EA topics were discussed. The key EA topics align with "Generic Guidelines for Preparation of an Environmental Impact Statement Pursuant to the *Canadian Environmental Assessment Act*, 2012" as well as the requirements of REGDOC 3.2.2 "Indigenous Engagement" and guidance specific to NPD provided by the CNSC in January 2021 (e-doc # 6467843).

Table C-33 Record of Engagement with the Timiskaming First Nation

Date/Method	Details	Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 09, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the Timiskaming First Nation Chief offered to meet with TFN to discuss any concerns about the NSDF project or CNL's other projects. This offer was a result of the of interest CNL heard from other communities associated with the Algonquin Nation Secretariat at the Canadian Nuclear Safety Commission for the hearing on Canadian Nuclear Laboratories' (CNL's) proposed Near Surface Disposal Facility (NSDF).										√
June 16, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the TFN General Director was to inquire who the appropriate contact was for TFN.										√
June 23, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to the TFN Chief was to indicate CNL's interest in meeting to share information on CNL's activities and projects including the NPD project.										√
June 24, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to an Algonquins of Barriere Lake consultant was to coordinate meetings with Algonquins of Barriere Lake, Timiskaming First Nation and Wolf Lake First Nation.										√
June 30, 2022 Incoming email	This email from an Algonquins of Barriere Lake consultant to CNL's Director of Indigenous Relations suggested CNL contact the Chief and Council at TFN.										√
August 04, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the TFN Chief was a follow up and email sent to inquire if TFNL would be interested in meeting CNL to discuss CNL activities, including the NPD project.										√
October 03, 2022 Outgoing email	This letter addressed to the TFN's Chief from CNL's Director of Indigenous Relations provided a project update and the engagement status with the TFN, CNL noted that the next step is a meeting to discuss enabling capacity funding for TFN's involvement in the NPD and NSDF projects.										√
October 26, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the TFN Chief was to follow-up on the October 3, 2022 email.										√

Date/Method	Details	Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
January 20, 2023 Outgoing Email	This email from a CNL Communications Officer to TFN's Chief to inform of the decision to postpone the submission of the NPD Closure Project's draft EIS until 2023 May to allow for additional Indigenous input. CNL proposed the next step would be to discuss TFN's interest and desired involvement in the NPD project.										√
March 14, 2023 Outgoing Email	This email from CNL Senior Communications Officer to TFN's Chief sharing CNL's Indigenous Relations Procurement Strategy.										√
September 20, 2023 Incoming Email	This email from ATFN Executive Secretary to CNL Indigenous Engagement Coordinator is to provide CNL with the new emails for the Chief and Vice Chief of Timiskaming First Nation Council										√
October 17, 2023 Outgoing Email	This email from CNL Indigenous Engagement Coordinator to ATFN is to provide an invite to the 2023 October 20 Career Fair being held In Pembroke.										√
October 19, 2023 Incoming Email	This email from ATFN Chief to CNL Indigenous Engagement Coordinator is to inform CNL of ATFN change in leadership. CNL thanks ATFN and noted looking forward to receiving ATFN feedback.										√

Timiskaming First Nation – Summary of Interests and Concerns

Timiskaming First Nation has not submitted any written comments on the NPD Closure Project. As such, CNL has not included an interests and concerns table. CNL has attempted to engage with Timiskaming First Nation on multiple occasions through a variety of means (i.e., emails, letters, telephone, and webinar invites). CNL remains committed to ongoing engagement with Timiskaming First Nation.

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Appendix C.6.3 – Record of Engagement and Tables of Interests and Concerns for the Algonquins of Barriere Lake

This appendix provides a complete record of all engagement between CNL and the Algonquins of Barriere Lake (a member nation of Algonquin Nation Secretariat) from June 2022 to March 2024 (Table C-34). Communications with Algonquins of Barriere Lake between June 2016 and June 2022 were via the Algonquin Nation Secretariat (Table C-29). At the NSDF Project Hearing in 2022 June, CNL heard that the individual rights bearing communities needed to be engaged independently from the Algonquin Nation Secretariat, regarding CNL related projects and activities.

Table C-34 includes the date and method of the communication/engagement, the topics discussed and participants. This table also highlights engagements where key EA topics were discussed. The key EA topics align with "Generic Guidelines for Preparation of an Environmental Impact Statement Pursuant to the *Canadian Environmental Assessment Act*, 2012" as well as the requirements of REGDOC 3.2.2 "Indigenous Engagement" and guidance specific to NPD provided by the CNSC in January 2021 (e-doc # 6467843).

Table C-34 Record of Engagement with the Algonquins of Barriere Lake

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
April 08, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the ABL Chief was to inquire if ABL would be interested in meeting CNL to discuss CNL projects, include the NPD project.										√
May 24, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the ABL Chief followed up on the April 8, 2022 offer to meet.										√
May 24, 2022 Outgoing telephone call	A CNL Senior Communications Officer telephoned the number on the ABL letterhead and left a message with a contact number and offered a meeting with CNL if ABL was interested.										√
June 15, 2022 Outgoing email	This email from a CNL Senior Communications Officer to ABL's Legal Counsel was to follow-up on the previous email requesting contact information for ABL.										√
June 15, 2022 Incoming email	This email from the ABL Consultant to a CNL Senior Communications Officer stated that the ABL Chief had asked the consultant to follow-up on CNL's outreach with ABL's Legal Counsel.										√
June 15, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the ABL Consultant stated that CNL was interested in meeting with ABL to discuss interest in CNL's projects, including the NPD project.										√
June 23, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to the Chiefs of Algonquins of Barriere Lake, Timiskaming First Nation and Wolf Lake First Nation was to indicate CNL's interest in meeting with each community either collectively or together and to share information on CNL's activities and projects including the NPD project.										√
June 24, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to an Algonquins of Barriere Lake consultant was to coordinate meetings with Algonquins of Barriere Lake, Timiskaming First Nation and Wolf Lake First Nation.										√
June 30, 2022 Incoming email	This email from an ABL Consultant to CNL's Director of Indigenous Relations confirmed ABL would coordinate a meeting with CNL after July 12, 2022.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
June 30, 2022 Outgoing email	This email from CNL's Director of Indigenous Relations to an ABL Consultant was to thank the consultant and affirm CNL's interest in the consultant coordinating a meeting between ABL and CNL.										√
August 04, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the ABL Consultant asked if ABL were still interested in meeting with CNL to discuss project, including the NPD project.										√
October 03, 2022 Outgoing email	This letter addressed to the ABL's Chief from CNL's Director of Indigenous Relations provided a project update and the engagement status with the ABL, CNL noted that the next step is a meeting to discuss enabling capacity funding for ABL's involvement in the NPD and NSDF projects.										√
October 26, 2022 Outgoing email	This email from a CNL Senior Communications Officer to the ABL Chief followed-up on the October 3, 2022 letter.										√
November 23, 2022 Outgoing telephone call	A CNL senior communications officer called the general telephone number and left a message with a contact number stating CNL was following up with a letter sent on October 3, 2022 for NPD Closure Project.										√
January 10, 2023 Outgoing email	This email from a communications officer with CNL to Chiefs of ABL providing an update on the NPD Closure Project and inquiring if SBL would like to meet and discuss their ABL's interest and desired involvement in the NPD Project.										√
January 20, 2023 Outgoing Email	This email from CNL Communications Officer to Algonquin's of Barriere Lake inform of the decision to postpone the submission of the NPD Closure Project's draft Environmental Impact Statement (EIS) until 2023 May to allow for additional Indigenous input. CNL proposed the next step would be to discuss the Algonquin's of Barriere Lake's interest and desired involvement in the NPD project.										√
March 14, 2023 Emails between CNL and Algonquin's of Barriere Lake	This email from CNL Senior Communications Officer to Algonquin's of Barriere Lake with CNL's Indigenous Relations Procurement Strategy.										√
October 17, 2023 Outgoing Email	This email from CNL Manager of Communications and Engagement to ABL is to provide an invite to the 2023 October 20 Career Fair being held In Pembroke.										√

Algonquins of Barriere Lake – Summary of Interests and Concerns

Algonquins of Barriere Lake has not submitted any written comments on the NPD Project Description or the 2017 draft EIS, or provided any comments verbally. As such, CNL has not included an interest and concerns table. CNL has attempted to engage with Algonquins of Barriere Lake on multiple occasions through a variety of means (i.e., emails, letters, telephone, and webinar invites). CNL remains committed to ongoing engagement with Algonquins of Barriere Lake.

Appendix C.7 – Record of Engagement and Tables of Interests and Concerns for the Anishinabek Nation

This appendix provides a complete record of all engagement between CNL and the Anishinabek Nation from June 2016 to March 2024 (Table C-35). Table C-35 includes the date and method of the communication/engagement, the topics discussed and participants. The table also highlights engagements where key EA topics were discussed. The key EA topics align with "Generic Guidelines for Preparation of an Environmental Impact Statement Pursuant to the *Canadian Environmental Assessment Act*, 2012" as well as the requirements of REGDOC 3.2.2 "Indigenous Engagement" and guidance specific to NPD provided by the CNSC in January 2021 (e-doc # 6467843).

Section 6.2.4.18.1 of the EIS summarizes the engagement activities that have taken place to date between CNL and the Anishinabek Nation.

Table C-35 Record of Engagement with the Anishinabek Nation

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 15, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Grand Chief of the Anishinabek Nation introduced the project and requested community input on any potential adverse impacts from project activities. To demonstrate requirements of CEAA, 2012 Section 5(1)(c), the letter requested meaningful feedback on the following: • *Whether the project may have environmental effect on any lands and/or resources currently used by Aboriginal peoples for traditional purposes;* • *Whether the project may have any perceived impacts on Aboriginal and Treaty Rights;* • *Whether local and traditional knowledge can assist in describing the existing environment; and,* • *The view of Aboriginal communities on proposed valued ecosystems components (environmental attributes) that have been identified for the assessment.*				√	√				√	
August 02, 2016 Outgoing telephone call	This telephone call was from CNL communications staff to the office of the Grand Chief of the Anishinabek Nation to follow-up on the July letter.										√
November 10, 2016 Outgoing letter	This letter from CNL's Director of Corporate Communications to the Anishinabek Nation (then known as the Union of Ontario Indians or UOI) Grand Chief inquired about asserted rights and traditional activities in the region around CRL. To demonstrate requirements of CEAA 2012 Section 5(1)(c), the letter requested a better understanding of Anishinabek Nation's historic and/or modern day use of lands in and/or near both of the projects and asked the following questions: • *Does the Union of Ontario Indians have traditional territory or reserve lands near the NSDF and/or NPD Closure Project?* • *What is the history of the Union of Ontario Indians using the areas around the two projects?* • *Do you have any members of the Union of Ontario Indians that currently live in close or reasonable proximity to either of the projects?* • *Does the Union of Ontario Indians have any members that currently practice traditional activities such as, trapping, hunting, fishing and/or gathering, near the two projects?* • *Does the Union of Ontario Indians, or any members, have sites of ceremonial significance in close proximity to either of the two sites, or more generally, any cultural activities near either of the two sites?* CNL also indicated interested in learning more about the community and any asserted rights, interests or activities members might undertake in the local or regional areas in proximity to the project.				√	√				√	
November 15, 2017 Outgoing email	This email from a communications officer with CNL to the Anishinabek Nation Grand Chief enclosed links to the full draft EIS, an interactive "public-friendly" executive summary of the draft EIS, the CNSC's public notice, a short overview of the project and environmental assessment, as well as detailed information on the timing of the EA process and how to participate in the public comment period.	√	√	√	√	√	√	√	√	√	

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
November 17, 2017 Outgoing email	This email from a communications officer with CNL to the Anishinabek Nation Grand Chief enclosed the draft Aboriginal Engagement Report for the NPD Closure Project and stated, per CEAA, 2012 requirements: *"CNL would be pleased to update information in this current draft with input from your community."*	√	√	√	√	√	√	√	√	√	
In March 2020, the COVID-19 pandemic impacted in-person engagement activities. CNL adapted to the restrictions providing online platforms for virtual meetings, workshops, webinars, Project updates and open houses.											
May 06, 2020 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Anishinabek Nation Grand Council Chief enclosed a preliminary version of the 2020 EIS and an updated IER. This letter also asked for feedback in the following seven areas: • *Does the Anishinabek Nation have additional information that they would like to provide in the context of traditional territory near the NPD site?* • *Does the Anishinabek Nation have any members who currently live close or in reasonable proximity to the NPD site?* • *Does the Anishinabek Nation have historical and/or current traditional practices near the NPD site, specifically we are interested in members' traditional uses such as trapping (traditional or commercial), hunting, fishing (traditional or commercial), gathering and practicing cultural ceremonies?* • *Does the Anishinabek Nation have sites of ceremonial significance in close proximity or more generally any cultural activities near the NPD site?* • *Tell us about any important resources, uses, activities, values and interests to the Anishinabek Nation near the NPD site.* • *If there is use in close proximity to the NPD site, is current community use different than historic use and can a description of those difference be provided?* • *Let us know of any potential concerns you have with respect to effects and any potential impacts on rights.* This letter also indicated an interest in meeting with the Anishinabek Nation to discuss any interests or concerns.	√	√	√	√	√	√	√	√	√	
May 26, 2020 Outgoing email	This email from a communications officer with CNL to the Anishinabek Nation Grand Council Chief was to follow-up on the registered letter sent on May 06.										√
August 27, 2020 Outgoing email	This email from a communications officer with CNL to Anishinabek Nation representatives was to follow-up to the 2020 May letter from CNL to Anishinabek Nation. New contacts for the Anishinabek Nation were obtained from the CNSC and the 2020 May letter was resent, as well as an invitation to meet.										√
April 12, 2021 Outgoing letter	This letter from CNL's Manager of Stakeholder Relations to the Grand Chief of the Anishinabek Nation enclosed a preliminary list of commitments and indicated interest in meeting to discuss.										√
June 15, 2021 Outgoing email	This email from a communications officer with CNL to the Grand Chief of the Anishinabek Nation (copying the Policy Analyst) was to follow-up on the April letter.										√
April 20, 2022 Outgoing email	This email mail invitation to Anishinabek Nation to the CNL Industry Day at the Chalk River Laboratories on June 2, 2022 to promote the broader engagement between CNL's nuclear industry partners and our local supply chain.										√
July 19, 2022 Outgoing email	This email from a CNL Senior Communications Office to Anishinabek Nation to provide more details about the Environmental Stewardship Council July 28, 2022 meeting.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 28, 2022 Environmental Stewardship Council	Anishinabek Nation, Deputy Grand Council (DGC) Chief attended CNL's Environmental Stewardship Council meeting held at the Chalk River Laboratories. This included a NPD Project update.										√
October 04, 2022 Outgoing letter	This letter addressed to the Anishinabek Nation's Grand Chief from CNL's Director of Indigenous Relations provided a project update and the engagement status with the Anishinabek Nation. CNL stated it is committed to incorporating Anishinabek Nation's interests and concerns into the EIS. CNL provided an engagement status and next steps, including a site visit and establishing commitments to ensure that all interests and concerns are addressed and tracked to resolution. CNL sent an updated draft set of commitments for Anishinabek Nation's review. CNL offered to discuss capacity and establish commitments before December 2022. CNL requested that Anishinabek Nation respond confirming their agreement to proceed with the engagement activities, or modified engagement activities.									√	
October 26, 2022 Outgoing email	This email from a CNL Senior Communications Office to the Anishinabek Nation's Grand Chief was to follow-up on the October 4, 2022 letter.									√	
November 23, 2022 Outgoing telephone call	Telephone call from a CNL Senior Communications Officer to the general inbox for the Anishinabek Nation stating CNL was following up on October 3, 2022 letter for NPD Closure Project. CNL left a message.									√	
January 20, 2023 Outgoing Email	This email from a CNL Communications Officer to the Anishinabek Nation Regional Deputy Grand Council Chief to inform them of the decision to postpone the submission of the NPD Closure Project's draft Environmental Impact Statement (EIS) until 2023 May to allow for additional Indigenous input. CNL proposed the next step would be to discuss the Anishinabek Nation's interest and desired involvement in the NPD project.										√
February 14, 2023 Outgoing Email	This email from a CNL Senior Communications Officer to the Anishinabek Nation Regional Deputy Grand Council Chief to follow up with the 2022 November 28 email regarding the tour of Chalk River Laboratories.										√
February 15, 2023 Emails between Anishinabek Nation and CNL (2 emails)	This email from the Anishinabek Nation Regional Deputy Grand Council Chief to a CNL Senior Communications Officer to confirm the interest in a tour of Chalk River Laboratories and confirmation of the next ESC Meeting date.										√
March 14, 2023 Outgoing Email	This email from CNL Senior Communications Officer to Anishinabek Nation with CNL's Indigenous Relations Procurement Strategy.										√
April 11, 2023 Outgoing Email	This email from CNL Senior Communications Officer to the Anishinabek Nation Regional Deputy Grand Council Chief following up on previous communications with regard to a site tour in Spring 2023; preferably early May.										√

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

Date/Method	Details	Key EA Topics									
		Baseline Conditions	Alternative Means	Project components and related activities	Effects assessment, incl. VC and spatial and temporal boundaries for the assessment	Impacts to rights	Proposed Mitigation Measures	Residual Effects	Follow-up Monitoring Program	Specific Interests and Concerns of the Community	General Communications
July 15, 2023 Incoming Email	This email from Anishinabek Nation Administrative Coordinator to CNL Manager, Communications and Engagement is to see if CNL has any sponsorship places for the NWDER conference being held in Niagara Falls, ON. Anishinabek Nation noted that the conference coordinators mentioned CNL might have places. CNL informed Anishinabek Nation that unfortunately CNL doesn't have any places, and that the conference registration is now full.										√
September 20, 2023 Incoming Email	This email from Deputy Grand Council Chief to CNL cc'd is to request staff to publicize the CNL Indigenous Relations Director role.										√
October 17, 2023 Outgoing Email	This email from CNL Manager of Communications and Engagement to Anishinabek Nation is to provide an invite to the 2023 October 20 Career Fair being held In Pembroke										√

Anishinabek Nation – Summary of Interests and Concerns

Anishinabek Nation has not submitted any written comments on the NPD Project Description or the 2017 draft EIS or provided any comments verbally. As such, CNL has not included an interests and concerns table. CNL has attempted to engage with the Anishinabek Nation on multiple occasions through a variety of means (i.e., emails, letters, telephone, webinars, meetings). CNL remains committed to ongoing engagement with Anishinabek Nation.

Environmental Impact Statement - NPD Closure Project

Appendix C: Record of Engagement and Tables of Interests and Concerns

APPENDIX D: AOPFN ALTERNATIVE MEANS ASSESSMENT

ALGONQUINS OF PIKWÀKANAGÀN ALTERNATIVE MEANS ASSESSMENT

For the Nuclear Power Demonstration Project Decommissioning

Algonquins of Pikwakanagan First Nation

1657A Mishomis Inamo,

Pikwàkanagàn, ON, K0J 1X0

t: 613.625.2800 e: consultation@pikwakanagan.ca

https://www.algonquinsofpikwakanagan.com/

Algonquins of Pikwàkanagàn First Nation Alternative Means Assessment Specific to Canadian Nuclear Laboratories' Nuclear Power Demonstration Project Closure Project.

Non-confidential report by the Algonquins of Pikwàkanagàn First Nation. April 2022.

Prepared and authored by: Algonquins of Pikwàkanagàn First Nation.

Submitted to Canadian Nuclear Laboratories and Atomic Energy of Canada Limited.

Acknowledgements: The Algonquins of Pikwàkanagàn appreciates the inputs of AOPFN members of the AOPFN Advisory Committee who engaged in this study. This report could not have been completed without their support and expert knowledge. The Algonquins of Pikwàkanagàn thank Canadian Nuclear Laboratories for providing funds for this research.

