

APM-REP-05000-0211-R000

Initial Project Description Plain Language Summary (English) – Deep Geological Repository (DGR) for Canada’s Used Nuclear Fuel Project
December 2025



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Deep Geological Repository (DGR)
for Canada’s Used Nuclear Fuel
Project

December 2025

APM-REP-05000-0211

Prepared by: Nuclear Waste Management Organization (NWMO)

nwmo

NUCLEAR WASTE
MANAGEMENT
ORGANIZATION

SOCIÉTÉ DE GESTION
DES DÉCHETS
NUCLÉAIRES

Acknowledgment of Truths

The Nuclear Waste Management Organization (NWMO) is grateful to all the First Nations and Indigenous Peoples that the organization has had the great fortune to meet and interact with while developing and implementing Canada’s plan for the long-term management of used nuclear fuel. The NWMO is especially grateful to the Wabigoon Lake Ojibway Nation (WLON), who have indicated that they are willing and informed hosts for the Deep Geological Repository (DGR) for Canada’s Used Nuclear Fuel Project (herein referred to as the Project).

The NWMO understands the unique long-term time scale of Canada’s plan to build the Project, and the enduring relationship it will have with land and water for generations to come. The NWMO acknowledges that the Project will have an impact on traditional land and resource use via changes in access or perceived risks. The Project is located in the territory of WLON; which is the most proximate potentially impacted Indigenous group to the site. As such, the Anishinaabe Peoples of WLON are expected to experience these impacts the most.

The NWMO commits to build respectful relationships, and to seek the free, prior, and informed consent of impacted peoples of WLON before proceeding with development of the Project. The NWMO will respect WLON sovereignty and will aim to align its work with Anishinaabe Values, emphasizing protection and stewardship of land, water, and all Creation, and will respect Anishinaabe traditional governance systems.

The NWMO is on a Reconciliation learning journey. The NWMO has and will continue to build on advice and guidance received from the Council of Elders and Youth and the Indigenous communities with whom it has a relationship. The NWMO acknowledges there is still much learning to do as it moves through all phases of the Project.

The NWMO respects the truth that many Indigenous women and girls are at a higher risk of harm every day and therefore supports the National Inquiry into Missing and Murdered Indigenous Women and Girls and will find ways to action the Calls for Justice, specifically number 13, “Calls for Extractive and Development Industries.”

The NWMO acknowledges, respects, and honours that First Nation and Métis peoples of Canada have unique status and rights as recognized and affirmed in Section 35 of the [Constitution Act, 1982](#) (Government of Canada 1982). The NWMO is committed to respecting the Aboriginal Rights and treaties of First Nation and Métis peoples. The NWMO also recognizes that there may be unresolved claims between First Nation and Métis communities and the Crown to be considered in relation to the Project site.

The NWMO will work with the Crown regarding the Crown’s duty to consult and accommodate, as guided by decisions of the Supreme Court of Canada in fulfilling the NWMO’s obligations under the *Nuclear Fuel Waste Act* (Government of Canada 2002).

The NWMO recognizes the truth that the federal acts for which it is subject to, [Nuclear Fuel Waste Act](#), the [Nuclear Safety and Control Act](#) (Government of Canada 1997) and the [Impact Assessment Act](#) (Government of Canada 2019) , are being imposed on Indigenous Peoples as a result of Canada’s plan. The NWMO’s approach to implementing the Project is committed to respect and align with Anishinaabe Values, philosophies, and knowledge systems. The NWMO acknowledges the need to be mindful of potential burdens on First Nations and potentially affected Indigenous groups that result from the Project

Additionally, the NWMO recognizes the importance of data sovereignty as an important aspect of self-determination and cultural preservation for Indigenous communities. Currently, the data in the Initial Project Description is not a full representation of the characteristics of the Indigenous identity of

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populations residing within district, municipal, and unincorporated communities, nor is it a full representation of the characterization of on-reserve communities.