Disclaimer: The information contained in this Alternative Means Assessment report is based on research by the Algonquins of Pikwàkanagàn First Nation, as well as materials provided by Canadian Nuclear Laboratories, and published works, within limits of available time and resources. It is not intended to be a complete depiction of the dynamic and living systems of resource use, traditional economy, and local knowledge regarding community conditions maintained by Algonquins of Pikwàkanagàn First Nation members. The information contained herein does not, and should not be used to, define, limit, or otherwise constrain the Indigenous title, rights, or interests of Algonquins of Pikwàkanagàn First Nation, or other First Nations or Indigenous peoples.

Cover image courtesy of Canadian Nuclear Laboratories.

Executive Summary

Canadian Nuclear Laboratories (CNL) has completed a draft Environmental Impact Statement (EIS) for the Nuclear Power Demonstration decommissioning project (NPD), which is undergoing an environmental assessment under the Canadian Nuclear Safety Commission (CNSC). CNL's draft EIS included an Alternative Means Assessment (AMA), which identified and evaluated all the technically and economically feasible alternative means by which CNL could complete its decommissioning goals. From this AMA, CNL determined its preferred decommissioning strategy to be In-Situ Disposal.

The Algonquins of Pikwàkanagàn First Nation (AOPFN) AMA for the NPD was borne out of extensive concerns raised by AOPFN about the approach used by CNL in its Alternative Means Assessment. In Fall 2021, CNL provided funding for AOPFN to conduct its own AMA, to bring forward AOPFN perspectives on what alternative means to decommission the NPD is preferable from an Algonquin perspective.

AOPFN's AMA was developed by working with the AOPFN Advisory Committee (AAC), with support from an AOPFN technical team of staff and consultants. Across three meetings in late 2021/early 2022, the AAC identified eight values, value statements, guiding questions, and weighting by which three of four alternatives CNL identified would be ranked[1]. The eight AOPFN values used in this AMA were:

1. Water, Wildlife and Vegetation;
2. AOPFN Access to and Use of Land and Waters;
3. Algonquin Culture, Spirituality and Knowledge;
4. Future Generations;
5. Sustainable AOPFN Economy;
6. AOPFN Governance and Stewardship;
7. Worker and Transportation Risk; and

[1] Alternative #1 (Continued Storage with Surveillance) was determined by the AAC not to be a viable alternative for this project, and was not ranked. This was on the basis of this alternative not being a permanent solution, and associated concerns of burdening future generations with decision-making, and perpetuating the current state of contamination.

8. Risk to Other Populations Outside of Algonquin Territory (including non-human).

Following ranking on a value-by-value basis, an overall ranking of technically and economically feasible alternatives, found that Alternative 3 (Full Removal) was AOPFN's preferred alternative for the NPD Decommissioning Project. In addition to the group ranking and scoring process, each of the AAC members who identified a preferred alternative means chose Alternative 3 (Full Removal).

Alternative 3 (Full Removal) fit best with AOPFN identified preferences for decommissioning the NPD site, including preference for an alternative means that:

- Minimize the number of permanent hazardous waste disposal facilities in Algonquin territory;
- Supports the healing of the land to a natural condition as quickly as possible;
- Will allow for the greatest chance for meaningful reconnection of AOPFN members to the NPD site in the future, for cultural and traditional use purposes;
- Reduces fear, stigma and perceived risk for AOPFN members;
- Provides the maximum real and perceived protection for the Ottawa River;
- Does not pass risks in Algonquin territory on to future generations to handle;
- Maximizes the flexibility of future AOPFN land use for economic purposes;
- Is a permanent rather than temporary site solution at NPD;
- Has acceptable and well understood and well managed worker and transportation risks, and can be completed safely; and
- Is endorsed by AOPFN through a Free, Prior and Informed Consent decision.

In addition to identifying a preferred alternative, the AAC flagged the importance of the inclusion of AOPFN's Algonquin perspective into all decision-making processes within the Algonquin territory, weighing environmental or social impacts over financial costs, as well as the inclusion of AOPFN in ongoing monitoring of the project site.

Ultimately, from this report, AOPFN recommends:

(1) CNL reconsider their conclusions from their AMA based on AOPFN's preferred alternative (#3 - Full Removal);

(2) Early and comprehensive consultation and engagement of AOPFN in all future AMAs in or impacting on Algonquin territory;

(3) Adequate funding from CNL to perform fulsome Algonquin knowledge-based monitoring of the NPD site and its surroundings through the AOPFN Guardians monitoring program, for the life of the Project;

(4) Limiting the number of radioactive waste storage sites in Algonquin territory;

(5) The movement of radioactive wastes into, across and out of AOPFN territory be subject to written AOPFN permissions; and

(6) AECL and CNL consult with AOPFN about compensatory/accommodation measures for over 60 years of lost use and occupancy by AOPFN members of the area at and around the NPD site.

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1. Introduction

1.1 About the Algonquins of Pikwàkanagàn First Nation

The Algonquins of Pikwàkanagàn First Nation (AOPFN) is an Algonquin community that has, since time immemorial, exercised their rights to hunt, trap, gather, and practice other cultural activities in an area adjacent to the Kichi-Sìbì (Ottawa River). AOPFN's Algonquin ancestors have occupied the length of the Kichi-Sìbì for over 9,000 years (Taylor et al. 2021). Our Algonquin ancestors had full access and control to their unceded territory before the fur trade was established by Europeans in the 1630s (Malone et al. 2021). During this time, they controlled the Kichi-Sìbì and the trade that was dependent on it.

Since contact, lands used by AOPFN have been developed without the consent of the Nation. Crown policy and governance has interfered with AOPFN traditions of

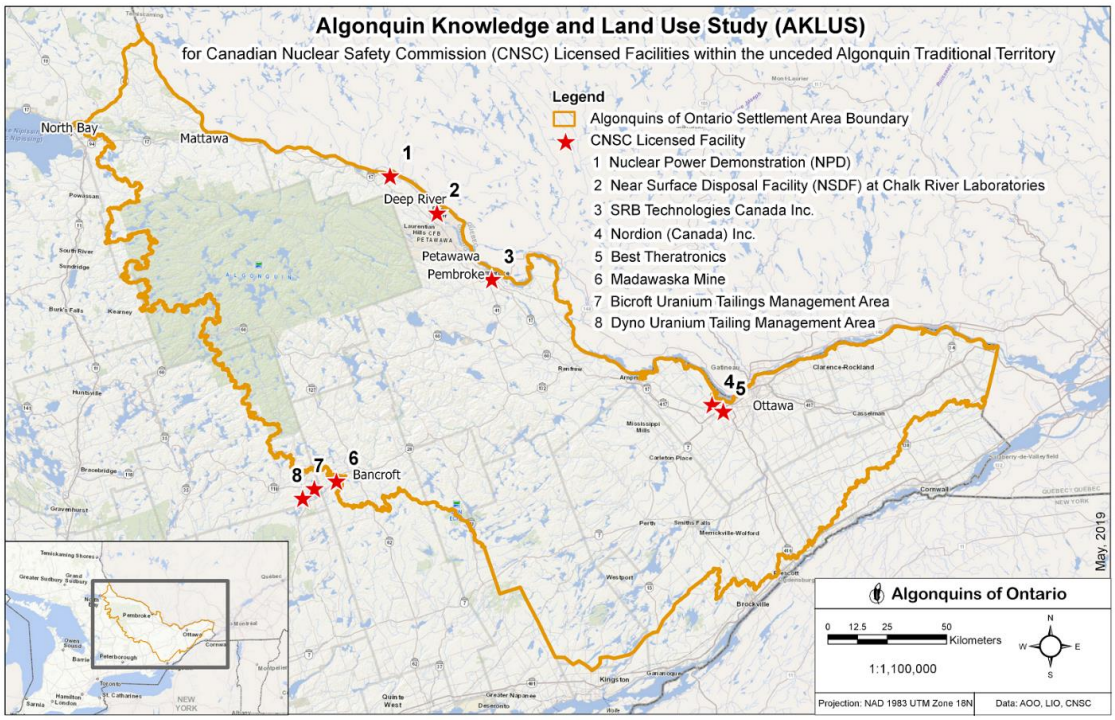

Figure 1 CNSC Facilities in unceded Algonquin Traditional Territory. From the Algonquin Knowledge and Land Use Study (Taylor et al., 2021)

stewardship and decision-making frameworks. Since the mid-1990s, Canada has placed nuclear facilities in and adjacent to Algonquin territory. The map below shows Algonquin territory and nuclear facilities now licensed by the Canadian Nuclear Safety Commission (Taylor et al., 2021). Today, AOPFN has been involved in a number of environmental and regulatory processes regarding these facilities, including the Nuclear Power Demonstration Project site, which is the subject of this report.

1.2 NPD Site Decommissioning and Alternative Means Assessment

Canadian Nuclear Laboratories (CNL) is working to complete the closure of the Nuclear Power Demonstration (NPD) Site outside of Rolphton, Ontario on the west bank of the Kichi-Sìbì in Algonquin territory. The site and its nuclear liabilities are owned by Atomic Energy of Canada Ltd. (AECL), a federal Crown corporation. CNL acts as the caretaker of the NPD site as a contractor to AECL. Currently, the reactor building contains low-level and intermediate-level radioactive materials that must be monitored. The stated goal of the NPD closure project is to permanently dispose of these materials so they pose less risk to the environment and require less monitoring over time.

CNL has completed a draft Environmental Impact Statement (EIS) for this project, which is undergoing an environmental assessment under the Canadian Nuclear Safety Commission. The draft EIS included – from CNL's perspective - the identification of all the technically and economically feasible alternative means by which CNL could complete its decommissioning goals. As a requirement of the environmental assessment CNL must include an evaluation of each alternative means and provide rationale for the alternative[2] chosen. This is called an Alternative Means Assessment (AMA). CNL identified that there were four technically and economically feasible alternatives available to them:

[2] The terms "alternative means" and "alternative" are used synonymously throughout this report.

1. **Continued Storage with Surveillance** (which would require decommissioning in the future but would do nothing to remove or otherwise contain materials now);
2. **Partial Dismantling and Removal** of the reactor components and buildings;
3. **Full Removal** of the reactor components and buildings; and
4. Disposal at the site (called **In-situ Disposal**), by pouring grout into the existing concrete enclosed underground works, encapsulating the reactor components, removal of all buildings, and covering the underground works with a concrete cap.

Appendix 1 of this report outlines each of these alternative means in more detail. All the information was provided by CNL to AOPFN. More information can be found in CNL's draft EIS.

1.3 AOPFN AMA: Development and Purpose

The Algonquins of Pikwàkanagàn have raised extensive concerns about the approach used by CNL in its Alternative Means Assessment (for example in comments on the draft EIS, dated July 16, 2020 – Two-Axe Kohoko 2020). Among these concerns was that the criteria included in the CNL AMA and the scoring method were based only on technical measurements and did not meaningfully attempt to gather or account for Algonquin perspectives. AOPFN was not engaged by CNL for the identification of values, criteria, weighting or scoring of alternatives. As a result, AOPFN was not satisfied with the process by which the CNL AMA was conducted.

For example, AOPFN members have strong concerns about the continued presence of radioactive waste in their territory and the measurable, observable, and perceived risks it poses to current and future generations. Despite this, CNL did not credibly consider how the continued presence (or full or partial removal, under different alternative means) of reactor components and other radioactive materials at the NPD site would affect how AOPFN members could or would use the land for rights-based activities in the future. AOPFN has consistently held that these issues must be substantively addressed – including direct inputs from the impacted Indigenous peoples themselves - in any full and proper alternative means assessment.

CNL reviewed AOPFN's comments and, while CNL did not commit to changing their AMA, in the fall of 2021 CNL provided funding for AOPFN to conduct its own AMA, to bring forward AOPFN perspectives on what alternative means to decommission the NPD is preferable from an Algonquin perspective. AOPFN Chief and Council determined that the AOPFN Advisory Committee (AAC), a body composed of AOPFN community members and acting as a reflection of community perspectives, was the most appropriate group to carry out the AMA. The AAC, with support from an AOPFN technical team of staff and consultants,[3] identified evaluation criteria from a foundation of the AOPFN worldview and conducted an alternative means assessment that reflects AOPFN understanding of acceptable risk and duration of impacts. This report is the result of the AOPFN AMA process and has been verified by both the AAC and AOPFN Chief and Council.

It is expected that the AOPFN AMA will inform further engagement with CNL and consultation with AECL on a preferred alternative means to decommission the NPD Project. The AOPFN AMA may be a necessary part of AOPFN's final submission to the Canadian Nuclear Safety Commission for the environmental assessment of CNL's preferred In-Situ Disposal alternative. Additionally, the AOPFN AMA will inform the AOPFN leadership's required decision on whether they consent to the proposed In-Situ Disposal project. AOPFN has identified in its engagement with CNL and its consultation with the AECL and CNSC that AOPFN Free, Prior and Informed Consent as per the United Nations Declaration of the Rights of Indigenous Peoples (UNDRIP) is required for any permanent solution to decommission the NPD site. Article 29.2 of UNDRIP asserts:

> *States shall take effective measures to ensure that no storage or disposal of hazardous materials shall take place in the lands or territories of indigenous people without their free, prior and informed consent.*

[3] The AOPFN technical team consisted of Lucas Bramberger, Projects Coordinator for AOPFN and lead facilitator with the AAC, and three members of Firelight Research Inc. – Alistair MacDonald, Rachel Ford, and Dr. Justin Page. Mr. MacDonald has prior experience conducting Alternative Means Assessments with Indigenous groups. The function of the AOPFN technical team was to facilitate and report on, rather than guide, the AAC's deliberations.

The AOPFN Alternative Means Assessment will also inform engagement in a rights impact assessment conducted by AOPFN with the CNSC.

1.4 Steps and Methods for the AOPFN AMA

The AOPFN AMA was carried out through a series of three meetings with the AAC, led by the AOPFN technical team. Each meeting was held virtually through a video conference platform (Zoom) and the proceedings were recorded. A transcript of the recording was produced for accuracy of information collection and analysis. A transcript of the written 'chat' function during each session was saved for the same purpose. The meetings consisted of facilitated conversations, where members of the technical team asked open-ended questions and recorded the responses in real time using a Google Jam Board and Google Sheets. AAC members were therefore able to see how their information was being collected by the technical team and could add to and adjust their inputs in real time.

The primary focus of the first meeting, held on December 8, 2021, was to identify AOPFN values, value statements and guiding questions for the AMA. The secondary focus was to discuss how values should be weighted for the analysis. During this first meeting, the AAC identified many values, discussed areas of overlap and where values could be combined. The AAC also contemplated how weights could be applied to those values, a topic for which consensus was later reached in the second meeting.

The technical team utilized notes, transcripts, and the Google Jam board to compile the information discussed at the first meeting. Based on that information, the technical team created a list of eight potential values with guiding questions to help evaluate the alternatives against those values. The technical team also constructed different scoring and weighting options for the AAC to finalize in the second meeting. Prior to the second meeting, AAC members were given an information packet explaining each of the alternatives in detail using information provided by CNL, a list of the eight potential values and associated guiding questions, and information on the weighting and scoring options available to them.

The primary focus of the second meeting, held on January 26, 2022, was to verify the list of eight values, determine the preferred scoring method, and then evaluate the

alternatives based on the final values by using the guiding questions. The AAC members confirmed that the eight values compiled by the technical team reflected their perspectives and the discussion from the first meeting (see Section 2). The AAC then chose weights for each value using a Google Sheet exercise (see Section 3) and adopted a scoring approach (see Section 4). Finally, the AAC, again in a facilitated discussion with a live Google Sheet to record results, conducted the exercise of comparing each alternative means on an AOPFN value-by-value basis (see section 4).

The technical team utilized notes, transcripts, and the Google sheets to compile the information discussed at the second meeting and develop a draft of this report. The draft included scoring for each Alternative on a value-by-value basis and an overall score for each Alternative based on the weighting system chosen. Prior to the third meeting, AAC members were given a draft AMA report and an information packet provided by CNL on specific technical questions posed by the AAC during the second meeting.

The technical team presented the draft report to the AAC at the third meeting, held on February 22, 2022. The focus of this meeting was to verify the findings of the report, to provide clarification, and to revisit topics that were not fully discussed at the second meeting. Finally, at the end of the meeting, the technical team asked each AAC member to give their own individual overall rank for each of the Alternative Means. The findings were presented to, and endorsed by, Chief and Council on March 31, 2022.

1.5 Principles Underlying the AOPFN AMA

The following principles underlie the AOPFN Alternative Means Assessment:

1. Only Indigenous peoples can identify the rights, interests and values, and how they are measured, when conducting an alternative means assessment that includes "Indigenous" considerations.
2. Only AOPFN can accurately gauge impacts on AOPFN values such as access to and willingness to use lands and waters, culture, or governance and stewardship.

3. AOPFN gauge both beneficial and adverse effects when looking at the benefits and risks of different alternative means to their values.
4. AOPFN considers scientifically measurable data when assessing alternative means but is not wholly reliant on Western science in determining impacts and benefits of alternative means.
5. Algonquin Knowledge is not uniform, or static, it is fluid, cumulative, and its holders have been influenced by other knowledge frameworks (i.e., Western science, Two-eyed seeing, and legacy of colonialism).
6. AOPFN does not limit its alternative means assessment to changes versus a current, "damaged" baseline set of conditions, but also considers past

Presentation of Factual Information about the Alternative Means

Especially for the second meeting, extensive information was provided to the AAC about the four alternative means considered. The technical team was sensitive to provide factual information only about the different alternative means. In addition to providing information from CNL about the four alternative means to the AAC directly and without revisions, technical team members identified explicitly that all four of the alternative means – according to CNL – can be undertaken from a technical and economic perspective, and all four can be undertaken safely. The technical team was also explicit in identifying that current conditions at the site and likely future conditions at the site, even in an extreme failure mode, for all four alternative means, are not likely – from a scientific perspective – to create a large or unmanageable radioactive incident. This too is based on information proved by CNL. The technical team also noted that the amount of radioactive waste left at the site at this time is not a large amount and was careful to share factual information about current and likely future dose amounts at the site and in wildlife, vegetation and water at and around the site, are unlikely to cause extensive harm to AOPFN "receptors". The provision of this factual information was important both to AAC decision-making and to an AOPFN commitment to avoid unnecessarily exacerbating already "socially amplified" perception of risk associated with the NPD site.

conditions before the site was impacted, and desired future conditions for AOPFN members.

1.6 Limitations of the AOPFN Alternative Means Assessment

The alternative means assessment conducted by AOPFN has the following limitations:

- Not every member of the AAC was available for each meeting. Attendance was as follows:
    - First Meeting: 11 members
    - Second Meeting: 12 members
    - Third Meeting: 11 members
- The AAC is a strong cross-section of AOPFN community perspectives but is not wholly representative. The AAC has 13 members in total, which cannot fully represent the perspectives of over 2000 AOPFN members. Complete community engagement would require additional costs and time, which the AOPFN did not have. This, combined with decades of dispossession of land, culture and Algonquin knowledge, means that not all Algonquin values relevant to this area may have been identified, explored, or ranked.
- This report is based on the understanding and analyses of the AOPFN and reflective of the values and knowledge shared by the AAC members. It is **not intended as a complete depiction of the dynamic way of life and living system of use and knowledge maintained by AOPFN members.**
- The conversations had by the AAC reflected their holistic understanding of the world, which recognizes that all things are connected. This AMA attempted to evaluate each alternative as it would affect eight discrete values, which are in fact, highly interrelated and overlapping. AOPFN decision-making is based on a balance of factors and not on an understanding of an effect to one value. To acknowledge this truth, after all Alternatives were scored on a value-by-value basis, each member of the AAC was asked to give an individual overall ranking for each Alternative. The results of this secondary exercise are provided in Section 5.

2. AOPFN Values Used in the NPD AMA

AAC members identified the following values for the AOPFN NPD AMA process. They are examined in further detail in the sub-sections below.