All of the NWMO’s work with respect to Indigenous Peoples will be guided by Reconciliation.

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Document history

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Revision Summary		
Revision Number	Date	Description of Changes/Improvements
Draft	2025-01-31	External Draft for WLON comment
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Draft	2025-08-15	External Draft for WLON Review
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R000	2025-12-09	Submission to IAAC

EXECUTIVE SUMMARY

Introduction

In 2002, the Government of Canada enacted the *Nuclear Fuel Waste Act* (NFWA) to establish a long-term approach for managing used nuclear fuel. The Act required the creation of the Nuclear Waste Management Organization (NWMO) to work with Canadians and Indigenous Peoples to recommend and implement a safe, long-term management plan.

Following a three-year national study with broad public input, the Government of Canada selected Adaptive Phased Management (APM) in 2007 as Canada’s plan for the long-term management of used nuclear fuel. The approach includes the development of a Deep Geological Repository (DGR) to safely contain and isolate Canada’s used nuclear fuel (hereafter referred to as “the Project”).

After more than a decade of technical and community-based siting work, the Project site was selected in the Wabigoon Lake Ojibway Nation and Township of Ignace area of northwestern Ontario, approximately 21 km southeast of Wabigoon Lake Ojibway Nation and 43 km northwest of the Township of Ignace along Highway 17.

The Project is expected to span approximately 160 years, including site preparation, construction, operation (about 50 years), decommissioning and closure, and post-closure monitoring. The Project is subject to numerous laws, including the NFWA, *Impact Assessment Act* (IAA), and the *Nuclear Safety and Control Act* (NSCA). In addition, Wabigoon Lake Ojibway Nation is exercising its jurisdiction through its Regulatory Assessment and Approval Process. The Regulatory Assessment and Approvals Process is WLON’s regulatory process grounded in Anishinaabe law, values, and responsibilities, and reflects WLON’s authority to review and decide on development within its territory. The Canadian Nuclear Safety Commission (CNSC) will serve as the lifecycle regulator for all federally licensed activities.

Why the Project is Needed

Canada’s nuclear power plants have provided, and are expected to continue providing, clean, reliable, and low-carbon energy for decades. However, used nuclear fuel remains radioactive for a very long time and therefore requires careful, permanent management to avoid placing a burden on future generations.

A deep geological repository represents the internationally recognized best practice for the long-term management of used nuclear fuel. The Project provides a safe, permanent, and responsible solution that will ensure the used fuel is securely contained and isolated from people and the environment for generations to come.

Currently, used nuclear fuel is safely stored at reactor sites across Canada. While these interim measures are effective, they are not permanent and require active management. The Project will provide the long-term solution needed to protect people, communities, and the environment. This approach was endorsed by the Government of Canada when it selected APM inclusive of the Project in accordance with the NFWA and established oversight for its implementation.

The Project addresses an issue Canadians have consistently said should be resolved now rather than left for future generations. By safely containing and isolating used nuclear fuel, it also supports the continued role of nuclear energy as a reliable, low-carbon source of power and contributes directly to Canada’s climate change commitments and goal of achieving net-zero emissions.

If implemented, the Project would:

- provide a permanent and safe disposal solution for used nuclear fuel

- support Canada’s commitments to climate action and achieving net-zero by 2050 by ensuring nuclear energy remains a sustainable and socially responsible energy source
- eliminate the need for future generations to actively manage used nuclear fuel, thereby reducing long-term environmental risks and advancing intergenerational equity in managing Canada’s nuclear legacy

Site Selection and Community Engagement

In November 2024, following a 14-year site selection process, extensive public engagement, and a comprehensive technical assessment demonstrating confidence in safety, the decision was made to locate the Project in the Wabigoon Lake Ojibway Nation and Ignace siting area. This milestone marked the completion of more than a decade of rigorous scientific study and a community-driven, consent-based siting process, advancing the Project into the regulatory decision-making phase.