Table 1 AOPFN Values Used in the NPD AMA

AOFPN Value
1. Water, wildlife and vegetation: habitat and quality
2. AOPFN access to and use of land and waters
3. Algonquin culture, spirituality and knowledge
4. Future generations
5. Sustainable AOPFN economy
6. AOPFN governance and stewardship
7. Worker and transportation risk
8. Risks to other populations outside of Algonquin territory

AAC members agreed that this list of values fully communicated their priority values for assessing preferred alternative means by which the NPD Project could be decommissioned. In other words, these are the values most likely to be beneficially or adversely impacted by different futures in relation to the NPD site that may occur under alternative decommissioning scenarios. This list of values is not a full list of AOPFN values, rights or interests in relation to the NPD site, its surroundings, or AOPFN's traditional territory.

2.1 Water, Wildlife, and Vegetation: Habitat and Quality

Value Statement: AOPFN members rely on wildlife and vegetation to live. Wildlife and vegetation are valuable in and of themselves as part of nature. Land and water will be restored over time and risks to wildlife individual and population health will be avoided.

The health of water and the land was identified as a critical value to consider for this alternative means assessment. One AAC member stated the importance of both elements to AOPFN:

> "I just wanted to reiterate how water means life to us. So, it is very important in all of our being. So, it's not just monitoring water, water is life. And it's our role to monitor water. Also, any environmental impact it has on our land." (December 8, 2021).[4]

AAC members discussed the recovery or revitalization of the land as an important part of this value. A member noted that the state of the land is tied to access and use of the land:

> "You can't use the land if the land is not revitalized." (December 8, 2021).

In the 2021 AOPFN Diet and Harvest Study (Fediuk et al., 2021, pg. 37), 94 per cent of AOPFN families reported eating Algonquin foods in the past year: fish (87%), land animals (87%), birds (46%), berries (40%), greens/leaves/roots (38%), and mushrooms (23%)). As noted in that study, "this high usage affirms the ongoing relationship to and intrinsic value of Algonquin foods and medicines."

The value of land and water revitalization is grounded in a concern for the wildlife and plant life, in and around the site. One AAC member stated that they have a lot of concern about the species at risk affect by the site, specifically, "milk snakes, other birds, turtles, fish…" (December 8, 2021). Another AAC member talked about the health of plant medicines as a critical element of this value:

> "And also plant medicines. You know, I pick plant medicines for myself, my clients and my family. And that's huge like how many of these plant medicines have been destroyed in that process [construction of the NPD site]… the last thing I want to do is to, you know, for example… potentially pick some plant medicines from that area, if is available and you know that that plant has

[4] All quotes are from AAC members. They are not attributable to any individual and AOPFN does not use the names of AAC members to protect confidentiality.

> gotten sick. And that I am giving that to my family. Whether it is, you know, in years to come or..." (December 8, 2021).

The technical team compiled the values of health of the land and water, revitalization of land, and health of wildlife and plants into the single value of Water, Wildlife, and Vegetation: Habitat and Quality.

2.2 AOPFN Access to and Use of Land and Waters

Value Statement 1: AOPFN members have the right to access and harvest from lands and waters in Algonquin territory based on long-term residency, governance and stewardship. Access includes physical access and willingness to use (trust in) an area.

Value Statement 2: Water is life. Water must be clean and trusted by AOPFN members.

The AAC made it clear that AOPFN members' access to and use of land and waters in their territory was a very important value. Accessing land and water is imperative for traditional harvesting, occupancy of the land, and the continuation of cultural practices, including ceremony, stewardship, and the transfer of Algonquin Knowledge. Use of the Kichi-Sìbì is especially important as it is a defining element of the AOPFN people.

> "When we are getting down to the history of our people, the Ottawa River specifically, it was a major trading route for our people. Up and down the Ottawa River." (December 8, 2021)

A large majority of AOPFN families are still involved in the subsistence harvesting economy. Seventy-three percent of AOPFN households that participated in the 2021 AOPFN Diet and Harvest survey (183/250 – Fediuk et al., 2021) identified themselves as active harvesters.

Full practicability of AOPFN Access to Land and Waters is dependent on two key factors. The first is the physical ability to access the areas around the site, which is dependent on the type and extent of barriers required in a future with a given alternative. The second is the willingness of AOPFN members to access the land and water around the site, which can be increased when the land is perceived to be in a natural state or healing and can be decreased when there is fear or stigma associated with the site. In particular, perception of contamination can result in AOPFN members

avoiding areas much larger than the scientifically confirmed contaminated area. One AAC member identified both factors when describing the access and use of the land:

> "We are kind of locked out of that area. So are we gathering food in that area? Well, no… You have got radioactive material there, so no, we are not going to go digest that stuff… What is available there, we cannot touch, or we will not touch." (December 8, 2021)

However, other AAC members stated that they would use the land in the future if it was accessible to them:

> "I would drop my boat there today if I could, so I'm not afraid to go on that land. I wanna make sure that it's safe for my children, my grandchildren, and my great grandchildren and all that come after us." (January 26, 2022)

Members also discussed this access and willingness to use land and waters as an important element of AOPFN stewardship, ceremony, and future generations. In addition, it was noted that there is economic and cultural value associated with harvesting traditional foods and medicines that should not be discounted.

2.3 Algonquin Culture, Spirituality, and Knowledge

Value Statement: AOPFN members have a right to connect culturally and spiritually with lands and waters in Algonquin territory. This includes the ability to conduct ceremony and have a connection to land in the same ways as ancestors. This also includes the ability to share Algonquin knowledge through interactions between generations while on the land.

The condition of the site corresponds to the spiritual health of the land, which corresponds to the spiritual health of the AOPFN members. One AAC member explained that to AOPFN members, everything on earth has a spirit and therefore everything at the NPD site has a spirit. This member talked about how the spirits of the plants and animals at the site have suffered:

> "So, in knowing that everything has a spirit, what is the damage that is being done to the building of this hole, the pouring of concrete, the destruction of

> the mineral world, the plant world, the animal world, and our human world." (December 8, 2021)

The same AAC member also spoke of how the damage at the site has affected their own spirit and the connection between environmental health, mental health, physical health, emotional health and spiritual health. Other AAC members echoed this knowledge:

> "We have to get back to getting connected to the ground and find out what Mother Nature needs to heal itself. And that has everything to do with spirituality… everything is connected to the spirit." (December 8, 2021)

Despite the spiritual damage they see, the AAC members identified that spirit can be brought back to the land if it is allowed to regenerate. The regeneration of the land and the spirit can only occur if Algonquin Knowledge is applied to the site. Past decisions were made from a non-Indigenous perspective, which is why the site is so damaged. By making decisions for the land through the lens of an Indigenous person, the spirit of the land can heal. One AAC member stated that ceremony on the land will help to heal it:

> "No spirit would pop into thin air here. With that saying, how we can restore it, let us get back to the land. Let's be able to have a smudge there, let's see what Mother Nature wants. We can connect with Mother Nature." (December 8, 2021)

Algonquin culture was discussed as a part of Algonquin spirituality and Knowledge. One AAC member talked about the revitalization of culture and how people are learning about the Algonquin ways of understanding the world. This understanding affects the stewardship of the land and water, a value further discussed in section 2.6 below.

2.4 Future Generations

Value Statement: Radioactive risks will not be passed on as a burden to future generations; radioactive materials cannot ever be abandoned and forgotten in Algonquin territory.

Members of the AAC brought up concern for future generations several times and identified that this value plays an important role in their present decisions. One AAC member identified that decisions should be made with the next seven generations in mind. None of the members of the AAC were willing to delay the decision regarding how to decommission the site onto the shoulders of their children or grandchildren.

One AAC member talked about the concern that their future great-great-grandson would be impacted by the plants growing on the site in 50 years. Another stated that they wanted to make sure the land was safe for their children, grandchildren, great-grandchildren and everyone coming after them.

2.5 Sustainable AOPFN Economy

Value Statement: AOPFN has the right to take equitable advantage of economic opportunities associated with the lands and waters of Algonquin territory.

The AAC members discussed the value of the site to the AOPFN economy in two ways. The first way was the potential economic value of the site if it were more accessible and useable over time. For example, one AAC member discussed the potential commercial value of the site in the future to AOPFN as a part of this value.

The second way was the potential economic gains AOPFN could receive from CNL by working alongside of operations. For example, one AAC member discussed opportunities for AOPFN members to be hired for monitoring or establishing an AOPFN Guardian Program in the area.

A third consideration related to economics was focused on more in relation to Value #2 (AOPFN Access to and Use of Lands and Waters) – the traditional economy of harvesting fish, game, food plants, medicines and other resources.

2.6 AOPFN Governance and Stewardship

Value Statement: AOPFN has a right and responsibility to protect and nurture lands, waters, wildlife, vegetation and spirits.

In addition to their rights, AOPFN members have a strong feeling of responsibility towards the lands in their territories. This responsibility has been passed on through

generations and has never been ceded by AOPFN, although the ability to practice governance and stewardship roles has been constrained by the actions of the Crown and settler populations. AAC members have an understanding that the whole of their territory was once utilized by their ancestors and that this site is part of that historic relationship.

When the AAC members spoke of spirituality or health of the land and water, they also talked about AOPFN's role in decision-making. Governance and stewardship cannot be fully separated from spirituality, Algonquin Knowledge, or culture because the information brought to the decision-making process is based on those values.

> "So it's a recovery and restoration of these lands, but also it's the autonomy of the Algonquin people, you know what I mean, to be able to make these decisions in our territory… we need to be making these decisions; we know what is good for us. So, I think that is, you know, a huge value that needs to really be looked at." (December 8, 2021)

This includes the Teachings of the Seven Grandfathers, the ways in which, and values by which Algonquins should live: honesty, humility, respect, courage, wisdom, love, and truth[5]. It is through these teachings that the people of AOPFN would exercise their ways with respect to stewardship and governance of the land:

> "…we are the first peoples, right? — and that respect and those seven grandfather teachings, and looking back to the lands, and we are those natural stewards of the land, and it has to come back to that. And that respect needs to be restored." (February 22, 2022)

For this analysis, AOPFN governance and stewardship was identified as a discrete value because it conveys the ability of AOPFN to have the power to make those decisions. This was stated by an AAC member who recognized that without authority, talk of applying value statements to a decision-making process is fruitless.

[5] The Algonquin Way: Traditional Algonquin Teachings

> "We can all be talking and doing whatever, but if we don't have that governance and we are not stewards of the land, and we are not the stewards of, you know, anything that is going on here, then like I said, I think it kind of falls out of place. We need to have that leadership and we need to have that being able to stand up for us to say, you know what, look at these are our values." (December 8, 2021)

2.7 Worker and Transportation Risk

Value Statement: Physical works and activities on AOFPN lands and waters should be undertaken safely, minimizing risks to workers and to the environment.

AAC members identified that the risks to workers and from material transportation associated with each of the alternative means are worthy of consideration in making decisions about preferred alternatives. AAC members expressed concerns that workers be safe when decommissioning the site, that any spills of radioactive materials in transit within and outside of Algonquin territory could negatively impact on the environment, and that substantial differences in worker and transportation risk could be an important decision-making factor.

2.8 Risk to Other Populations Outside of Algonquin Territory (including non-human)

Value Statement: AOPFN prefers not to pass risks on to other beings (human and non-human) outside of Algonquin territory.

Some AAC members requested a value be placed on not passing risks on to other Indigenous peoples, the general public, and even all living things, outside of Algonquin territory. While the value has some overlap with other values (#1 and #3, for example), it was adopted by the AAC to reflect a value associated with respect for and a desire not to harm living things outside of the traditional Algonquin territory. It is particularly relevant when considering alternative means that require movement and ultimate storage of nuclear waste out of Algonquin territory.

3. AOPFN's Weighting Method

In order to conduct a scoring exercise, the weight put in each of the values used in the AMA needed to be established. At the second meeting, the AAC discussed various weighting options and chose the weights shown in Table 2 below.

In the end, the AAC decided to break values down into two weight categories. The first category was values that were each weighted equally to one another, at 15%. These comprised values 1 through 6 in Table 2 below. The second category were considered less important to AOPFN decision-making and thus each was weighted lower, at 5%. Values 7 and 8 in Table 2 meet this latter category. This weighting was a consensus decision by the 12 members of the AAC involved in the second meeting.

Table 2 AOPFN Weighting by Value

Value	**Weight**
1. Water, Wildlife and Vegetation: Habitat and Quality	15%
2. AOPFN Access to and Use of Land and Waters	15%
3. Algonquin Culture, Spirituality and Knowledge	15%
4. Future Generations	15%
5. Sustainable AOPFN Economy	15%
6. AOPFN Governance and Stewardship	15%
7. Worker and Transportation Risk	5%
8. Risk to Other Populations	5%
Total Percentage	100%

One AAC explained why they thought this was the best way to weight the values:

> "I think these seven and eight [Values of Worker and Transportation Risk, Risk to Other Populations], I mean, they should be on this list but at a very low priority. We're talking about Pikwàkanagàn now and … what we're looking at is our values… so we don't want to get side-lined here on this number seven and number eight. They are concerning but I think [they] definitely got to be a lower value." (January 26, 2022)

In Section 4.10, the subsequent ultimate decision by the AAC not to quantitatively weight Value 8 – Risks to Other Populations – is discussed further.

4. Scoring Each Alternative Means Against AOPFN Values

4.1 AOPFN's General Approach to Scoring Alternative Means

In the second meeting, the AAC chose to evaluate each alternative using a **relative ranking method.** This was a consensus decision by the 12 members of the AAC involved in the second meeting.[6]

In the relative ranking method chosen, a single question was asked for each value – essentially, some variation of "how do the alternatives rank compared to one another when it comes to protecting and promoting this value?" (see Table 3 for the value-specific guiding questions used). In the relative ranking scoring system, the number 1 indicates the alternative means that is the most preferred choice for a given value and the number 3 indicates the alternative means least preferred for a given value. As discussed below in section 4.2, Alternative 1 (Continued Storage with Surveillance) was determined by the AAC to not be part of the evaluation process so there would be no rank of 4. In the relative ranking method, one most preferred alternative is chosen (1) and one least preferred alternative (3) is chosen. The alternative in the middle is given the rank of 2.

While AAC consensus was the goal, it was not required and sometimes not reached in relation to scoring each value. Where consensus was not found in the second meeting on the scoring for a particular value, this was confirmed or revised at the third meeting. The final results are reflected in the findings in Sections 4.3 to 4.10 below and have been verified by the AAC as accurate.

[6] The other scoring option considered was numerically scoring each alternative means independently against guiding questions for each value. The AAC found the relative ranking system to be more intuitive to apply.

Table 3 AOPFN Guiding Questions by Value

Value	**Guiding Question**
Water, Wildlife and Vegetation: Habitat and Quality	Rank the alternatives from the one most protective of water, wildlife and vegetation (=1), to the one least protective (=3).
AOPFN Access to and Use of Land and Waters	Rank the alternatives from the one that does the most to increase AOPFN access to and use of lands and waters (=1), to the one least likely to increase AOPFN access and use (=3).
Algonquin Culture, Spirituality and Knowledge	Rank the alternatives from the one that is most likely to increase Algonquin cultural connection and sharing of Algonquin knowledge at and around the site (=1), to the one least likely to promote culture and knowledge (=3).
Future Generations	Rank the alternatives from the one that does the most to protect future AOPFN generations from risk and responsibility (=1), to the one that puts the most risk and responsibility on future generations (=3).
Sustainable AOPFN Economy	Rank the alternatives from the one that brings the greatest potential for economic benefits that matter to AOPFN (=1), to the one that is least likely to bring these benefits (=3).
AOPFN Governance and Stewardship	Rank the alternatives from the one that most supports AOPFN governance and stewardship priorities (e.g., healing the spirit of the land, adherence to AOPFN principles/values = 1), to the one that is most contrary to AOPFN governance and stewardship (=3).
Worker and Transportation Risk	Rank the alternatives from the one that has the lowest worker and transportation risk (=1), to the one that has the highest worker and transportation risk (=3).

Value	Guiding Question
Risk to Other Populations Outside of Algonquin territory	Rank the alternatives from the one that passes the least risk on to other populations outside of Algonquin territory (=1), to the one that passes the most risk on to other populations outside of Algonquin territory (=3).

4.2 Discussion on Alternative 1

AOPFN Advisory Committee members did not consider Alternative 1 (Continued Storage with Surveillance) a viable alternative means for decommissioning the NPD site. While each of the other alternative means will result in a permanent solution for the NPD site within a defined time frame, Alternative 1 (Continued Storage with Surveillance) will delay this decision and any mitigative action (other than passively allowing the remaining radioactive materials to reduce in potency through natural radioactive decay) to an undetermined time in the future. The decision to exclude Alternative 1 (Continued Storage with Surveillance) was made by the AAC at the second meeting and confirmed at the third meeting.

AOPFN discussion respecting the viability of Alternative 1 (Continued Storage with Surveillance) was focused on two points. First, AAC members did not want future generations to have to manage the waste or the decision. Two AAC members discussed this point – identifying that they had responsibility for fixing the problem before them and they would not place that responsibility on their children or grandchildren. Another AAC member was against any alternative that resulted in a temporary rather than permanent solution at the site. Delaying the decision into the future was not considered a viable solution by AAC members.

Second, AAC members are concerned about levels of contamination from the existing condition of the site and would not like to perpetuate that state.[7] The other three alternatives will result in less middle to long-term risk of contamination

[7] As noted previously, the technical team was at pains to flag that the current and likely future radioactivity risks, as measured by western science, are low to very low.

mobilization from the site than is currently the case in the passive storage and surveillance scenario. An AAC member stated, "something has to be done to ensure this is safe. If we keep waiting, something could happen" (January 26, 2022).

Of the 12 AAC members that were present at the second meeting, nine explicitly[8] stated that Alternative 1 (Continued Storage with Surveillance) should not be considered as part of this alternative means assessment. Furthermore, no AAC members expressed a desire to rank Alternative 1 (Continued Storage with Surveillance) against the AOPFN values. As a result, no rankings were applied to Alternative 1 (Continued Storage with Surveillance) in the ranking exercise, and Alternatives 2, 3 and 4 were compared to one another, as the only viable alternative means presented by CNL that are currently worthy of consideration by AOPFN.

4.3 Value 1: Water, Wildlife, and Vegetation: Habitat and Quality

The technical team opened the discussion on this value by encouraging the AAC members to think about how the different alternatives would promote biological healing and the return to natural conditions at and around the site, from its current cleared and industrialized state. The members were asked to rank the alternatives from most to least protective of water, wildlife, and vegetation.

Technical information provided by CNL was presented to the AAC. Images and descriptions provided by CNL (see Appendix 1) show that for Alternatives 2 and 4, an area of about 2.5 hectares will remain grassed over with an engineered "hump", fenced in, and no trees allowed to grow, in perpetuity. In contrast, after 12 years, Alternative 3 will be allowed to start to return to an unfenced, natural forested environment, with this being accomplished within about 50 years.[9]

This value incorporates the idea of the revitalization of land as understood by AOPFN members. One AAC member identified that Alternative 3 (Full Removal):

[8] Either vocally, or in the chat on the Zoom videoconference.

[9] Notwithstanding that the "stack" on site will likely be allowed to stay in place for about 50 years in each scenario, as habitat for Chimney Swifts.

> "…is the only alternative that allows for everything to be removed and for the land to be completely restored and revitalized." (January 26, 2022)

Most AAC members agreed with this statement. The majority who chose Alternative 3 (Full Removal) as the best alternative did so because the land at the NPD site will be completely restored and revitalized under this alternative. One member followed up by noting that Alternative 3 (Full Removal) would be the best option for the goal of future use of the area, which shows how connected the value of Water, Wildlife, and Vegetation is to AOPFN Access to and Use of Lands and Waters.

One AAC member identified that they thought Alternative 4 (In-Situ Disposal) should be ranked the lowest. This was due to their fear that allowing any waste to stay on that land would open doors in the future for CNL to add other intermediate and low-level waste to the site. The member stated:

> "…it's a scary road that we walk on you know when we start looking at leaving any of it [nuclear waste] there … I think any alternative other than 3 [Full Removal] is scary because we're going to end up with garbage down the line." (January 26, 2022)

The technical team explained that any waste left at the NPD site would be cemented in place, that there would be no room left to put additional future waste, and that no party has identified any plans to import radioactive waste to the NPD site. This information did not alter the perspective of the AAC member, which remained that any waste left there would feel risky and could lead to further degradation of the site.