Both Wabigoon Lake Ojibway Nation and the Township of Ignace have entered into Hosting Agreements with the NWMO for the life of the Project. These agreements reflect Canada’s commitment to working with informed and willing host communities. While Wabigoon Lake Ojibway Nation’s agreement remains confidential, the Township of Ignace’s agreement is publicly available on the Township’s webpage. Its objective is to enable the community to support and facilitate the Project by building capacity in areas such as infrastructure, economic growth, social and cultural development, and governance. The agreement also provides a framework for the Township to fulfill its roles and responsibilities within the regulatory process.

The site selection decision was based on two key pillars:

1. Confidence in safety – Over 10 years of scientific research, site characterization, and modelling have confirmed that the area’s geology and environment are suitable to safely contain and isolate the waste
2. Collaboration with communities – Site selection required the support of informed and willing hosts. Both Wabigoon Lake Ojibway Nation and the Township of Ignace confirmed their willingness through community-driven decision-making processes.

The Initial Project Description has been formally reviewed by Wabigoon Lake Ojibway Nation and the Township of Ignace, in keeping with their role as host communities for the Project.

Beyond the host communities, the NWMO continues to engage with:

- other potentially affected Indigenous groups
- local municipalities and councils
- the interested public, including residents, and land users with interests in the surrounding area, including those critical of the Project

The goals of this engagement are:

- to ensure that anyone who wants to learn about the Project has the opportunity to do so
- to ensure that those who may be potentially affected can participate in the regulatory process, so their knowledge, experiences, and perspectives contribute to meaningful assessments
- to work with Wabigoon Lake Ojibway Nation as they implement their Regulatory Assessment and Approval Process (RAAP); Wabigoon Lake Ojibway Nation is exercising its jurisdiction through its Regulatory Assessment and Approval Process; the Regulatory Assessment and Approvals Process is WLON’s regulatory process grounded in Anishinaabe law, values, and responsibilities, and reflects WLON’s authority to review and decide on development within its territory

Description of the Project

The Project will include:

- an underground repository, at a depth greater than 500 m below surface, where used fuel will be placed in engineered containers surrounded by a protective system involving clay and rock
- surface facilities for receiving, handling, and packaging the used fuel
- transportation activities along the primary and secondary access roads within the Project site
- supporting infrastructure, including access and haul roads, a rail spur, transmission line, a worker accommodation camp, and an excavated rock management area

The Project would contain and isolate approximately 5.9 million used fuel bundles, which is the projected total inventory of used nuclear fuel estimated to be produced in Canada from the current fleet of reactors to end of life, as outlined in the NWMO’s 2024 Nuclear Fuel Waste Projections Report (NWMO, 2024). This projection is based on published refurbishment and life-extension plans for the Darlington and Bruce reactors, and the continued operation of Pickering A reactors (until end of 2024) and Pickering B reactors (until end of 2026), and on NWMO’s assumptions used for planning purposes.

The Project is expected to last over 160 years, including site preparation, construction, operation, decommissioning and closure, and post-closure monitoring.

The Project does not include:

- transportation of used fuel from reactor sites to the Project beyond primary and secondary access roads at the Project site, as this is regulated separately under CNSC certification and uses existing transportation infrastructure
- NWMO’s corporate offices or other off-site corporate infrastructure (e.g., Centre of Expertise)
- any capacity beyond 5.9 million bundles of fuel; increases in the proposed inventory would require approval from host communities and be approved by applicable regulators, including the CNSC as the lifecycle regulator for the Project

Regulatory Oversight

The Project is, and will remain, subject to the IAA, the NFWA, the NSCA and numerous other federal and provincial licensing and regulatory requirements throughout its life. For example, a facility for the long-term management of radioactive waste, such as a DGR for used nuclear fuel, must meet the licensing requirements of the *Class I Nuclear Facilities Regulations*.

In addition, under its Hosting Agreement, the NWMO has committed to honour the regulatory assessment and approvals process of Wabigoon Lake Ojibway Nation.

The NWMO’s initial licence application to the CNSC will be submitted together with the Project’s Impact Statement. This application will be prepared in general accordance with the guidance in REGDOC-1.2.3, *Licence Application Guide: Licence to Prepare Site for a Deep Geological Repository*. While the technical studies and assessments will address impacts and mitigation measures for the full life of the Project, the integrated submission will provide detailed information specific to the activities covered by the initial licence.

The scope of the initial licence application includes the following key activities:

- site clearing, grading, terracing
- development and operation of water management facilities for site preparation activities
- construction and operation of a worker accommodation camp

- development of non-nuclear supporting infrastructure (including utilities, fencing, administration building, worker accommodation camp, helipad, primary access road, and Excavated Rock Management Area [ERMA] and Organics Management Area [OMA])

Management of Other Radioactive Wastes

As part of the management of the used nuclear fuel, the Project will generate low-level radioactive waste (LLW) and intermediate-level radioactive waste (ILW) during operations, and decommissioning. These include things like contaminated protective clothing, tools, filters, or other materials used in operating the facility.

- Project generated-interim management: All LLW and ILW generated during the life of the DGR will be safely managed on site in licensed facilities, consistent with the CNSC requirements.
- Long-term management: The eventual disposal of LLW and ILW will follow Canada’s Integrated Strategy for Radioactive Waste, which directs that LLW be placed in near-surface disposal facilities and that ILW (and certain other wastes) be disposed of in another deep geological repository, which will undergo a consent-based siting process.

These requirements are set out in *Canada’s Policy for Radioactive Waste and Decommissioning* and the principle that waste generators are responsible for the safe, long-term management of their wastes.

By following these policies, the NWMO ensures the Project aligns with both its mandate and Canadian policy for responsible radioactive waste management.

Safety and Environmental Protection

Protecting people and the environment is the foundation of this Project. The purpose of the Project is to ensure used nuclear fuel is safely managed over the long term so that it does not pose a risk to human health or the environment. The facility’s design follows international best practices and meets Canada’s rigorous regulatory standards.

The CNSC is the independent federal regulator responsible for overseeing all stages of the Project’s lifecycle. The CNSC enforces the NSCA and its supporting regulations, which together ensure that all nuclear activities in Canada protect the environment, human health, and safety.

Under the NSCA, the purpose of regulation is to:

- limit, to a reasonable level, the risks to national security, health, safety, and the environment associated with the use of nuclear energy and substances, consistent with Canada’s international obligations
- implement measures related to the international control of nuclear energy, including the non-proliferation of nuclear weapons and explosive devices

In regulating the Project, the CNSC applies the precautionary principle and a graded approach, meaning that the level of oversight and control is proportional to the potential risks associated with each activity.

As part of the regulatory process for the Project, the CNSC will participate with the Impact Assessment Agency of Canada and other federal authorities, such as Fisheries and Oceans Canada, Environment and Climate Change Canada, and Health Canada, to ensure a thorough assessment of potential environmental impacts is conducted under the IAA. The Impact Statement, including the technical studies supporting the initial licence for the Project, will evaluate potential changes to air, water, land, plants, and animals, and will identify measures to prevent or mitigate harm.

Under the NSCA, the NWMO will be required to demonstrate application of the As Low As Reasonably Achievable (ALARA) principle in assessing environmental components, to ensure protection of people and the environment. The ALARA principle means that all reasonable efforts are made to minimize exposures and releases from the Project, taking into account social, technical, economic, practical, and public policy considerations. In other words, exposures and risks are kept as low as reasonably achievable, without compromising the intended purpose or disproportionately increasing other risks. The NWMO’s impact assessment methodology for the Project is proposed to build on the assessments supporting the initial licence (including air, water, land, plants and animals) and to demonstrate application of the ALARA principle in evaluating whether changes to air, water, land, plants, and animals may result in significant or somewhat significant impacts to Indigenous Peoples.