One AAC member ranked Alternative 4 (In-Situ Disposal) as the best one against this AOPFN value. This member was concerned that disturbing the waste during partial or full removal (Alternatives 2 or 3) would end up contaminating the surrounding environment during the decommissioning process. This AAC member noted the abundance of wildlife found in the area, the proximity to Algonquin Provincial Park, and the quality of habitat surrounding the site, as elements of the value at risk.

Because most members expressed a desire to remove all waste from the site (Alternative 3 – Full Removal), the majority of AAC members agree that partial removal

of waste (Alternative 2) would be better than no removal of waste (Alternative 4). These results were verified at the February 22 meeting.

*Table 4 AAC Ranking for Value 1: Water, Wildlife and Vegetation: Habitat and Quality. **

Value 1: Water, Wildlife, and Vegetation: Habitat and Quality	**Alternative 2 (Partial Dismantling and Removal)**	**Alternative 3 (Full Dismantling and Removal)**	**Alternative 4 (In-Situ Disposal)**
Ranks identified by AAC members	8 of 9 members scoring chose Rank of 2; one member chose Rank of 3	8 of 9 members scoring chose Rank of 1; one member chose Rank of 3	7 of 9 members chose Rank of 3; one member chose Rank of 1; one member chose Rank of 2
Majority Result	#2 Ranking	#1 Ranking (most preferred)	#3 Ranking (least preferred
*Colours in Table 4 through 10 provide a visual reference for the AAC result. The colour green indicates the most preferred alternative, the colour red indicates the least preferred alternative, and the colour yellow indicates the alternative in between.			

4.4 Value 2: AOPFN Access to and Use of Land and Waters

The technical team presented factual information provided by CNL on how the different alternative means would affect the ability to physically access the site in the future. The technical team explained that Alternatives 2 and 4 would result in a small area remaining fenced off – approximately 2.5 hectares of the overall 385 hectare NPD site (less than 1% of the overall site controlled by Atomic Energy of Canada Limited). Alternatives 2 and 4 would also result in a limitation on the vegetation (no trees) that would be allowed to grow in that fenced area because of the need to maintain the integrity of the engineered cover. The technical team also clarified that even though

there is no surface water on the 2.5 hectares, that the presence of waste there has already been shown in previous AOPFN studies (Fediuk et al., 2021; Malone et al., 2021; Taylor et al., 2021) to be adversely affecting AOPFN members' willingness to travel or fish on the Ottawa River adjacent to the site.

The AAC was asked to rank the alternatives from the one that does the most to increase AOPFN access to and use of lands and waters, to the one least likely to increase AOPFN access and use of lands and waters.

Concerns were raised about Alternatives 2 (Partial Dismantling and Removal) and 4 (In-Situ Disposal), because the physical barriers such as fencing and an unnatural engineered mound would cut AOFPN members off from an area of land. This alienation would include from the area within the fenced area's boundaries – due to the physical constraint - as well as a buffer zone around it wherever the fence and mound are visible from – due to psychosocial concerns associated with the visibly man-made alterations to the area and associations of this with risk, fear and stigma.

Several AAC members were unsure that people would ever want to use the NPD Reactor area again, regardless of the presence of waste. One member stated at the second meeting:

> "I think people are not going to go there at all, because of history or whatever … they would never touch that land again because of what happened on it. The fear always does that, right? That's my concern on that one … a good percentage of people would not going back" (January 26, 2022)

During the third meeting, a member stated that the stigma associated with the site will remain there for many years. This member stated that the presence of the stack would be a source of that stigma. Another member agreed that the site would always be "labelled a previous radioactive site" (February 22, 2022). Several other members expressed the diverging opinion that if the land was healed, people would access it:

> "If we are looking at that option number 3 [Full Removal] again and we're talking about the revitalization of our land and bringing our land back and having the ability to bring the spirit back and bring that culture back to the land, I know for sure that I would be one of those people that would walk

back to that land and have those conversations with the standing tall trees…" (January 26, 2022)

These members highlighted the importance of monitoring programs that include AOPFN Guardians for increasing the trust at the site. One member said that stigma will fade if monitoring shows that the area is safe. Others said they were sure they would go to the site if the waste was removed:

"I would definitely go back to the site and use the site if it was completely removed and monitored for that twelve year… decommissioned timeline". (February 22, 2022)

Ultimately, all AAC members who spoke to this value gave Alternative 3 (Full Removal) the best rank of 1. One member stated that when comparing Alternative 2 (Partial Dismantling and Removal) and Alternative 4 (In-Situ Disposal), they would rank Alternative 4 (In-Situ Disposal) higher because out of the two, it results in a more permanent solution. However, the majority of AAC members ranked Alternative 2 higher than Alternative 4, in large part because AOPFN members prefer for removal of as much waste as possible from the NPD site. These results were verified at the third meeting.

Table 5 AAC Ranking for Value 2: AOPFN Access to and Use of Land and Waters.

Value 2: AOPFN Access to and Use of Land and Waters	**Alternative 2 (Partial Dismantling and Removal)**	**Alternative 3 (Full Dismantling and Removal)**	**Alternative 4 (In-Situ Disposal)**
Ranks identified by AAC members	9 of 10 members scoring chose Rank of 2; one member chose Rank of 3	10 of 10 members scoring chose Rank of 1	9 of 10 members chose Rank of 3; one member chose Rank of 2
Majority Result	#2 Ranking	#1 Ranking (most preferred)	#3 Ranking (least preferred

4.5 Value 3: Algonquin Culture, Spirituality, and Knowledge

The AAC was asked to rank the alternative means from the one that is most likely to increase Algonquin cultural connection and sharing of Algonquin knowledge at and around the NPD site, to the one least likely to promote culture and knowledge at and around the NPD site. No factual information was provided on this topic by the technical team because AOPFN members (e.g., AAC members) are the exclusive knowledge holders on this topic.

All AAC members who spoke to this value ranked Alternative 3 (Full Removal) as the best. One member stated that in order to increase that cultural connection, they must be able to access the land. The technical team then asked if it was correct that Alternative 2 (Partial Dismantling and Removal) was preferred to Alternative 4 (In-Situ Disposal) because under Alternative 2 (Partial Dismantling and Removal), intermediate level radioactive waste would be fully removed from the NPD site, with only low-level radioactive waste remaining. Or, on the contrary, was it possible that the existence of any waste onsite was seen as equally detrimental? One AAC member responded:

> "I think people are not going to go there at all, because of history… they would never touch that land again because of what happened on it." (January 26, 2022)

However, another AAC member stated there was a difference between Alternatives 2 (Partial Dismantling and Removal) and 4 (In-Situ Disposal) because of the level and type of waste that would remain present on the site after decommissioning. Ultimately, the majority of the AAC estimated that Alternative 2 (Partial Dismantling and Removal) was preferrable to Alternative 4 (In-Situ Disposal). These results were verified at the third meeting.

Table 6 AAC Ranking for Value 3: Algonquin Culture, Spirituality, and Knowledge

Value 3: Algonquin Culture, Spirituality, and Knowledge	**Alternative 2 (Partial Dismantling and Removal)**	**Alternative 3 (Full Dismantling and Removal)**	**Alternative 4 (In-Situ Disposal)**
Ranks identified by AAC members	9 of 10 members scoring chose Rank of 2; one member chose Rank of 3	10 of 10 members scoring chose Rank of 1	9 of 10 members chose Rank of 3; one member chose Rank of 2
Majority Result	#2 Ranking	#1 Ranking (most preferred)	#3 Ranking (least preferred

4.6 Value 4: Future Generations

The technical team presented information regarding the risk associated with each alternative posed to future generations. The risk of harmful radioactivity release in each case is low to none. In the case of Alternative 2 (Partial Dismantling and Removal), all intermediate level waste – the worst remaining waste at the site - is removed from the site. In the case of Alternative 3 (Full Removal), all intermediate and low-level radioactive wastes are removed from the site. It was also noted that there would be a small possibility that future interventions could be required at the site if Alternative 2 (Partial Dismantling and Removal) or Alternative 4 (In-Situ Disposal) were chosen, whereas under Alternative 3 (Full Removal) no future interventions could possibly be required at the NPD site, because the radioactive risk would be fully removed.

AAC members were also made aware that Canada has committed to develop a permanent deep geological repository, but that a final location for such a facility has not yet been found. The Nuclear Waste Management Office is currently considering two locations in Ontario, outside of Algonquin territory, for such a site, which would take at least a couple of decades to develop. It was made clear that in the short term (and possibly long term), intermediate level wastes moved out of the NPD would need to be stored at a temporary facility, almost certainly at the Chalk River Laboratories.

The AAC was asked to rank the alternatives from the one that does the most to protect future AOPFN generations from radioactive risks and responsibility for managing that risk, to the one that puts the most risk and responsibility on future AOPFN generations.

One AAC member said they would like all waste to be removed (i.e., Alternative 3 - Full Removal) so the land could be returned to future generations without any radioactive legacy. Several other members agreed with this.

There were three AAC members, however, who chose to rank Alternative 4 (In-Situ Disposal) as the best. This is because any waste removed under Alternatives 2 (Partial Dismantling and Removal) or 3 (Full Removal) "would not be going very far" (AAC member, January 26, 2022). CNL has indicated that some of the waste removed from the NPD site would be temporarily stored at the Chalk River Laboratories site until a permanent storage facility is built offsite, and that low-level radioactive waste from NPD may end up in the proposed Near Surface Disposal Facility at Chalk River permanently. Therefore, future generations would still have to determine where and how some of the waste removed from NPD would be permanently stored, and even if not involved in those decisions, the radioactive liability would still be in Algonquin territory unless and until such time as it is permanently relocated. On top of this, some of the waste (most likely low-level waste, but also possibly intermediate level waste) may well remain in Algonquin territory at Chalk River Laboratories on a permanent basis.

Some AAC members were interested in making sure that fewer, rather than more, permanent radioactive waste disposal facilities are developed in Algonquin territory. One AAC member expressed that by keeping the waste at the NPD site (Alternative 4 – In-Situ Disposal), there would be two permanent nuclear waste disposal facilities within Algonquin territory – one at the NPD site and one at the Chalk River Laboratories site. This member stated:

> "We're really not accomplishing anything by making a second dumping station or a second storage facility. So why would we not just keep the one facility at Chalk River instead of creating a secondary one (at NPD) and leaving it where it is?" (January 26, 2022)

A different member at the third meeting stated something similar:

> "so it's [In-Situ Disposal] kind of like sweeping your floor and creating little piles all over the place and not actually picking up the dirt and putting it into the trash can, right?... but we know Chalk River's not going to be moving right? Any time soon. So, if they're going to have that permanent storage solution, why wouldn't it be the best option to remove that stuff and put it over into the permanent storage right?" (February 22, 2022)

In the end, the majority of AAC members deemed Alternative 3 (Full Removal) as the best alternative for this AOPFN value. As the majority (7 out of 11) of AAC members who engaged in scoring against this value indicated that Alternative 4 (In-Situ Disposal) was the lowest ranked, Alternative 2 (Partial Dismantling and Removal) was determined to be the second preference after Alternative 3 (Full Removal). This result was verified at the third meeting.

Table 7 AAC Ranking for Value 4: Future Generations

Value 4: Future Generations	**Alternative 2 (Partial Dismantling and Removal)**	**Alternative 3 (Full Dismantling and Removal)**	**Alternative 4 (In-Situ Disposal)**
Ranks identified by AAC members	10 of 11 members scoring chose Rank of 2; one member chose Rank of 3	8 of 11 members scoring chose Rank of 1; three members chose Rank of 3	7 of 11 members chose Rank of 3; three members chose Rank of 1; one member chose Rank of 2
Majority Result	#2 Ranking	#1 Ranking (most preferred)	#3 Ranking (least preferred)

4.7 Value 5: Sustainable AOPFN Economy

The technical team provided some qualitative and quantitative information in relation to this value (see also Appendix 1):

- CNL has identified that Alternative 4 (In-Situ Disposal) is clearly the cheapest of the three alternatives, followed by Alternative 2 (Partial Dismantling and Removal), with Alternative 3 (Full Removal) the most expensive;
- Each of the three alternatives have been deemed economically feasible by CNL;
- None of the three alternatives would likely see extensive jobs for AOPFN members during the decommissioning phase. Much of the work required is highly technical, specialized and likely to be undertaken by larger firms with access to more equipment and capital than what is currently available to AOPFN members and AOPFN firms.
- Alternatives 2 (Partial Dismantling and Removal) and 4 (In-Situ Disposal) would likely have longer-term, but minor in scope, monitoring employment opportunities for AOFPN members.
- Alternative 3 (Full Removal), has the potential to see removal of all restrictions on future land zoning, would see the largest area that is potentially useable in the future for economic purposes by AOPFN members, whether that be for traditional economic purposes (hunting, fishing, trapping, etc.) or for industrial, commercial or residential purposes.

For this value, AAC members were asked to rank the alternatives from the one that brings the greatest potential for economic benefits that matter to AOPFN, to the one that is least likely to bring these benefits.

AAC members chose not to consider compensation for past, present and future harms from the presence of this nuclear facility on Algonquin territory as part of their AMA deliberations. AAC members have indicated, and AOPFN in general agrees, that Canada owes compensation to AOPFN for these undoubted, but never measured, past, present and future harms, regardless of what decommissioning strategy is established at NPD, and that the proposed project and Chalk River Laboratories are on unceded Algonquin land, for which they have never been compensated or accommodated for.

One of the considerations for the value of Sustainable AOPFN Economy was how the different alternatives would result in work for AOPFN members. In the first meeting, AAC members identified that it is possible if waste remained on the site, that AOPFN

members could be hired for monitoring, which will occur over a longer time period with Alternatives 2 (Partial Dismantling and Removal) and 4 (In-Situ Disposal). However, radioactive wastes being removed could support increased traditional economic activities (e.g,. hunting, fishing, trapping, medicine and plant gathering) at and around the site by AOPFN members. The full removal of all wastes may also allow more access to these lands that AOPFN members could potentially use in the future for business opportunities. For example, one AAC member discussed the potential commercial value of the site to AOPFN. This could occur only if all radioactive material is removed, and the fencing taken down.[10]

Ultimately, AAC members tended to believe that the economic opportunities for future use of the site are much higher if all radioactive materials are removed from the site. Eight of 10 AAC members agreed that Alternative 3 (Full Removal) should rank as the best, two said Alternative 4 (In-Situ Disposal) would rank as the best. All members ranked Alternative 2 (Partial Dismantling and Removal) as the "in between", second ranked alternative means. These results were verified at the third meeting.

[10] While the AAC did not describe it in these terms, all lands in AOPFN territory are unceded and AOPFN is pursuing self-governance, and the Algonquin Land Claim with Canada. Therefore, the question of potential AOPFN title to these and surrounding lands, and the ability to control the use of these lands for economic purposes in the future, is a relevant consideration. From an AOPFN perspective, there are greater options for future use of the NPD site if all the radioactive risks – and associated land use restrictions – are removed.

Table 8 AAC Ranking for Value 5: Sustainable AOPFN Economy

Value 5; Sustainable AOPFN Economy	**Alternative 2 (Partial Dismantling and Removal)**	**Alternative 3 (Full Dismantling and Removal)**	**Alternative 4 (In-Situ Disposal)**
Ranks identified by AAC members	10 of 10 members scoring chose Rank of 2	8 of 10 members scoring chose Rank of 1; two members chose Rank of 3	8 of 10 members chose Rank of 3; two members chose Rank of 1
Majority Result	#2 Ranking	#1 Ranking (most preferred)	#3 Ranking (least preferred

4.8 Value 6: AOPFN Governance and Stewardship

The AAC was asked to rank the alternatives from the one that most supports AOPFN governance and stewardship priorities, rights and responsibilities, to the one that is most contrary to AOPFN governance and stewardship priorities, rights and responsibilities. Advisory Committee members were reminded that this value was identified by them to also be tied to healing the spirit of the land and spirituality, which was brought up in discussing the values of Water, Wildlife, and Vegetation, as well as Algonquin Culture, Spirituality, and Knowledge.

No factual information was provided on this topic by the technical team because AAC members are the knowledge holders on this topic.

AOPFN members have a connection with the spirit and the land. This is a connection that CNL and AECL do not have and therefore was not a part of those parties' alternative means assessment. This connection was emphasized by two AAC members as the most important consideration for the discussion of the value of AOPFN governance and stewardship. An AAC member reminded everyone that governance and stewardship is part of their tradition of being caretakers of the land. Another AAC member stated that healing the land will heal the people as well. In addition to this, a member talked about going back to basic principles and focusing on what would have been allowed at the site in the first place if AOPFN governance and stewardship had

been applied, and the relevance those considerations have for decisions on how to manage the land now:

> "If we were just starting this project, what are our traditional values and knowledge, and what are our ways of life? And that's what I keep coming back to. If we were just starting this, what would we allow them to do and what would we not allow? And that's how I keep thinking of this process of everything has a spirit. And yes— you know— if we decide to do the full decommissioning to get that land back, yes, we're kind of uprooting, but in the same sense we're going to be able to start over to be able to redevelop." (February 22, 2022)

An AAC member emphasized that all governance and stewardship decisions for AOPFN start with protection of the land and its spirit:

> "We are the original caretakes of the land, that we— yes, we want to heal the spirit of the land and the spirituality, but the land is so important to us— where ever it is, whether it be at CNL, whether it be in Algonquin Park, whether it be down in Bon Echo, every piece of land is important to us and to our future. So, I really, really want to stress that land is important to us along with the healing." (February 22, 2022)

AAC members also noted that AOPFN members' access to and connection to NPD was completely expropriated in order for the NPD site to be put in place. While the harms attached to this alienation and loss of use and connection will need to be dealt with through relationship building that goes beyond the scope of this AMA, the alternative decommissioning means that is preferrable for AOPFN is one that allows for reestablishment of AOPFN access to and healthy connection with the whole site, and reestablishment of AOPFN controls over how the site is managed into the future, without land use restrictions. AOPFN thus prefers for alternatives that allow the land to heal the quickest from harms, that do not pass decisions down to future generations, and that align with AOPFN values associated with the health of the lands and waters.

As a result of the above-noted factors, eight out of nine AAC members ranked Alternative 3 (Full Removal) the best and one member ranked Alternative 4 (In-Situ

Disposal) the best. Again, Alternative 2 was considered the second best alternative by AAC members. These results were verified at the third meeting.

Table 9 AAC Ranking for Value 6: AOPFN Governance and Stewardship

Value 6: AOPFN Governance and Stewardship	**Alternative 2 (Partial Dismantling and Removal)**	**Alternative 3 (Full Dismantling and Removal)**	**Alternative 4 (In-Situ Disposal)**
Ranks identified by AAC members	9 of 9 members scoring chose Rank of 2	8 of 9 members scoring chose Rank of 1; one member chose Rank of 3	8 of 9 members chose Rank of 3; one member chose Rank of 1
Majority Result	#2 Ranking	#1 Ranking (most preferred)	#3 Ranking (least preferred

4.9 Value 7: Worker and Transportation Risk

AAC members acknowledged that any differential worker and transportation risks associated with the active decommissioning phase are worthy of consideration in making decisions about preferred alternatives. The AAC was asked to rank the alternatives from the one that has the lowest worker and transportation risks, to the one that has the highest worker and transportation risks.