Additionally, under the NSCA, the NWMO must, throughout the life of the Project, maintain and update its licensing basis, which will be the set of requirements and documents demonstrating how health, safety, security, and the environment will be protected. This includes the safety case, which encompasses site characterization data, pre- and post-closure safety assessment reports, and human health and ecological risk assessments. The licensing basis will evolve across phases of the Project to reflect proposed activities. At each licensing stage, the public and Indigenous communities will have the opportunity to participate, including through various means such as public hearings. Under the NSCA, the NWMO will be required to conduct its Project activities in accordance with the licensing basis.

The safety case extends beyond dose calculations of potential exposure to radiation due to the Project. It also draws on a broad suite of evidence and arguments, including:

- the scientific, technical, and managerial foundations supporting safety
- the suitability of the site and facility design
- insights from natural analogues
- assessments of radiation risks from the Project
- assurance of the adequacy and quality of all safety-related work

This safety case will serve as the primary basis for dialogue with regulators, Indigenous communities, and other interested parties.

If the NWMO is successful in obtaining impact assessment and initial licensing approvals, the Impact Assessment (IA) decision statement and the licence issued by the CNSC will include enforceable environmental protection requirements, such as:

- limits on radioactive and hazardous releases (e.g., water effluent and air emissions)
- obligations for environmental monitoring and emissions reporting
- emergency preparedness and response plans

The NWMO will also be required to implement an Environmental Protection Program that monitors performance, ensures compliance, and drives continuous improvement.

Initial Screening of Potential Impacts of the Project

Environmental Components

The NWMO has undertaken extensive site characterization and environmental baseline studies in accordance with the NSCA and the CNSC’s REGDOC-1.2.1, *Guidance on Deep Geological Repository Site Characterization*. This work ensures that the information supporting the siting and

design of the repository is comprehensive and reliable, forming a strong foundation for the federal impact assessment and the initial licence application.

The NWMO will continue to update site characterization and environmental monitoring data throughout all phases of the Project. This data will be used in future licence applications for construction, operation, decommissioning, and closure.

Drawing on more than a decade of geoscientific research, environmental data collection, and safety assessments, the NWMO has confidence in the safety and suitability of the selected site. The impact assessment and initial licence will assess components with the highest potential for measurable effects, informed by lessons learned from other major nuclear and environmental assessments, including projects undertaken by Ontario Power Generation (OPG) and Atomic Energy of Canada Limited (AECL).

Project activities that could result in environmental interactions include land clearing, blasting and excavation, water management, construction and operation of surface and underground facilities, materials handling, and in-site transportation. For the purposes of the Initial Project Description submission, the NWMO has applied a pathways-of-change screening approach to identify these interactions and to incorporate proven environmental protection measures drawn from comparable projects. Examples include:

- air quality and dust control: water spraying, material covers, and wheel-washing stations
- noise and vibration management: temporary barriers, controlled blasting, and limited work hours
- erosion and sediment control: silt fencing, sedimentation ponds, and progressive revegetation
- surface water protection: engineered drainage, water collection ponds, and treated effluent release
- wildlife and habitat protection: seasonal clearing restrictions and habitat restoration

With these measures in place, the likelihood of significant adverse environmental effects is expected to be low. This conclusion is supported by the NWMO’s extensive site characterization work across key biophysical components, including climate, geology, geochemistry, groundwater and surface water, vegetation, wildlife, species at risk, and ambient radioactivity. The studies completed to date are sufficiently advanced to support the initial screening assessment of potential effects presented in Section E of the Initial Project Description. Overall, the results indicate that, once mitigation measures are applied, most environmental components present a low risk of adverse effects, reflecting the NWMO’s commitment to the ALARA principle and the CNSC’s rigorous regulatory oversight.

Land Use

The Project will result in some unavoidable changes to land and resource use, including:

- restrictions on access for safety and security reasons
- concurrent use of land and water where infrastructure is located
- how surrounding lands and waters are used due to perception

While these changes are anticipated, their extent, nature, and the appropriate mitigation measures will be further defined through the impact assessment and licensing processes.

As part of this work, the NWMO’s engagement program will play a central role in deepening understanding of how people use and value the lands and waters in the area. Additional engagement with potentially affected Indigenous groups will help identify and characterize potential effects on Indigenous land use and potential impacts on Indigenous Rights. These perspectives will meaningfully inform the assessment of significance and the development of mitigation measures to

ensure that Indigenous interests and Rights are appropriately considered and respected as part of implementation of the Project.

Social, Economic, and Cultural Components

Socio-economic reporting for APM, including the assessment of the effects of the NWMO’s activities on a community’s way of life and its social, cultural, and economic aspirations, is a mandatory requirement of the NFWA. The NWMO has reported on the effects of APM every three years since it was selected in 2007 as Canada’s plan under Section 18 of the Act and, as required by Section 12(6), previously submitted mitigation measures for social, economic, and cultural impacts for all phases of the Project on the federal government as part of *Choosing a Way Forward* (NWMO 2005).

Beginning in 2007 when APM was selected as Canada’s Plan, the NWMO was authorized to begin work on the Project including community engagement for the purposes of site selection and developing and undertaking the siting process. These activities were understood to have both positive and negative outcomes, and the mitigation measures for the siting phase of APM outlined in *Choosing a Way Forward*, implemented and activities reported on.

The NWMO’s current socio-economic baseline is presented in the Social, Cultural, Economic, and Health Baseline Studies Report. The Report is supported by extensive data collection and engagement with nearly 500 individuals and 70 organizations, as well as targeted community-specific studies such as the Ignace Area Community Well-Being Studies (2023). These studies examined how the Project aligns with the Ignace community vision, which is structured around four themes: people, community and culture, infrastructure, and economics and finance. The findings indicate that the Project could strengthen long-term economic stability, attract new residents and businesses, and improve local services and infrastructure through proactive planning.

Among the Project activities with the greatest potential to influence social and cultural conditions is the operation of the worker accommodation camp. The camp will be a dry facility and subject to security checks and access controls. Mitigation measures common to infrastructure projects with accommodation camps will be implemented to manage potential social effects. These measures include strict behavioural policies and enforcement, local hiring and workforce training programs, on-site recreational amenities, transportation management, and ongoing community liaison and monitoring.

In many cases, for the social, economic, and cultural components studied, additional work will be completed to support the impact assessment process, particularly the assessment for the Anishinaabe Peoples of Wabigoon Lake Ojibway Nation and other potentially affected Indigenous groups. However, the work completed to date in the NWMO’s Social, Cultural, Economic, and Health Baseline Studies, Preliminary Report, which has been reviewed by the IAAC and Government Review Team, is considered sufficiently advanced to support the screening-level assessment of potential effects presented in Section E of the Initial Project Description.

This assessment demonstrates that many of these components are anticipated to have a low level of risk of adverse effects following the implementation of mitigation measures, as both the likelihood of occurrence and the degree of potential negative impact are expected to be small. This approach is consistent with the Impact Assessment Agency of Canada’s *Operational Policy Statement* (IAAC 2022), which seeks to balance focused and relevant information requirements with the need to identify potential effects that may be material to decision making.

In the case of social, economic, and cultural components, the wealth of available baseline studies completed in the area suggests that many of the anticipated impacts are positive. The publicly available Ignace Hosting Agreement further outlines commitments that reinforce these positive outcomes through sustained investment in community well-being, infrastructure, and economic development.