The technical team reviewed information regarding worker and transportation risk associated with each alternative. It was noted that only Alternative 4 (In-Situ Disposal) is likely to minimize the transportation, handling and repackaging of radioactive waste. Alternative 3 (Full Removal) – especially – and Alternative 2 (Partial Dismantling and Removal) would require increased interaction between workers and radioactive waste as well as the transport of materials, increasing transportation risk. It was noted that CNL recognizes that all of the alternatives can be undertaken safely, but that there are incremental differences in the likelihood of worker and transportation incidents between the alternatives (information provided by CNL in its public filings):

- Alternative 4 (In-Situ Disposal) – least risk of transportation accidents and estimated +/- 0.19 lost time injuries during decommissioning

- Alternative 2 (Partial Dismantling and Removal) – second least risk of transportation accidents and estimated +/- 0.6 lost time injuries during decommissioning
- Alternative 3 (Full Removal) – highest incremental risk of transportation accidents and estimated +/- 1.2 lost time injuries during decommissioning

In discussion on this value, an AAC member identified that workers could get hurt during the dismantling of the infrastructure (especially under Alternatives 2 (Partial Dismantling and Removal) and 3 (Full Removal)). Another identified that the vehicles transporting the materials could have an accident:

> "You are disturbing the soil, disturbing the air. Although we talk about the environmental impact, I am also concerned about the possible injury of anybody going in there and getting hurt while they try to do this." (December 8, 2021)

Those transportation risks are highest under Alternatives 2 (Partial Dismantling and Removal) and 3 (Full Removal). While CNL provided information showing that Alternative 3 may require up to 1525 truckloads of total waste, it was left to the technical team to estimate how much radioactive waste truckloads were required for all three alternatives considered in this AMA.[11] The following estimates were presented to the AAC to help inform their decision-making:

- Alternative 2 (Partial Dismantling and Removal) – approximately 40 truckloads of intermediate level waste (ILW);
- Alternative 3 (Full Dismantling and Removal – approximately 40 truckloads of ILW, approximately 240 truckloads of low-level waste (LLW); and
- Alternative 4 (In-Situ Disposal) – no truckloads of ILW or LLW.

[11] CNL did not provide estimates of how many truckloads of waste would leave the site under Alternative 4 (which requires landfill and recycling truckloads to remove surface facility structures), and only provided estimates of radioactive waste truck loads for Alternative 2.The technical team derived the numbers above from the tables provided by CNL.

Almost all of the AAC members said they would rank Alternative 4 (In-Situ Disposal) the best for this value and Alternative 3 (Full Removal) as the worst. Two members said they would rank Alternative 3 (Full Dismantling and Removal) as the best.[12] Alternative 2 (Partial Dismantling and Removal) again received the middle ground rank of 2. These results were verified at the third meeting.

Table 10 AAC Ranking for Value 7: Worker and Transportation Risk

Value 7: Worker and Transportation Risk	**Alternative 2 (Partial Dismantling and Removal)**	**Alternative 3 (Full Dismantling and Removal)**	**Alternative 4 (In-Situ Disposal)**
Ranks identified by AAC members	9 of 9 members scoring chose Rank of 2	9 of 11 members scoring chose Rank of 3; two members chose Rank of 1[13]	9 of 9 members scoring chose rank of 1
Majority Result	#2 Ranking	#3 Ranking (least preferred)	#1 Ranking (most preferred

[12] The rationale presented by members who chose Alternative 3 (Full Removal) as preferred against this value is that they were basing their opinion on an overall high concern about Alternative 4 (In-Situ Disposal), rather than focusing on the merits of this one value. One of the members who preferred for Alternative 3 (Full Removal) against this value framed it this way: "I think it's a scary road that we walk on you know when we start looking at leaving any of it there it should go off to containment units that are going to be designed for that whether that's deep disposal or an intermediate disposal... So like I said I'm really in support of three when it we look at every one of these criteria right from 1 to 7 to 8 right so just my personal thoughts" (February 22, 2022).

[13] The two members who chose Alternative #3 as the highest ranked Alternative Means for Worker and Transportation Risk, did not rank the other two alternative means against this AOPFN Value.

4.10 Value 8: Risk to Other Populations Outside of Algonquin territory (including non-human)

The AAC was asked to rank the alternatives from the one that passes the least risk on to other populations in other territories (including non-human), to the one that passes the most risk on to other populations outside of Algonquin territory.

The technical team reviewed the factual information regarding each of the alternatives, including that all alternatives would likely result in storage of some radioactive waste in Algonquin territory. However, Alternative 3 (Full Removal) could result only in a shorter-term storage of intermediate-level radioactive wastes from NPD on Algonquin territory, some of which would likely be subject to removal to outside Algonquin territory if and when Canada identifies and develops an appropriate permanent storage facility for radioactive wastes in the form of the proposed deep geological repository.

AAC members expressed mixed feelings on this value, not wanting to take on the burden of radioactivity left behind by Canada themselves in Algonquin territory, while also expressing concern for other people and living beings outside Algonquin territory as well.

In relation to some of the alternatives that would likely see later movement of the waste out of Algonquin territory (Alternatives 2 (Partial Dismantling and Removal) and, especially, 3 (Full Removal)), some AAC members expressed concern that they would be shifting risk onto other Nations' territories or even areas used by non-Indigenous people. One of the members was concerned about the perception of the Algonquin people choosing to transport hazardous materials through and off of their territory and into the territories of others.

> "There was risks with moving the waste off of the site that could possibly you know, spill over into other territories. Now if I – like we weren't consulted we are getting the option to be consulted. And we have the choice to move it out of our territory, but then we are going to go push it on someone else's territory, right?" (December 8, 2021)

However, another member stated that the risk of transporting hazardous material should be completely held by Canada, not thrust upon AOPFN. These materials (or the technology to generate them) did not originate in Algonquin territory; they were brought in by Canada, and Canada is responsible to take them out.

Given the uncertainty around where any waste would ultimately be disposed of at this time, the AAC voiced the difficulty they faced in ranking alternatives under this value. For example, one member stated:

> "if we don't know where it's going, then the only risk right now in the transportation is to AOPFN members and our own territory at this time. So, for us to rank some other population or a risk to other areas— we can't really do that. We can't have input on a situation or other territories if we don't have the idea of where it could potentially go in ten years from now." (February 22, 2022)

Ultimately, following this discussion it was determined by the AAC there was not enough information to rank the alternatives on this value, but it would continue to be included as part of the individual assessments (see Section 5.2), as it is deemed of importance to the AAC and AOPFN.

5. Calculation of AOPFN Overall Rankings

5.1 Rankings Using Value-Specific Scoring and Weighting

Prior to the third and final meeting, the technical team converted the rankings into numerical "points" in order to complete the weighted scoring exercise. Any alternative given a rank of 1 (best rank) was given a corresponding score of 3 (highest). Any alternative given a rank of 2 (second rank) was given a score of 2, and any alternative given a rank of 3 (worst rank) was awarded 1 point (lowest).

The total score was calculated by adding up the weighted points for each alternative means. The results are shown in Table 11 below, which shows the points for each alternative means scored for each value in the grey row, and each score with the weights applied in the blue row.

Table 11 AOPFN Weighted Scores for Alternative Means to Undertake the NPD Site Decommissioning

		Alternative 2 (Partial Dismantling & Removal)	Alternative 3 (Full Removal)	Alternative 4 (In-Situ Disposal)
1. Water, Wildlife and Vegetation: Habitat and Quality	Points	2	3	1
	Weighted Points: 15%	0.3	0.45	0.15
2. AOPFN Access to and Use of Land and Waters	Points	2	3	1
	Weighted Points: 15%	0.3	0.45	0.15
3. Algonquin Culture, Spirituality and Knowledge	Points	2	3	1
	Weighted Points: 15%	0.3	0.45	0.15
4. Future Generations	Points	2	3	1
	Weighted Points: 15%	0.3	0.45	0.15
5. Sustainable AOPFN Economy	Points	2	3	1
	Weighted Points: 15%	0.3	0.45	0.15
6. AOPFN Governance and Stewardship	Points	2	3	1
	Weighted Points: 15%	0.3	0.45	0.15
7. Worker and Transportation Risk	Points	2	1	3
	Weighted Points: 5%	0.1	0.05	0.15
	Points	N/A	N/A	N/A

		Alternative 2 (Partial Dismantling & Removal)	Alternative 3 (Full Removal)	Alternative 4 (In-Situ Disposal)
8. Risk to Other Populations	Weighted Points: 5%	N/A	N/A	N/A
Total		**1.9**	**2.75**	**1.05**

The Technical Team presented the above-noted scoring table to the AAC at the third meeting and explained that it was built from the determination of majority scores. The table did not account for opinions that differed from the majority of the group. The Technical Team offered to create a scoring scheme that accounted for any instances of differing opinions. The AAC decided to score alternatives based on the majority opinion. The AAC verified the findings of the scoring table at the third meeting.

Alternative 3 (Full Removal) is clearly the AOPFN preferred alternative means against AOPFN-identified, weighted, and scored values. Alternative 3 (Full Removal) is well over twice as preferred as either Alternative 4 (In-Situ Disposal) and also clearly better than Alternative 2 (Partial Dismantling and Removal).

5.2 Individual AAC Member Rankings

While ranking each alternative against specific values and tabulating those scores is an important tool, AOPFN members tend to think holistically, about the pros and cons of each alternative on balance rather than as a compilation of discrete value scores. As a result, in the third meeting, each AAC member was asked to provide their own individual overall ranking, from 1 (best) to 3 (worst) for the three alternative means given full consideration in the AOPFN AMA. The results are shown in Table 12.

Table 12 Individual Rankings of Alternative Means by AAC Members

	Rank #1 (Best)	**Rank #2 (Middle)**	**Rank #3 (Worst)**
Member 1	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)

	Rank #1 (Best)	**Rank #2 (Middle)**	**Rank #3 (Worst)**
Member 2	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)
Member 3	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)
Member 4	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)
Member 5	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)
Member 6	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)
Member 7	Abstained from overall ranking		
Member 8	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal*
Member 9	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)
Member 10	Alternative 3 (Full Removal)	Alternative 4 (In-Situ Disposal) or Alternative 3 (Full Removal)	
Member 11	Alternative 3 (Full Removal)	Alternative 2 (Partial Dismantling/Removal)	Alternative 4 (In-Situ Disposal)

*Member 8 wanted to make it clear that they are very opposed to Alternative 4 (In-Situ Disposal) and would prefer not to see it on a ranking list at all.

Overall, ten members of the AAC prefer Alternative 3 (Full Dismantling and Removal) as the approach to decommission the NPD site. No members preferred any other alternative means. The least favoured alternative mean is Alternative 4 (In-Situ Disposal). One AAC member opted to abstain from providing an individual, overall ranking, on the basis that they saw ranking by values to be the preferred method of determining the preferred alternative.

6. Discussion and Conclusions

After conducting three meetings with the AOPFN's Advisory Committee, and triangulating qualitative and quantitative data, Alternative #3 (full removal) was determined to be AOPFN's preferred, viable alternative for the NPD decommissioning project. In addition to this primary finding, there are several important conclusions that will be discussed in this section, that AOPFN, CNL, AECL and CNSC must take special note of from this Alternative Means Assessment in making subsequent decisions:

1. AOPFN Preferences for NPD Reactor Decommissioning;
2. AOPFN and Algonquin Knowledge's Role in Decision-Making;
3. The Role of Financial Cost in AOPFN Decision-Making; and
4. Inclusion of AOPFN in Monitoring Programs.

Following discussion of these main points, the conclusions summarize AOPFN recommendations developed during this study.

6.1 AOPFN Preferences for NPD Reactor Decommissioning

AOPFN prefer for the adoption of an alternative decommissioning strategy for NPD that:

- Contributes to the minimization of the number of permanent hazardous waste disposal facilities in Algonquin territory;
- Supports the healing of the land back to a natural condition as quickly as possible, and thus supports healing of spirit as well;
- Will allow for the greatest chance for meaningful reconnection of AOPFN members to the NPD site in the future, for cultural and traditional use purposes;
- Reduces fear, stigma and perceived risk for AOPFN members in relation to the use of their territory;
- Provides the maximum real and perceived protection for the Kichi-Sìbì (Ottawa River);
- Does not pass risks in Algonquin territory on to future generations to handle;

- Allows for the maximum flexibility of future land uses for economic purposes by AOPFN and its members;
- Is a permanent rather than temporary site solution at NPD;
- Has acceptable and well understood and well managed worker and transportation risks, and can be completed safely; and
- Is endorsed by AOPFN through a Free, Prior and Informed Consent decision.

While each of the above preferences are important, there were three very strong preferences shared by AAC members multiple times across several values. These points help to explain AOPFN perspectives drawn on for this AMA, in determining an AOPFN preferred alternative means to decommission the NPD site.

The first preference was a **desire to heal the land, its spirit, and how the land is tied to the people**. This was discussed under the first six values in the AMA (Water, Wildlife, and Vegetation; AOPFN Access to and Use of Land and Waters; Algonquin Culture, Spirituality, and Knowledge; Future Generations; Sustainable AOPFN Economy, AOPFN Governance and Stewardship). For example, one member stated:

> "To me it has to be more powerful that we are the original caretakers of the land, that we— yes, we want to heal the spirit of the land and the spirituality, but the land is so important to us— where ever it is, whether it be at CNL, whether it be in Algonquin Park, whether it be down in Bon Echo, every piece of land is important to us and to our future. So, I really, really want to stress that land is important to us along with the healing." (February 22, 2022)

The second preference was for **maximization of safe and trusted access and use of the NPD site and its surroundings for present and future generations**. This was discussed under Values 2 (AOPFN Access to and Use of Land and Water) and 4 (Future Generations). This access is critical for AOPFN to practice governance and stewardship activities as caretakers of the land. Not only do AAC members want their future great-grandchildren to have the option to practice their culture safely throughout their territory, they also do not want those same great-grandchildren to be burdened with decisions regarding NPD waste management.

The third strong preference **was a desire to limit the number of permanent waste storage sites within Algonquin territory**. This was stated by multiple AAC members who were also worried that allowing the NPD to become a permanent waste site would set a precedent for future permanent hazardous waste sites throughout the Algonquin territory.

6.2 AOPFN and Algonquin Knowledge's Role in Decision-Making

The AOPFN AMA was seen as an exercise in self-determination. As one AAC member stated:

> "Algonquin people need to be able to make decisions on their own territory. First Nations should always be consulted. We need to reinforce that we were not consulted and they can see that if they had been consulted, there would be a different outcome." (February 22, 2022)

This quote highlights the importance of requiring the Algonquin perspective into all decision-making processes within Algonquin territory. While scientific information may lead to one conclusion, Algonquin Knowledge brings in an entirely different context. This is best summarized by an AAC member in the final meeting:

> "[…] yes, science is very important and we respect science and how science is important. But we also understand natural law, and how important natural law is and how that can balance out between science and natural law, and how working together can have a significant impact. So, you know, just balancing those two— and that's what we're all about is balance […] articulating that in the report is so important in how we have to work together to achieve that balance." (February 22, 2022)

According to a member of the AAC, all AOPFN decisions go back to the Seven Grandfather Teachings. The Seven Grandfathers, who led the Algonquin people when time began each offered a teaching by which all people should live before they passed into the spirit world. These are honesty, humility, respect, courage, wisdom, love, and

truth. These teachings are what the AOPFN value system are built on and are integrated into AOPFN ways of being.[14]

The incorporation of Indigenous (Algonquin) Knowledge, values, and culture in an Alternative Means Assessment **can** influence decision-making and **needs to be included prior to and as part of** decision-making on a preferred alternative future for the NPD site and all nuclear sites within unceded Algonquin territory. Because AOPFN has the right to be consulted when activities will affect their territory, they should be brought into discussions on project scopes and alternatives during the design stages.

Therefore, Canada (both AECL and CNSC) and the site operator, CNL, need to revisit their preferred alternative, along with AOPFN. The different findings of the two AMAs mean that there are still important discussions about acceptable and preferred futures to be had, that have not occurred in a meaningful way as yet. AOPFN's findings here are not findings to be filed away; they are material to decisions by all parties – the Proponent, Canada (both the holder of the nuclear legacy – AECL - and the regulator - CNSC), and AOPFN.

6.3 The Role of Financial Cost in AOPFN Decision-Making

AOPFN teachings may, at times, be in conflict with decisions that are made from solely – or even partially - a financial perspective. The AAC members understood that all alternatives were technically and financially feasible but noted that Alternative 4 (In-Situ Disposal), CNL's preferred alternative, was also by far the least expensive. Several of the AAC members stated that their perspective was not grounded in financial accounting

> "we come from a different place than a business place. Our connection to the land is much more— deeper. It's not a business deal. It's very, very hard for us to make a decision on what's going on with our land based on a business sense." (February 22, 2022)

[14] https://www.thealgonquinway.ca/lessons/plan-lesson-4-e.pdf

Therefore, it was observed that social and environmental values outweighed the financial impact of alternative preferences, where, to AOPFN, aspects of sustainability, revitalization, and wellbeing take precedence over monetary costs.

6.4 Inclusion of AOPFN in Monitoring Programs

The AAC has determined that the best course of action, the alternative that best aligns with their values, is the one that removes all of the radioactive waste from the NPD site and prevents it from becoming a permanent hazardous waste disposal facility. Regardless of the outcome of this decision-making process, any action at the NPD site must be paired with AOPFN involvement in monitoring programs. The AAC members have stressed the importance of this throughout the three meetings that were part of this AMA process. This will increase trust between AOPFN and CNL and would increase the likelihood that AOPFN members will utilize the area in and around the site in the future

> "I would also use the site, but I would also want AOPFN to have all the information on the monitoring regularly. So, we know from our own standpoint that I'm trusting my people, my monitors, my department that they have said it is safe to go. So, AOPFN has to have this monitoring and be involved in the monitoring and collect the database of monitoring on our own." (February 22, 2022)

Therefore, AOPFN needs to be involved in any onsite and near-site monitoring programs, no matter what decommissioning strategy is eventually implemented. This arises out of the fact that regardless of CNL's extensive technical monitoring programs (existing now and planned in the Project Case), trust has not been and likely will not be built until AOPFN members are empowered to collect and interpret data themselves.

6.5 AOPFN Recommendations

1. **Alternative 3 (Full Removal) is the preferred alternative of NPD decommissioning from an AOPFN perspective. This preference for fully removing all radioactive waste from the NPD site needs to be considered in decision-making for this project, and AOPFN requests that CNL, AECL**

and CNSC all engage with/consult with AOPFN about the implications of this finding.

2. **AOPFN requests early and comprehensive consultation and engagement on future alternative means assessments in or impacting on Algonquin territory, to incorporate AOPFN values and determine weighting and criteria early in the process.**
3. **Regardless of which decommissioning strategy is adopted, AOPFN requests adequate funding from CNL to perform fulsome Algonquin knowledge-based monitoring of the NPD site and its surroundings through the AOPFN Guardians monitoring program, for the life of the Project, including the Institutional Control period.**
4. **Regardless of which decommissioning strategy is adopted, AOPFN requests a limiting of the number of radioactive waste storage sites in Algonquin territory.**
5. **Regardless of which decommissioning strategy is adopted, AOPFN requests that the movement of radioactive wastes into, across and out of AOPFN territory be subject to written AOPFN permissions.**
6. **Regardless of what decommissioning strategy is eventually adopted, AECL and CNL should be actively and immediately engaging with/consulting with AOPFN about compensatory/accommodation measures for over 60 years of lost use and occupancy by AOPFN members of the area at and around the NPD site. Recognizing, calculating and compensating for these losses, which will likely occur on into the future, is a critical step in reconciliation between Canada and AOPFN.**

6.6 Closing

As evidenced by this exercise, the consideration of AOPFN values and Algonquin Knowledge in performing an Alternative Means Assessment led to a different conclusion than that of CNL's. These conclusions demonstrate the need for early and meaningful engagement with AOPFN on future AMA's and, by extension, any proposed project in the Algonquin territory. Additionally, it is equally as important the AOPFN be involved in ongoing monitoring of the project site. At the time of writing this report,

AOPFN's Guardian program is in development, and will act as stewards, the eyes and ears of AOPFN values. By having AOPFN monitoring involvement, it will help to ensure these values, among others, identified in this AMA, relative to the proposed project, are constantly considered, and will allow for the spirit of the land to heal.

AOPFN appreciated this opportunity to complete an Alternative Means Assessment from their own perspective and looks forward to involvement in the discussions and decisions that arise out of its conclusions.