While the current baseline primarily reflects non-Indigenous and municipal communities, the NWMO recognizes that Indigenous data are not yet represented. The NWMO will work collaboratively with potentially affected Indigenous groups through the impact assessment process to ensure that Indigenous social, cultural, economic, and health data are respectfully incorporated into the assessment. This work is expected to be grounded in respect for Indigenous data sovereignty, ensuring that Indigenous Knowledge and information are used in accordance with community protocols.

Initial Project Description Conclusions

The proposed Project was selected by the Government of Canada as Canada’s plan for the safe, long-term management of used nuclear fuel. It offers a permanent solution for future generations, grounded in decades of scientific research, sustained community engagement, and alignment with international best practices.

Key messages

- **Site selection**—The site for the Project was selected in 2024 following more than a decade of study and the confirmed willingness of informed host communities. The draft Initial Project Description has been reviewed by Wabigoon Lake Ojibway Nation and the Township of Ignace, in keeping with their roles as host communities under their respective Hosting Agreements.
- **Scientific foundation and safety**—More than a decade of geoscience, environmental, and safety studies confirm the site’s suitability and preliminary safety. These studies form the foundation for the CNSC’s graded approach to risk and licensing. As the Project advances through site preparation, construction, operation, decommissioning, and closure, the NWMO will submit progressively more detailed safety, environmental, and design documentation to support licensing under the NSCA.
- **Socio-economic and cultural outcomes**—The Project is expected to generate lasting socio-economic and cultural benefits, particularly for municipalities and regional economies. Uncertainty remains regarding potential effects to Indigenous Peoples based on baseline data collection to date and therefore cannot be ruled out as carrying a non-negligible risk of significant effects. These potential impacts will be a central focus of the Impact Statement and addressed through assessment studies with Wabigoon Lake Ojibway Nation and ongoing engagement with potentially affected Indigenous groups. This work is expected to be grounded in respect for Indigenous data sovereignty, ensuring that Indigenous Knowledge and information are used in accordance with community protocols.
- **Safety and environmental protection outcomes**—With the application of industry-standard mitigation measures, the risk of significant or somewhat significant effects to components under federal jurisdiction (such as air, water, soils, plants, and animals) are expected to be low. Under the NSCA, the NWMO must demonstrate the application of the ALARA principle—ensuring that potential exposures and releases are kept as low as reasonably achievable, taking social and economic factors into account. Independent oversight by the CNSC will ensure that all mitigation and monitoring commitments are met.
- **Land and resource use**—The Project will result in some unavoidable changes to land and resource use, including access restrictions for safety and security, direct overprinting of land where infrastructure is located, and perceived concerns that may influence how surrounding lands and waters are used. These issues will be examined through Indigenous engagement, Indigenous Knowledge and land use studies, and harmonization with Wabigoon Lake Ojibway Nation’s Regulatory Assessment and Approval Process.
- **WLON Regulatory Assessment and Approvals Process**—Wabigoon Lake Ojibway Nation is exercising its jurisdiction through its Regulatory Assessment and Approvals Process. The Regulatory Assessment and Approvals Process is WLON’s regulatory process grounded in

Anishinaabe law, values, and responsibilities, and reflects WLON’s authority to review and decide on development within its territory.

- **Waste management alignment**—Management of low- and intermediate-level wastes generated by the Project will align with Canada’s Integrated Strategy for Radioactive Waste, so that all radioactive materials are managed safely, responsibly, and in accordance with national policy.
- **Lifecycle oversight**—The CNSC will act as the lifecycle regulator, providing independent oversight and issuing authorizations only when the Project is demonstrated to be safe for people and the environment. The Project will also remain subject to other federal, provincial, and Wabigoon Lake Ojibway Nation approvals and will be under CNSC licensing for approximately 160 years, ensuring comprehensive oversight across its entire lifecycle.