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Glossary of Terms

Term	Definition
AECL	Atomic Energy of Canada Limited
AKLUS	Algonquin Knowledge and Land Use Study
ALARA	"As Low As Reasonably Achievable" -A principle of radiation protection that holds that exposures to radiation are kept as low as reasonably achievable, social and economic factors taken into account.
Alternative Means Assessment (AMA)	Identification of all the technically and economically feasible alternative ways CNL could use to complete its decommissioning goals and an evaluation of each alternative, which explains which alternative is preferred and why.
AOPFN Values	Valued components (see, below) that are defined by AOPFN Advisory Committee members as part of this AMA.
Background Radiation	The dose or dose rate (or an observed measure related to the dose or dose rate) attributable to all sources other than the one specified.
Best Available Technology and Techniques Economically Achievable (BATEA)	Minimum pollution prevention performance standards for which effluent and/or emission concentrations have been demonstrated to be achievable within an industrial sector and are therefore economically achievable across that industrial sector. BATEA takes into account both treatment technologies and techniques used to achieve the desired effluent and/or emission concentrations. The way in which the installation is designed, built, maintained,

	operated and decommissioned is also considered as part of these technologies and techniques.
Bounding Scenario	An accident or disruptive event with consequences larger (i.e., greater releases to the environment) than others considered.
Chronic	Involving stimulus that is lingering or continues for a long time; often signifies periods from several weeks to years, depending on the reproductive life cycle of the species. Can be used to define either the exposure or the response to an exposure (effect). Chronic exposure typically induces a biological response of relatively slow progress and long continuance.
CNL	Canadian Nuclear Laboratories
CNSC	Canadian Nuclear Safety Commission
COPC	Contaminant of Potential Concern
Decommissioning	Administrative and technical actions taken to allow the removal of some or all of the regulatory controls from a facility. This does not apply to a repository or to certain nuclear facilities used for mining and milling of radioactive materials, for which closure is used.
Deep Geological Repository	A facility for disposal of radioactive waste located underground (usually several hundred metres or more below the surface) in a geological formation to provide long term isolation of radionuclides from the biosphere.
Dose Limit	A maximum allowable radiation dose (effective dose or equivalent dose) which is in place to minimize the risk of adverse health effects due to radiation exposure.

Duty to Consult	In Canada, the duty to consult and accommodate with Indigenous peoples arises when the Crown contemplates actions or decisions that may affect an Indigenous person's Aboriginal or Treaty rights.
EIS	Environmental Impact Statement
Environmental Assessment	An assessment of the environmental effects of a project.
Environmental Impact Statement	A detailed technical document prepared by the proponent of a designated project to be assessed pursuant to the Canadian Environmental Assessment Act, 2012. The environmental impact statement identifies the potential adverse environmental effects of a designated project including cumulative effects, measures to mitigate those effects, and an evaluation of whether the designated project is likely to cause any significant adverse environmental effects.
Grouted	Radioactive waste materials that have been treated and conditioned into forms that are suitable for their subsequent management, including transportation, storage and final disposal. Grout is typically a cementitious mortar or paste that can fill gaps and crevices.
Guiding Questions	Questions that help determine the importance placed on AOPFN values with respect to the Project, and the AMA.
Hazardous Waste	Waste that is potentially hazardous to human health and/or the environment due to its nature and quantity and that require special handling and storage techniques.
In-Situ	A method of carrying out decommissioning “in place”, the end-

Decommissioning	state of which is a disposal facility, thus the project now uses the term "in-situ disposal" (see below)
In-Situ Disposal	A method of carrying out disposal "in place".
In-Situ Treatment	A method of managing or treating contaminated soils, sludges and waters "in place" in a manner that does not require the contaminated material to be physically removed or excavated from where it originates.
Institutional Controls Phase	A phase of the NPD Closure Project, assumed to extend at least 100 years following the Decommissioning Execution phase. This involves the control of residual risks at a site after it has been decommissioned, as defined in REGDOC 2.11.1 Vol III (CNSC 2018a). The Institutional Controls phase may include active measures (such as surveillance and monitoring) and passive measures (such as access controls).
Intermediate Level Waste	Radioactive solid waste that typically exhibits levels of penetrating radiation sufficient to require shielding during handling and interim storage.
Low Level Waste	Radioactive solid waste that contains material with radionuclide content above established clearance levels and exemption quantities, but that generally has limited amounts of long-lived activity.
LSA	Local Study Area
Mitigation	Measures aimed at eliminating, reducing or controlling the adverse effects of a licensed activity, substance, equipment or facility. Mitigation may include restitution for any damage caused by such

	effects, such as through replacement, restoration or compensation.
NPD	Nuclear Power Demonstration
NPDWF	Nuclear Power Demonstration Waste Facility
Post-Institutional Controls phase	The Post-Institutional Controls phase is the period of time following the Institutional Control period, continuing indefinitely.
Qualitative	Relating to, measuring, or measured by the quality of something rather than its quantity.
Quantitative	Relating to, measuring, or measured by the quantity of something rather than its quality.
Radiation	The emission by a nuclear substance, the production using a nuclear substance, or the production at a nuclear facility of, an atomic or subatomic particle or electromagnetic wave with sufficient energy for ionization.
Radioactive Decay	The spontaneous transformation of one radioisotope into one or more different isotopes (known as decay products or daughter products), accompanied by a decrease in radioactivity (compared to the parent material). This transformation takes place over a defined period of time (known as a half-life), as a result of electron capture; fission; or the emission of alpha particles, beta particles, or photons (gamma radiation or X-rays) from the nucleus of an unstable atom. Each isotope in the sequence (known as a decay chain) decays to the next until it forms a stable, less energetic end product. In addition, radioactive decay may refer to gamma-ray and conversion electron emission, which only reduces the excitation energy of the nucleus.

Radioactive Waste	For the purposes of waste management, any material (liquid, gaseous, or solid) that contains a radioactive nuclear substance, as defined in section 2 of the Nuclear Safety and Control Act, and which the owner has declared to be waste. In addition to containing nuclear substances, radioactive waste may also contain non-radioactive hazardous substances, as defined in section 1 of the General Nuclear Safety and Control Regulations.
Temporal Boundary	Timeframe during which project activities are actively occurring, including the duration of predicted residual effects.
Valued Component	Environmental, social, economic, cultural or health related features that may be affected by a project and that have been identified to be of concern by the proponent, government agencies, Indigenous peoples, the scientific community or the public.
Value Statements	Descriptive statements of agency related to AOPFN Values, generated in the AMA methodology design process. They convey how values are of importance to AOPFN.
VC	Valued Component (used instead of VEC)

Appendices[15]

Appendix 1: Information Provided by CNL on the Four Alternative Means

1A) Conceptual Depictions by CNL

Each of the four alternative means are described in more detail below, along with a pictographic representation of the approach. All of this information was provided by CNL to the AOPFN technical team.

1. Continued Storage with Surveillance (SwS)

For this analysis it has been assumed that this approach involves continuing to defer decommissioning by maintaining the NPDWF in the SwS phase, thereby allowing for further radioactive decay. This will involve continued maintenance, monitoring and yearly reporting in the form of annual compliance reports. Specific activities may change over time as the state of the facility changes.

Continued SwS serves as a baseline case against which the other alternative means are compared.

[15] Note: for the purposes of readability, tables and figure numbers have been adjusted to match ordering in this report (as opposed to numbering in their original documents).

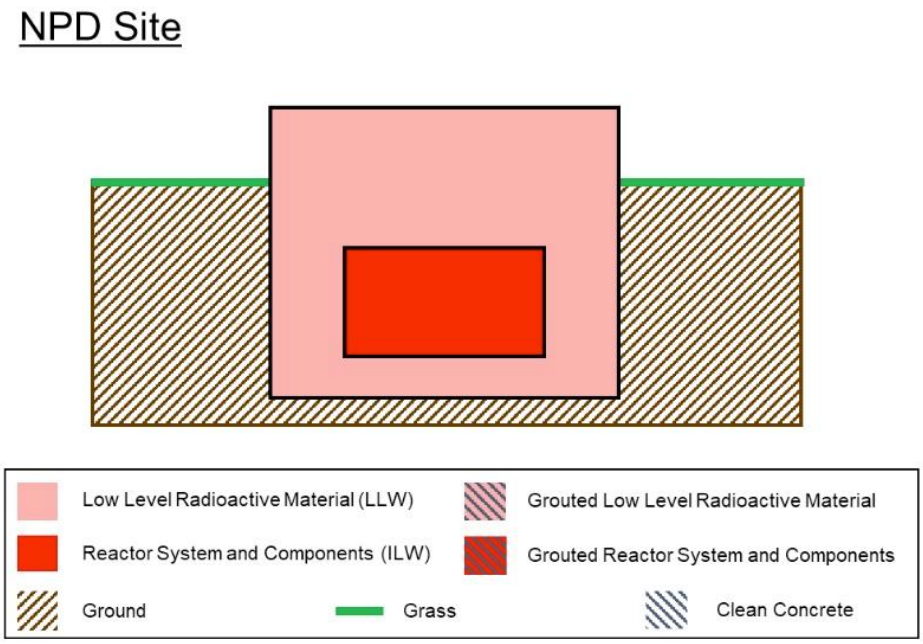

Figure 2 Conceptual design of Alternative #1 (continued storage and surveillance (SwS)) for the NPD decommissioning project

2. Partial Dismantling and Removal

This alternative means is a combination of the in-situ disposal and full removal alternatives, and involves removal of the reactor system and components. The feeders, pressure tubes, calandria tubes, calandria and associated bioshielding will be removed, and the fuel handling room will be decommissioned. This waste would be packaged in containers for transport and storage. Additionally, a few drums of waste from the spent fuel bay cleanup would likely also be removed. This waste would be temporarily stored at the CRL site, prior to final disposal. It is assumed that a disposal facility for ILW will become available at CRL at some point during the Institutional Controls phase. Activities associated with the construction of such a facility are not considered in this assessment; only disposal-related activities (e.g., transportation, handling, emplacement) are considered. The remaining facility systems, structures, and components will remain in- situ, and will be decommissioned in the same manner as for "4. In-Situ Disposal". The above ground structures will be demolished and the rubble emplaced in the below grade structures prior to grouting. A concrete cap and

engineered barriers would cover the facility and the surrounding area would be remediated. The stack would remain intact to continue serving as a habitat for chimney swifts. During the Institutional Controls phase, surveillance, inspection, maintenance, and monitoring activities will be undertaken at the NPD site. These activities will include inspection of the integrity of the disposal facility, i.e., concrete cap and engineered barrier, and maintenance such as re-grading and removing trees and deep-rooted plants. The specific monitoring activities would be developed in compliance with applicable CSA N288 series documents for groundwater, effluent, and environmental monitoring.

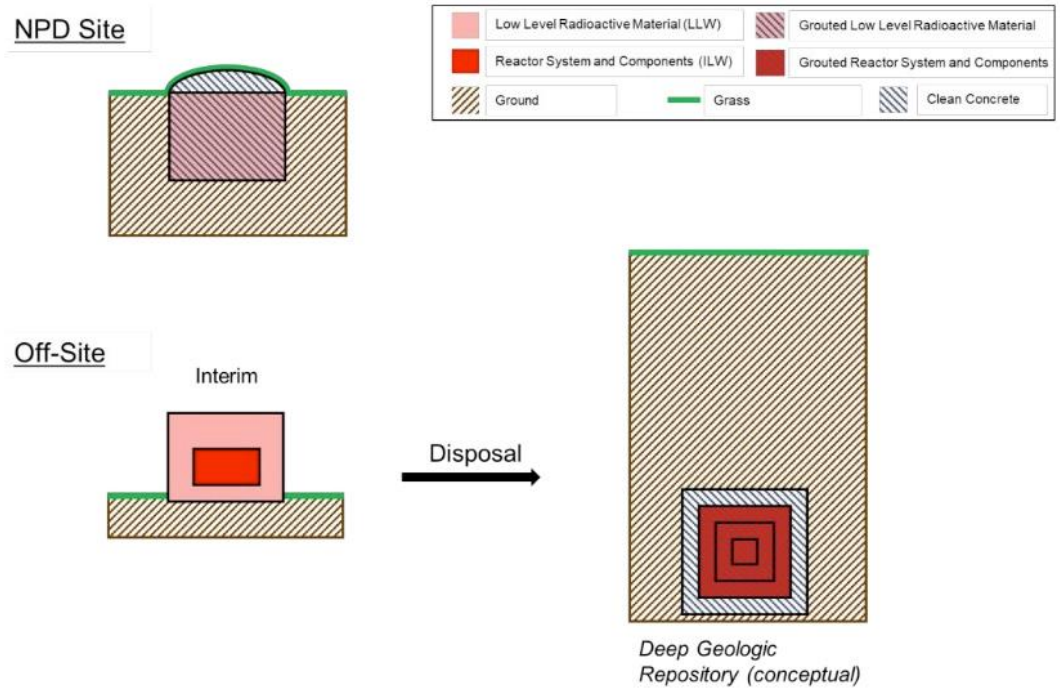

Figure 3 Conceptual design of Alternative #2 (partial dismantling and removal) for the NPD decommissioning project

3. Full Dismantling and Removal

For this analysis it has been assumed that this alternative means involves removing all radioactive material from the site and storing it temporarily at CRL, until a final disposal location is available. It is assumed that disposal facilities for both low-level waste (LLW) and intermediate-level waste (ILW) will become available at CRL during the Institutional

Controls phase. The activities associated with the construction of these facilities is not in the scope of this assessment; only the disposal-related activities (e.g., transportation, handling, emplacement) are considered.

All structures on-site would be demolished and removed from the site, along with any nuclear or hazardous waste. This would include the removal of the reactor and the associated systems. It would also include removal of the stack and construction of a replacement roosting structure. The site would be remediated following the removal of all structures. It has also been assumed that the waste will be stored in containers within a building at the CRL site due to the lack of a disposal facility at the time of waste removal.

During the Institutional Controls phase, it is assumed that minimal surveillance, inspection, and maintenance activities will be undertaken at the NPD site. It is expected that monitoring activities will continue to demonstrate the enhancement of the site following removal of the facility. Similarly, monitoring of the chimney swift population and use of the roosting structure will be required. General maintenance of the property will also be required (e.g., surface condition of roads and landfills).

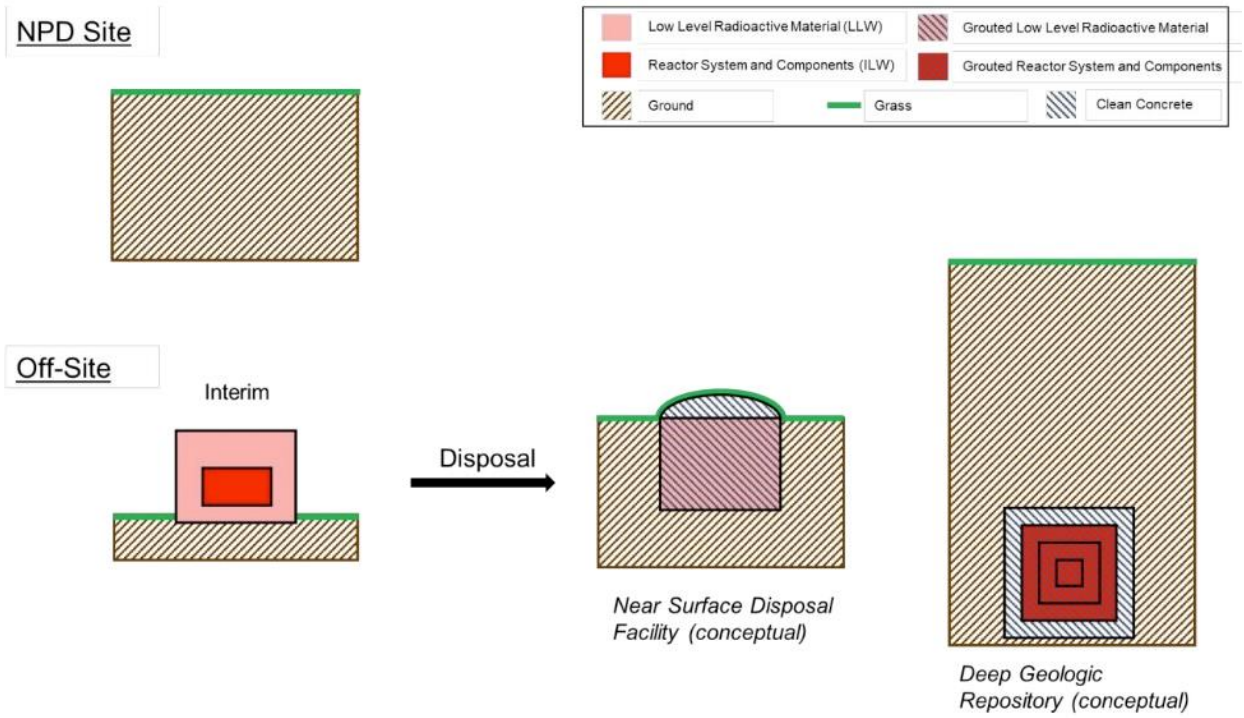

Figure 4 Conceptual design of Alternative #3 (full removal) for the NPD decommissioning project

4. In-Situ Disposal

For this analysis it has been assumed that this alternative means involves grouting the reactor and associated systems in place within the building as a means of decommissioning. The above ground structures will be demolished, and the rubble will also be grouted within the below grade structures. The stack would not be demolished, as it will be left as a habitat for chimney swifts. Finally, a concrete cap and engineered barrier system would be placed over the facility to close it and the site will be remediated.

During the Institutional Controls phase, surveillance, inspection, maintenance, and monitoring activities will be undertaken at the NPD site. These activities will include inspection of the integrity of the disposal facility, i.e., concrete cap and engineered barrier, and maintenance such as re-grading and removing trees and deep-rooted plants. A draft follow-up program has been developed in compliance with applicable CSA N288 series documents for groundwater, effluent, and environmental monitoring

to be undertaken during both the Decommissioning Execution and Institutional Controls phases.

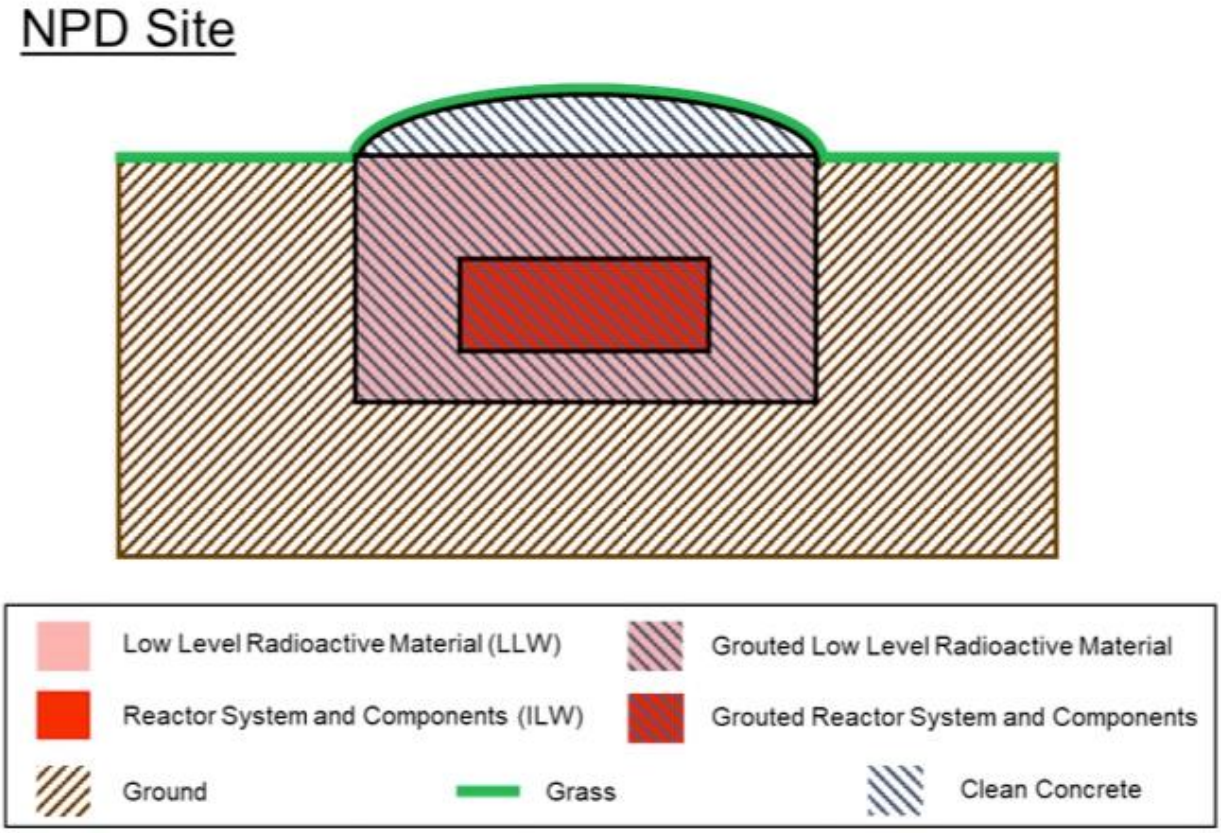

Figure 5 Conceptual design of Alternative #4 (in-situ disposal) for the NPD decommissioning project

1B) Visual and Written Descriptions of What the NPD Reactor Site Would Look Like after 50 and 100 Years after Decommissioning: Comparing the Four Alternatives

This information was provided by CNL to AOPFN, to support the AAC's understanding of how the future would look under the four alternatives.

Option 1: Continued Storage with Surveillance (SWS)

For this option the facility will be maintained in its current state. The facility will be maintained/repaired indefinitely. It is expected that the facility and site will not look any different from its current state in the next 50 years, e.g. as shown in Figure 1. The stack would remain intact to continue serving as a habitat for chimney swifts for at least the next 50 years. At this time a case for removing the stack could be made. Thus 100 years from now the facility and site is expected to look similar to the current state minus the stack, as shown in Figure 2.

Figure 6 Site at 50 years – Continued SWS

Figure 7 Site at 100 years – Continued SWS

Option 2: Partial Dismantling and Removal

For this option, parts of the below grade facility are removed and the above ground structures are demolished with the rubble emplaced in the below grade structures prior to grouting. A concrete cap and engineered barriers cover the facility. The stack remains intact to continue serving as a habitat for chimney swifts for at least the next 50 years, see Figure 3. At this time a case for removing the stack could be made. It is expected that the institutional control period will extend beyond 100 years in which case fences and access roads will be maintained. Thus the appearance of the site at 100 years is similar to the 50 year mark with the exception that the stack is removed, see Figure 4.

Figure 8 Site at 50 years – Partial Dismantling and Removal

Figure 9 Site at 100 years - Partial Dismantling and Removal

Option 3 : Full Dismantling and Removal

All structures on-site would be demolished and removed from the site, along with any nuclear or hazardous waste. This would include the removal of the reactor and the associated systems. The site would be remediated following the removal of all structures, including fences and roads. Soil compacted areas will be broken up with a

track machine where necessary, and these areas will be top-dressed as required and replanted with native vegetation or allowed to revegetate naturally. Subsoil will be tilled and cultivated as necessary during clean up to remove compacted material. **After 50 years the site should have filled in with trees and vegetation and the only manmade structure would be the ventilation stack and an access road for inspection/maintenance and ultimate removal of stack. At 100 years the ventilation stack will no longer present and the site should have returned to a natural state similar to the current forest that surrounds the disturbed areas of the site.**

[*no images made available by CNL; note the bolded text above which describes what the area would likely look like at 50 and 100 years].*

Option 4 : In-Situ Disposal

The reactor and associated systems will be grouted in place within the building as a means of decommissioning. The above ground structures will be demolished, and the rubble will also be grouted within the below grade structures. Finally, a concrete cap and engineered barrier system would be placed over the facility to close it. The stack would not be demolished, as it will be left as a habitat for chimney swifts for the next 50 years, see Figure 5. It is expected that the institutional control period will extend beyond 100 years in which case fences and access roads will be maintained. Thus the appearance of the site at 100 years is similar to the 50 year mark with the exception that the stack is removed, see Figure 6. Note: The appearance of the site under this option is the same as for the Partial Dismantling and Removal option.

Figure 10 Site at 50 years – In-Situ Disposal

Figure 11 Site at 100 years - In-Situ Disposal

1C) Comparison of Select Attributes of the Four Potential Alternatives

The summary information below is taken from CNL's alternative means assessment information in its Environmental Impact Statement, and information understood by AOPFN's Technical Team through review of this information and engagement with CNL.

Table 13 Comparison of select attributes of the four potential alternatives with respect to the 8 values determined as part of the AOPFN AMA process

AOPFN Value	**Factor**	**Alternative 1: Storage and Surveillance**	**Alternative 2: Partial Dismantle and Removal**	**Alternative 3: Full Dismantle and Removal**	**Alternative 4: In-Situ (On Site) Disposal**
1. Water, Wildlife and Vegetation: Habitat and Quality	Would the Alternative have any scientifically measurable impact on water quality?	Very Unlikely	Very Unlikely	Very Unlikely	Very Unlikely
	Would the Alternative have any scientifically measurable impact on wildlife numbers or health?	Very Unlikely	Very Unlikely	Very Unlikely	Very Unlikely
	In a future with the Alternative, will the site be allowed to return to normal forested conditions?	uncertain; not a permanent solution	No, a small area will have a cleared area	Yes, within 50 to 100 years	No, a small area will have a cleared area

AOPFN Value	Factor	Alternative 1: Storage and Surveillance	Alternative 2: Partial Dismantle and Removal	Alternative 3: Full Dismantle and Removal	Alternative 4: In-Situ (On Site) Disposal
			where only grass will be allowed to grow		where only grass will be allowed to grow
2. AOPFN Land and Water Access and Use	In a future with the Alternative, will there be any access restrictions to the site?	uncertain; not a permanent solution	Yes, a small area will remain fenced off	No	Yes, a small area will remain fenced off
	In a future with the Alternative, how will the site look?	uncertain; not a permanent solution	Partially natural and partially unnatural	Natural, once the stack is removed	Partially natural and partially unnatural
4. Future Generations	In a future with the Alternative, what is the risk of catastrophic radioactivity release to the environment at the site?	Very low to none	Very low to none	None	Very low to none

AOPFN Value	Factor	Alternative 1: Storage and Surveillance	Alternative 2: Partial Dismantle and Removal	Alternative 3: Full Dismantle and Removal	Alternative 4: In-Situ (On Site) Disposal
	In a future with the Alternative, will there be radioactive materials left at the site?	uncertain; not a permanent solution	Yes, a very small amount of low-level and intermediate-level radioactive waste	No	Yes, a small amount of low-level and intermediate-level radioactive waste
	In a future with the Alternative, will the site be considered a permanent hazardous waste disposal facility?	uncertain; not a permanent solution	Yes	No	Yes
	In a future with the Alternative, is there a chance that interventions would be required at the site if an accident or failure occurs?	uncertain; not a permanent solution	Yes	No	Yes
	How much would the Alternative cost?	$4.5 M/yr.	$70-90 M	$125-150 M	$60-80 M, including

AOPFN Value	Factor	Alternative 1: Storage and Surveillance	Alternative 2: Partial Dismantle and Removal	Alternative 3: Full Dismantle and Removal	Alternative 4: In-Situ (On Site) Disposal
5. Sustainable AOPFN Economy		+ periodic infrastructure improvement	+ storage costs + eventual final disposal costs	+ storage costs + eventual final disposal costs	institutional control activities
	How many jobs for AOPFN are likely with the Alternative?	Very few	Very few, potential for minimal longer-term monitoring	Very few, no longer-term monitoring	Very few, potential for minimal longer-term monitoring
7. Worker and Transportation Risk	Does the Alternative minimize the transportation, handling and repackaging of radioactive waste?	No	No	No	Yes
	How much worker and transportation risk is involved with implementing the Alternative?	uncertain; not a permanent solution	Low to Very Low (+/- 0.6 lost time injuries)	Low (+/- 1.2 lost time injuries)	Very Low (+/- 0.19 lost time injuries)

AOPFN Value	Factor	Alternative 1: Storage and Surveillance	Alternative 2: Partial Dismantle and Removal	Alternative 3: Full Dismantle and Removal	Alternative 4: In-Situ (On Site) Disposal
	Is it likely that the Alternative can be completed safely?	Yes	Yes	Yes	Yes
8. Risk to Others	Would the Alternative likely see radioactive waste currently at NPD stored in Algonquin territory?	Yes, at minimum over the short term	Yes, at minimum over the short term, at NPD and Chalk River	Yes, at minimum over the short term, at Chalk River	Yes, permanently at NPD
	Would the Alternative likely see radioactive waste moved from Algonquin territory to other territories?	uncertain; not a permanent solution	Possibly, if Deep Geological Repository (DGR) developed	Possibly, if Deep Geological Repository (DGR) developed	No
	What is the level of risk to the public of the materials that would be moved under this Alternative?	uncertain; not a permanent solution	Very Low	Very Low	n/a; no radioactive materials moved

AOPFN Value	Factor	Alternative 1: Storage and Surveillance	Alternative 2: Partial Dismantle and Removal	Alternative 3: Full Dismantle and Removal	Alternative 4: In-Situ (On Site) Disposal
	Under this Alternative, where is the likely final disposal location for NPD's current radioactive wastes?	uncertain; not a permanent solution	Some at NPD; some at CRL; some at DGR	Some at CRL; some at DGR	All at NPD

1D) Information Request Responses from CNL to AOPFN to Support AMA

NOTE: YELLOW HIGHLIGHTED MATERIALS BELOW ARE FROM THE ORIGINAL DOCUMENT SENT TO THE AAC, TO DENOTE THAT THIS IS A SEPARATE TECHNICAL TEAM COMMENT TO THE AAC, AND NOT MATERIAL FROM CNL.

AOPFN ALTERNATIVE MEANS ASSESSMENT FOR THE NUCLEAR POWER DECOMMISSIONING PROJECT: ADDITIONAL INFORMATION PROVIDED BY CNL ON AOPFN ADVISORY COMMITTEE QUESTIONS

February 22, 2022

AOPFN Technical Team to AOPFN Advisory Committee

1. *AOPFN REQUEST: Can CNL provide a plain language information package on how ISD has been implemented at other sites in the past and what effects have been encountered during subsequent monitoring?*

   A number of worldwide facilities have been decommissioned using ISD. Basic details about these facilities, their inventory, ISD activities and monitoring plans and results are included in Appendix 1 below.

2. *AOPFN REQUEST: CNL is requested to provide exact information about how large the overall NPD site is (the whole AECL owned area, in hectares), and how large in hectares is the area shown in the images provided previously (the impacted area that will be subject to the Decommissioning).*

   The overall AECL owned area at the NPD site is 385 hectares. The area shown in the images impacted by decommissioning and enclosed by the fence is ~2.5 hectares.

3. *AOPFN REQUEST: CNL is requested to provide an estimation, for each of Alternatives 2, 3 and 4, of how long fencing will likely be kept around the decommissioned facility, and, if the fenced in area (in hectares) will differ between any of these alternatives, please provide that information as well.*

For Alternatives 2 and 4 the fenced area is the same at 2.5 hectares. For Alternative 3, the fence is not required so the fenced area would be 0 hectares.

Alternative 2: Partial Dismantling and Removal. In this case the fenced area will be 2.5 hectares. As the reactor systems and components would be removed there would be no intermediate level waste remaining in the facility. The fence is expected to remain in place for 100 years at which point the majority of the radioactivity will have decayed to unconditional clearance levels. At this point a licence to abandon from the CNSC would be applied for. As the site also contains non-radiological contaminants and hazardous constituents its use is limited through compliance with the land disposal requirements of Ontario Regulation 347. It is expected that the 2.5 hectare fenced area will be required in perpetuity.

Alternative 3: Full Dismantling and Removal. In this case once the decommissioning activities have been completed all components of the facility will have been removed offsite, the fence will no longer required. Therefore if this option were pursued the fencing would be removed after approximately 12 years (the time to complete the decommissioning activities).

Alternative 4: In-Situ Disposal. The fence is expected to remain in place for at least 100 years as a condition of the Licence to Decommission, although it is anticipated that a decommissioning licence would be in place for 300 years. At this point a licence to abandon from the CNSC could be applied for. As the site also contains non-radiological contaminants and hazardous constituents its use is limited through compliance with the land disposal requirements of Ontario Regulation 347. It is expected that the 2.5 hectare fenced area will be required in perpetuity.

4. *AOPFN REQUEST: CNL is requested to provide an estimation, for each of Alternatives 2, 3 and 4, of how long monitoring of the site will continue into the future. If there are differences in the type and intensity of monitoring required, this*

should be identified as well.

Alternative 2: Partial Dismantling and Removal. The monitoring is expected to remain in place for 100 years at which point the majority of the radioactivity will have decayed to unconditional clearance levels. At this point a licence to abandon from the CNSC would be applied for. As the site also contains non-radiological contaminants and hazardous constituents it then will fall under Ontario Regulation 232/98. O. Reg. 232/98 requires that an annual post-closure care report be prepared following closure of the site that contains the results of monitoring. This requirement is given in Section 32 of the Regulation. It is expected that this will consist of groundwater monitoring using the existing wells and will be required in perpetuity.

Alternative 3: Full Dismantling and Removal. In this case once the decommissioning activities have been completed the site will be considered remediated no monitoring would be required.

Alternative 4: In-Situ Disposal. Monitoring is expected to remain in place for at least 100 years as a condition of the Licence to Decommission, although it is anticipated that a decommissioning licence would be in place for 300 years for the entirety of which monitoring would be required. The frequency of monitoring and contaminants monitored may change during this time based on previous monitoring results. At this point a licence to abandon from the CNSC could be applied for. As the site also contains non-radiological contaminants and hazardous constituents it then will fall under Ontario Regulation 232/98. O. Reg. 232/98 requires that an annual post-closure care report be prepared following closure of the site that contains the results of monitoring. This requirement is given in Section 32 of the Regulation. It is expected that this will consist of groundwater monitoring using the existing wells and will be required in perpetuity.

5. *AOPFN REQUEST: CNL is requested to provide an estimation, for each of Alternatives 2, 3 and 4, how long in months or years the active decommissioning stage would take (i.e., how long it would take to complete everything up to the end state (minus removal of the stack, which is a longer-term*

activity).

Alternative 2: Partial Dismantling and Removal. Active decommissioning is estimated to take 93 months (seven years and nine months) and is based on the work activities determined as part of Alternatives 3 and 4.

Alternative 3: Full Dismantling and Removal. Active decommissioning is estimated to take 144 months (12 years).

Alternative 4: In-Situ Disposal. Active decommissioning is estimated to take 32 months (two years and eight months).

6. *AOPFN REQUEST: CNL is requested to provide an estimation of how many a. truckloads and b. mass of radioactive materials are still in the NPD site, and how much of that (broken down if possible to low level vs. intermediate level waste) will be removed in Alternative 2 (the only active Alternative that neither takes all the materials out or leaves all the materials in situ).*

   Waste volume estimates are given in **Error! Reference source not found.** below f or the Alternative 3: Full Dismantling and Removal strategy. This was used to estimate the volumes associated with full or partial removal of waste from NPD and provides a reasonable estimate for planning purposes. Masses are based on typical densities of materials and wastes applied to the estimated volume. A breakdown by potential disposal routes is also given. The total volume of waste is estimated to be 16,309 m^3. A truckload of waste is typically quoted as 14 cubic yards or about 10.7 m^3. Therefore the volume of waste for full dismantling would result in 1,525 truckloads.

   For Alternative 2 the majority of the waste volume would remain at the site, and this would consist entirely of low level waste. The reactor, systems and components is about 123 m^3 and the primary heat transport system is about 265 m^3 of unprocessed volume of intermediate level waste that would be packaged and shipped to Chalk River Laboratories for storage and future disposal. Therefore the unprocessed volume is approximately 390 m^3 or about 40 truckloads.

Table 14 Waste Volume Estimates

Material/ Component	Mass (kg)	Total Volume (m^3)	Disposal (m^3)			
			Recycle	Landfill	LLW	ILW
Calandria (Vessel, Coolant Tubes, End Fittings, Feeders)	2.93E+04	122.9	-	-	-	122.9
Reactor Vault Liner	3.81E+04	6.0	-	-	6.0	-
Primary Heat Transport System (PHTS)	3.53E+04	265.4	-	-	-	265.4
Moderator System (MOD)	1.28E+04	98.3	-	-	98.3	-
Reactor Vault Cooling (RVCS)	2.09E+03	110.8	-	-	110.8	-
Moderator Helium (MH)	8.46E+03	189.1	-	-	189.1	-
Moderator Demineraliser (MD)	3.21E+02	0.1	-	-	0.1	-
Reflector Circuit (RC)	3.98E+03	6.0	-	-	6.0	-
Heat Transport System Collection (HTSCo)	3.12E+02	1.6	-	-	1.6	-
Heat Transport System	5.78E+03	113.1	-	-	113.1	-

Material/ Component	Mass (kg)	Total Volume (m^3)	Disposal (m^3)			
			Recycle	Landfill	LLW	ILW
Demineralizer (HTSD)						
Heat Transport System Emergency Injection (HTSEI)	6.00E+03	7.7	-	-	7.7	-
Heat Transport System Charging (HTSCh)	1.06E+04	8.6	-	-	8.6	-
Heat Transport System Standby Cooling (HTSSC)	1.51E+03	0.4	-	-	0.4	-
Fuel Handling (FH)	1.07E+04	76.3	-	-	76.3	-
Sample Lines	5.03E+02	0.8	-	-	0.8	-
Site Remediation – Includes foundation removal, site services removal, contaminated soil, etc.	1.39E+06	979.3	-	657.54	451.00	-
Guardhouse – all associated construction materials and spoil	1.47E+05	103.0	-	103.37		-
Doors and frames	1.39E+04	58.69	-	31.79	0.46	-

Material/ Component	Mass (kg)	Total Volume (m^3)	Disposal (m^3)			
			Recycle	Landfill	LLW	ILW
Windows and frames	1.39E+03	5.88	-	2.27	0.07	-
Wood	7.92E+03	33.40	-	34.04	0.06	-
Drywall	1.24E+04	52.28	-	53.35	1.54	-
Ceiling Tile	7.40E+01	0.29	-	0.30	-	-
Roofing	2.50E+05	311.88	-	103.72	-	-
Concrete Block	1.12E+06	465.99	-	605.70	18.17	-
Terra Cotta	2.98E+04	100.42	-	130.53	3.91	-
Brick Siding	8.88E+03	29.91	-	38.87	-	-
Insulation	1.03E+04	562.87	-	591.03	-	-
Asbestos	2.76E+05	112.61	-	117.34	47.01	-
Lead	2.26E+05	19.9	-	-	19.9	-
Miscellaneous metal	1.05E+04	29.62	14.98	2.44	1.19	-
Miscellaneous items	5.23E+03	17.60	-	1.70	15.90	-
Structural Steel, Non-active	2.93E+06	373.54	200.80	-	-	-
Structural Steel, Active	3.18E+05	40.5	23.31	-	0.97	-
Std Concrete, Active	9.84E+06	4100.01	-	4831.57	575.16	-
Heavy Concrete	5.35E+06	988.7	-	996.67	244.56	-

Material/ Component	Mass (kg)	Total Volume (m^3)	Disposal (m^3)			
			Recycle	Landfill	LLW	ILW
Std Concrete, Non-active	8.68E+06	3617.66	-	4577.19	145.07	-
Miscellaneous Concrete	7.20E+05	300	-	385.90	4.71	-
Electrical and Communication	3.50E+04	175.05	-	79.25	26.36	-
Drains, Active	3.26E+03	16.31	-	-	16.31	-
Drains, Non-active	2.61E+03	13.07	-	13.07	-	-
Ventilation Ductwork, Active	1.68E+03	4.72	-	4.30	5.14	-
Ventilation Ductwork, Non-active	1.91E+03	5.36	-	5.39	5.33	-
Air Handling (Fans & Motors)	7.11E+04	199.69	-	31.81	31.73	-
Cranes (all)	2.51E+04	3.20	-	2.39	0.82	-
Miscellaneous Equipment	6.93E+05	88.29	-	39.55	6.50	-
Totals	**3.24E+07**	**13842.38**	**239.09**	**13441.08**	**2239.87**	**389.1**
		16309.14				

AOPFN TECHNICAL TEAM COMMENT: CNL IS INDICATING FOR ALTERNATIVE 2 (PARTIAL DISMANTLING AND REMOVAL) THAT ONLY 40 TRUCKLOADS OF WASTE, ALL INTERMEDIATE LEVEL RADIOACTIVE WASTE, WILL NEED TO BE REMOVED FROM THE

SITE, AND THAT UNDER ALTERNATIVE 3, SOME 1525 TRUCKLOADS WOULD BE REQUIRED. TWO THINGS ARE KEY TO NOTE HERE: ACCORDING TO THE TABLE ABOVE, ONLY ABOUT 280 OF THE TRUCKLOADS UNDER ALTERNATIVE 3 WOULD HOST RADIOACTIVE WASTE (40 TRUCKLOADS OF ILW AND 240 TRUCKLOADS OF LLW); AND 2. CNL HAS NOT INDICATED HOW MUCH OF THE RECYCLING AND LANDFILL TRUCKLOADS ARE REQUIRED UNDER ALTERNATIVES 2 AND 4. WE KNOW THEY ARE REQUIRED BECAUSE EACH OF ALTERNATIVES 2, 3 AND 4 REQUIRE REMOVAL OF ALL ABOVE GROUND STRUCTURES. THE AOPFN TECHNICAL TEAM HAS ESTIMATED THE AMOUNT OF WASTE IMPORTANT TO AOPFN (RADIOACTIVE WASTE), THAT NEEDS TO BE REMOVED IN EACH OF THE ALTERNATIVES, ACCORDING TO THE DATA TABLE ABOVE. THESE ESTIMATES SHOULD BE TREATED AS ROUGH, AS CNL HAS NOT PROVIDED DATA TO CONFIRM THEM.

Table 15 Estimate of truckloads of nuclear waste based on waste volume estimates (see: table 14)

ALTERNATIVE	INTERMEDIATE LEVEL WASTE TRUCKLOADS	LOW LEVEL WASTE TRUCKLOADS
2 – PARTIAL DISMANTLING AND REMOVAL	40	0
3 -FULL DISMANTLING AND REMOVAL	40	240
4 – IN SITU DISPOSAL	0	0

1E) Examples of In-Situ Disposal from other locations

All materials provided by CNL

Hallam Nuclear Power Reactor, Nebraska USA

Part of a combined fossil fueled power plant, decommissioned 1969. The reactor core, most of the radioactive materials and bulk sodium were removed from the site. All other potential contaminants were entombed by creating three isolation rooms within the structure and remain below ground with no other fill materials. The entombment structure contains the reactor vessel, the guard vessel surrounding it and most of the internal parts of the vessel, stainless steel thimbles which contain process tubes, control rods tubes, dummy elements and a spent neutron source. Twelve storage cells within the structure contain the damaged moderator elements. All above ground components of the reactor were removed and decontaminated or disposed. The site is covered by an engineered barrier. Contaminants remaining below ground are in three areas. Each area is steel lined and surrounded by several feet of concrete and other structural materials, which provided shielding during operation. Approximately 1.11E+16 Bq of activation products (Cs-137, Co-60, Fe-55, Mn-54, Ni-63, Sm-151, Sr-90 and tritium) are contained.

Long term monitoring of the site (to 2090) is the responsibility of the US DOE and includes 17 monitoring wells, 7.62 m to 22.86 m deep surrounding the site. The water table is 45 meters below surface, and is an important aquifer for farming. The wells are used to sample perched water tables, water tables that are above normal due to the presence of imp

In 2006, the US Department of Energy Office of Legacy Management recommended discontinuing groundwater monitoring because analytical results since 1970 demonstrated there had been no impact to shallow, perched groundwater and no current or anticipated unacceptable risk to human health and the environment. In 2008 the State of Nebraska instead agreed to a reduction in sampling and analysis

from once a year to once every 2 years. Water quality data continues to demonstrate that there have been no negative impacts to the shallow, perched groundwater from radioactive materials entombed. Thus in 2018 the sampling frequency has been reduced to once every 5 years from 2021 to 2041 and once every 10 years from 2041 to 2071.

Piqua Nuclear Power Reactor, Ohio, USA

This was a 45.5 MW reactor, organically cooled and moderated (with terphenyl), and decommissioned in 1969. The reactor site is located on the east bank of the Great Miami River, about 30 miles north of Dayton. Decommissioning consisted of crediting the concrete biological shield (2.4 m thick) surrounding the reactor vessel as the primary entombment structure and capping the vessel and biological shield with a water proof barrier and concrete slab. Fuel, coolant and most of the radioactive materials were removed from the site including contaminated piping and most of the equipment inside the reactor building. More than 99% of the radioactive material entombed at the site is below ground and consists of activation products. The inventory is estimated to be 2.0E+15 Bq with 97% consisting of Fe-55. The rest of the building was decontaminated. The city of Piqua uses the adjoining buildings for office and storage space and maintains the protection system against corrosion of the steel dome. The US DOE continues to monitor and evaluate. The water table is at about the same level as the bottom of the reactor vessel. No ground water contamination has been reported.

BONUS Reactor, Punta Higuera, Puerto Rico

This was a prototype Boiling Water Reactor decommissioned in 1970, and is located less than 100 m from the Atlantic Ocean. All special nuclear materials such as fuel and highly activated components e.g. control rods and shims, were removed to the US mainland (Oak Ridge Tennessee) for disposal. The reactor vessel, biological shield and non-removable parts were left in place below grade and entombed/encased in concrete along with contaminated materials. Total

radiological inventory in the entombed structure at the time of decommissioning was estimated to be 2.0E+15 Bq, consisting mainly of Co-58, Co-60, Ni-63, Mn-54 and Fe-55. All piping systems were flushed. The reactor vessel and associated internal components within the biological shield were entombed in concrete and grout. Contaminated and activated materials were placed in the main circulation pump room beneath the pressure vessel and entombed with concrete. Systems external to the entombment were decontaminated or disposed. The BONUS reactor dome over the reactor vessel was left in place. The site has museum status and is open to the public. No radionuclides or other contaminated releases have been reported.

SM-1A Fort Greely, Alaska USA

This reactor was decommissioned in 1973. After closure the fuel core and control rods were removed and shipped to Savannah River and Idaho National Laboratory for reprocessing and disposal. The reactor vessel and reactor room were filled with grout and concrete. A radioactive waste storage building was left in place with concrete added to the floor to cover remaining contamination. The above ground building remains.

Thirty wells surround the facility to monitor ground water. Leaks and contamination have been released to the nearby Jarvis Creek from the waste pipeline, recharge well and dilution well. Large quantities of soil were removed to remediate. The Army is planning future removal of these items.

Heavy Water Component Test Reactor, Savannah River Site (SRS), South Carolina USA

The reactor was decommissioned in 2009. The Savannah River borders the site on the southwest side. Land bordering the SRS is chiefly forest and agricultural. The closest towns to the site are New Ellenton and Jackson, both in South Carolina. The closest residences stand about 200 feet from the site perimeter on the west, north and southeast sides. The area near the HWCTR facility is mostly wooded, with an

elevation of approximately 280 feet above sea level. The water table at the site is some 30 feet below the lowest point in the reactor containment building. The reactor vessel, steam generators, steel containment dome and all the above grade components of the facility were removed and disposed. The vessel was placed in an on-site disposal trench and grouted in place. The vessel cavity was used to emplace other equipment i.e. the Transfer Coffin Refueling Machine. Approximately 3,940 m^3 of flowable grout was used to fill the spaces below grade. Final site footprint was covered with a high strength concrete cap. Plans for a barrier mound were dropped as the mound could interfere with future plans in the immediate area. Prior to decommissioning an estimated 7.8E+13 Bq of radioactivity remained in the facility with 99% of the total being activated materials in the reactor vessel. The decision to remove the vessel was based on plans to occupy the site in the future.

C,K,L,P and R Production Reactors, Savannah River Site, South Carolina USA

These were isotope production reactors designed to produce tritium and Pu-239 for the US weapons program. Nearby water bodies are the Steel Creek, Mill Creek, tributaries of PAR Pond, L-Lake, Indian Grave Branch, Fourmile Branch and Castor Creek. The last reactor was decommissioned in 2012. The design and operation of each of the five SRS production reactor facilities were similar. The construction history/design/materials and operating conditions for each reactor are comparable resulting in similar types of contaminated materials (concrete, metal, etc.). Therefore, the same remedial approach was identified for all these reactor facilities. After deactivation and removal of fuel, the ISD steps were, radiological characterization and condition inspections, removal of water, oils and other hazardous liquids, sealing all penetrations coming into and out of the structures, removing power and installing temporary power. The below grade portion of the structure is stabilized by filling with structural grout/ concrete, sealing structural openings, installing roof slabs to prevent in-leakage and establishing long term monitoring and surveillance of the remaining above ground structures. Reactor

vessels and equipment grouted in place Approximately 145,265 m^3 of grout was used in the disassembly basins and lower levels. The combined P and R grouted facilities required 191,140 m^3 and 2,989 m^3 of concrete. The estimated radiological inventory is 8.33E+15 Bq and 2.22E+15 Bq for P and R respectively.

As of 2020 water contaminants released at Savannah River were all below applicable standards.

221-U Process Canyon, Hanford, Washington USA

One of three nearly identical chemical separations plants constructed from 1944-1945. The U Canyon is constructed of heavily reinforced concrete, 247 m x 20 m x 23.5 m with 15.5 m above grade. Equipment placed in the upper gallery was removed for disposal or placed below in process cells (125 major pieces placed in 39 of the 40 available cells). To meet criteria for ISD, tank D-10 which contained 1,900 l of Transuranic Radioactive Waste mixed waste was removed for disposal. A 2013 safety analysis review estimated 1.85E+5 Bq of radiological inventory consisting of equal parts of Cs-137 and Sr-90. About 19,000 m^3 of grout was pumped into the galleries, cell drain header, process cells and tanks containing residual materials to the maximum extent possible. Future wok includes demolition of the above ground structure, to be used as fill rubble for an engineered barrier. Surface water at the Hanford Site includes the Columbia River (northern and eastern sections), Columbia Riverbank springs, springs on Rattlesnake Mountain, ponds on the Hanford 18 Site, and water systems directly east and across the Columbia River from the Hanford Site. In addition, the Yakima River flows along a short section of the southern boundary of the Hanford Site. The 200 West Area is about 8 km from the Columbia River. Groundwater beneath the Hanford Site is found in both an upper unconfined aquifer system and in deeper basalt-confined aquifers. The Columbia River is the primary discharge area for both the unconfined and confined aquifers.

Ground water monitoring and visible monitoring for degradation will continue.

Experimental Breeder Reactor, Idaho National Laboratories, USA

This reactor was decommissioned in multiple phases from 1994 to 2015. Phase 1 included defueling from 1994 to 1996 and removal of subassemblies, neutron source, inner blanket, reflector, outer blanket and control assemblies. Phase 2 removed all bulk liquid sodium and was completed in 2001. Phase 3 was treatment of the primary and secondary systems for residual sodium with CO_2 and water vapour to convert the sodium to sodium carbonate. Treatment terminated in 2005 leaving an estimated 850 gallons of un-carbonated sodium remaining on surfaces and in ancillary equipment. Approximately 2,600 m^3 of grout was used to fill the building and reactor by 2015. Total radioactive inventory is 5.55E+14 Bq contained within the primary coolant tank, mostly activated materials in the core/blanket region. Removal of the concrete dome and capping of the site with a high strength cap is planned for later years. Surface waters on the site include the Big Lost River and Birch Creek. The Snake River Plain Aquifer, lies between 220 ft (at the north end of the Site) to 610 ft (at the south end of the Site) below the surface of the Site.

Monitoring of the site is part of the surveillance of the overall Material and Fuels Complex.

Production Reactor EL-2, Seversk Russia

Production Uranium-Graphite Reactor was decommissioned in 2015. The process system equipment including the cooling pool were dismantled. All fuel removed as well as sludge deposits from the ShT-2 water filled storage vaults where parts of the graphite sleeves were stored. Metal structures, water, power, communications and air suction lines used for filling, on top of the reactor were dismantled as were the fuel discharge devices and cooling systems. Water resistant structural concrete was placed in the areas below the reactor up to the biological shield. The primary purpose was to reinforce and support the structural stability of the reactor vault contents, namely the graphite stack, metal structures and clay

barriers. The balance of the facility was filled with a specially developed Siberian (Bentonite-type) clay mixture. The site was finished with a mound cover of alternating layers clay, sand, crushed stone and topsoil. Modelling of the radionuclides indicated a period of 300 years before general occupation of the site. The predominant radionuclide is C-14 in the graphite at 10E+6 Bq/g. The graphite stack had a volume of 804 m^3 and weighs 1,422.6 tonnes. Three more dual purpose reactors were started up in 1961 (ADE-3), 1965 (ADE-4) and 1967 (ADE-5) at Seversk. Five more at Mayak in Ozersk and three at Zheleznogosk in Kraasnoyarsk. All have ceased operations and are scheduled for decommissioning using the same approach as the EI-2 reactor. All these areas have waste disposal sites available but the decision to entomb was driven by the lack of a technical solution to disposing the graphite. The closest large water source is the Tom River.

RB-1, RB-2 Montecuccolino, Bologna Italy

The RB-1 and RB-2 reactors were decommissioned 1989. The RB-1 reactor is a graphite-moderated and -reflected reactor with enriched UO_2 as fuel, and is located a few km from Bologna, there are no major water sources nearby. Fuel was removed for re-cycle off site. The reactor vessels were a cylinder, 286 cm diameter by 300 cm in height contained in another slightly larger vessel, sitting on a steel base plate. Based on a threshold of 1.0 Bq/g for free release, residual activation showed Co-60 at 3.5 Bq/g. and Fe-55 calculated as 8.0 Bq/g. The strategy was to decommission in situ as RB-1 was part of a multi-unit research reactor complex. Components were placed into the reactor vessel and grouted in place. Concrete was used to fill the remaining space to a level floor, now used for another purpose. Decay will reduce contaminants below release levels in about ten years. A similar strategy was used for RB-2. In this case the vessel was removed and residual contaminants concreted in place. The lab is now a mechanical test lab.

Lucens Research Reactor, Lucens, Vaud, Switzerland

Reactor was decommissioned in 1992. Partly due to its underground construction a strategy to entomb in place was chosen. All fuels and liquids were removed. Some 252 tonnes of metallic scrap contaminated above release levels were packed in to drums and containers then cemented in place in several of the cavities of the facility such as the fuel pool, condenser pits and D_2O reservoir. The facility was then filled with a flowing grout mixture. The total radioactive inventory is estimated at 3.7E-09 Bq. The piping of non-contaminated auxiliary systems was also entombed.

The former machine hall cavern and access tunnel were transformed into a storage area for cultural and historic exhibits, open to the public.

Boiling Water Reactor Experiment-1 Landfill, Idaho National Nuclear Laboratory, USA

The BORAX-1 reactor was a small experimental reactor used for testing boiling water reactor technology. In 1954 one final test was conducted that resulted in the intentional destruction of the reactor. The destruction of the reactor contaminated approximately 7 800 m^2 of the surrounding area. Immediately following the final test most of the radioactive debris, including some fuel residue, was collected and buried onsite in the reactor shield tank. At BORAX-1, the contaminated area was covered with approximately 0.15 m of gravel to reduce radiation levels at the ground surface. Buried materials at the site consist of uncovered uranium fuel residue, irradiated metal scrap, and contaminated soil and debris. The burial ground is contained within the foundation of the BORAX-1 installation. The dimensions of the foundation are 5.5 × 9.8 × 3.4 m. A mounded gravel and dirt cover approximately 1.5 m high and 9 m in diameter is centered over the buried shield tank. In1997, an engineered long-term barrier was installed over the BORAX-1 landfill. The barrier was designed to provide radioactive shielding and prevent inadvertent human intrusion. Percolation of water into these landfills does not pose an unacceptable risk to the environment, so these surface barriers were not designed to prevent water getting into the site.

The design life for the BORAX-1 barrier is 320 years. The barriers were designed to endure the erosive effects of wind and water, allowing them to maintain an acceptable depth of barrier over the course of the design life. The BORAX-1 barrier was constructed with an under-layer consisting of 15 cm of topsoil and 15cm of gravel emplaced for shielding of the surrounding contaminated 7800 m^2 area. This soil was consolidated to a roughly 37 × 37 m area and compacted on top of where the reactor is buried. A riprap layer was placed over the consolidated soil to form the top layer of the barrier to minimize erosion. The surface barriers were designed to experience minimal erosion over the design life based on the soil types and the addition of the riprap layer. Areas adjacent to both barriers were graded to encourage drainage around and away from the capped landfill sites to reduce erosion of the barrier materials and not to avoid water infiltration.

Although the surface barrier is operating as expected some rabbit activity has been noted during the annual landfill inspections. Likely, the rabbits were using the boulder field as shelter.

Entombment of Super Kukla Facility, Nevada Test Site, USA

The Super Kukla Facility consisted of four structures, Building 5400, Building 5400A, Building 5410, and a Wooden Building. In 1979, operation and testing of the reactor ceased and the reactor core and components were disassembled and removed. The reactor fuel was sent for storage at the Y12 Plant in Oak Ridge, Tennessee. Radiological contaminants of concern included Co-60, C-14, Cl-36, Cs-137, Eu-152, Eu-154, Eu-155, Fe-55, Am-241, tritium, Ni-63, plutonium, Sr-90, and uranium. The primary chemical contaminants included PCBs, metals, and Freon.

Aboveground structures were demolished and disposed. Radiologically impacted equipment primarily activated metals from Buildings 5400A, 5410, the Wooden Shed, and remaining in B-5400 were entombed in B-5400. The entombment of B-5400 renders the structure inaccessible, and there are no credible transport mechanisms for migration of contaminants. Before placement of grout,

radiologically impacted material and debris from Building 5400A, Building 5410 and the Wooden Shed were placed into Building 5400 for entombment. Additionally, the lead shielding wall located in the Reactor Room was left in place. The Closure Plan provides an analysis of the risks associated with the lead wall. The conclusion of this discussion is that the lead wall would be left in place because risk to workers removing it was determined greater than the risk associated to leave it in place. Additionally, due to the robustness of the existing concrete structure (i.e., floors, walls and ceiling), and the grouting of void spaces, the lead wall would be sufficiently encapsulated to prevent migration of hazardous material to groundwater. Grouting activities took place in 2007.

Decommissioning of Industrial Uranium-Fuelled Graphite Moderated Reactor at Krasnoyarsk

Until 2009, the decommissioning option for this reactor was long term safe enclosure within the reactor vaults for at least 100 years. The shift from safe enclosure to in-situ entombment was as a result of no realistically viable approaches to disposal of the main reactor components. Solutions were available for the entombment option. In 2010, an industry-wide concept of uranium-graphite reactor decommissioning was adopted, with in-situ entombment as its main option.

The key argument in favour of entombment is that the reactors are constructed inside excavations mined through solid rock. The rock provides a natural safety barrier, which, in combination with already existing barriers will ensure radiation safety requirements are met. In addition, the rock is a key structural component of the entire underground structure capable of withstanding significant internal and external loads and impacts. In-situ entombment also provides a physical barrier to unauthorized access to the radioactive waste.

Safety assurance of in-situ entombment is achieved through implementation of a multibarrier defence-in-depth principle. This approach uses a combination of existing barriers (shroud, steel structures, concrete vault, rock surrounding the mine)

and new barriers (clay backfill, concrete filling of subreactor space, sealing structure over the reactor vault).

Environmental Impact Statement - NPD Closure Project

Appendix D: AOPFN Alternative Means Assessment

Arcadis Canada Inc.

8133 Warden Ave, Unit 300

Markham, ON L6G 1B3

Tel 905.763.2322

Arcadis.com