The Project represents a responsible step toward ensuring the health, safety, and sustainability of Canada’s environment and communities for generations to come. It is responsible because it provides a safe and permanent solution to Canada’s used fuel waste, an issue Canadians have been clear should be addressed now, rather than left for future generations. The Project is also a critical component of Canada’s nuclear fuel cycle, providing the permanent solution required to address the final stage of managing used fuel responsibly. By securing long-term management of used fuel, it supports the continued role of nuclear energy as a reliable, low-carbon power source and contributes directly to Canada’s commitments on climate change and achieving net-zero emissions.

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ACRONYMS AND ABBREVIATIONS

°C	degrees celsius
APM	Adaptive Phased Management
Bq	becquerels
cm	centimetre
COPC	Contaminant of Potential Concern
CNSC	Canadian Nuclear Safety Commission
CWB	community well-being
dBA	A-weighted decibel
DGR	Deep Geological Repository
EA	Environmental Assessment
eDNA	environmental deoxyribonucleic acid
ha	hectare
IA	impact assessment
IAA	<i>Impact Assessment Act</i>
IAAC	Impact Assessment Agency of Canada
IPD	Initial Project Description
km	kilometre
L/d	litre per day
LLW	Low-level waste
LSB	Local Service Board
m	metre
mm	millimetre
mSv	millisievert
NFWA	<i>Nuclear Fuel Waste Act</i>
NSCA	<i>Nuclear Safety and Control Act</i>
NRCan	Natural Resources Canada
NWHU	Northwestern Health Unit
NWMO	The Nuclear Waste Management Organization
Project	Deep Geological Repository (DGR) for Canada’s Used Nuclear Fuel (the Project)
REGDOC	regulatory document

APM-REP-05000-0211-R000

Initial Project Description Plain Language Summary (English) – Deep Geological Repository (DGR) for Canada’s Used Nuclear Fuel Project
December 2025

SAR	Species at Risk
UFC	Used Fuel Container
UFPP	Used Fuel Packaging Plant
WLON	Wabigoon Lake Ojibway Nation

A. GENERAL INFORMATION

1. INTRODUCTION

This Plain Language Summary has been prepared to summarize the Initial Project Description (IPD) for the Deep Geological Repository (DGR) for Canada’s Used Nuclear Fuel (the Project). The IPD and this Plain Language Summary have been prepared in accordance with the *Impact Assessment Act* (S.C. 2019, c 28, s 1) (IAA) and the *Information and Management of Time Limits Regulations* (SOR/2019-283).

Through the impact assessment (IA) process, the Nuclear Waste Management Organization (NWMO) is evaluating the site preparation, construction, operations, decommissioning, and closure of a proposed DGR for Canada’s used nuclear fuel, which is part of the Adaptive Phased Management (APM) approach. The NWMO is required by the *Nuclear Fuel Waste Act* (NFWA) to implement APM, which was accepted in 2007 by the Governor in Council as Canada’s plan for the sustainable, safe, long-term management of used nuclear fuel, to protect people and the environment. The Project would contain and isolate approximately 5.9 million used fuel bundles, which is the projected total inventory of used nuclear fuel expected to be produced in Canada from the current fleet of reactors to their end of life.

Following a 14-year siting process, extensive public input, and a thorough technical study and resulting report on the confidence in safety, the NWMO decided in November 2024 to locate the Project in the Wabigoon Lake Ojibway Nation (WLON) and Ignace siting area. Both WLON and the Corporation of the Township of Ignace have entered into hosting agreements with the NWMO for the life of the Project. While the WLON agreement remains confidential, the Township of Ignace’s agreement is publicly available. The objective and purpose of the Township’s agreement are to enable the community to support and facilitate the Project by building capacity through areas such as infrastructure development, economic growth, social and cultural enrichment, and governance. The agreement also provides a framework for the Township to fulfill its roles and responsibilities assigned through the regulatory process.

The Project is located within WLON territory and the NWMO supports WLON’s independent regulatory process, committing to respect and balance that process with the NWMO-led IA work. The NWMO will respect WLON sovereignty and will aim to align its work with Anishinaabe Values, emphasizing protection and stewardship of land, water, and all Creation.

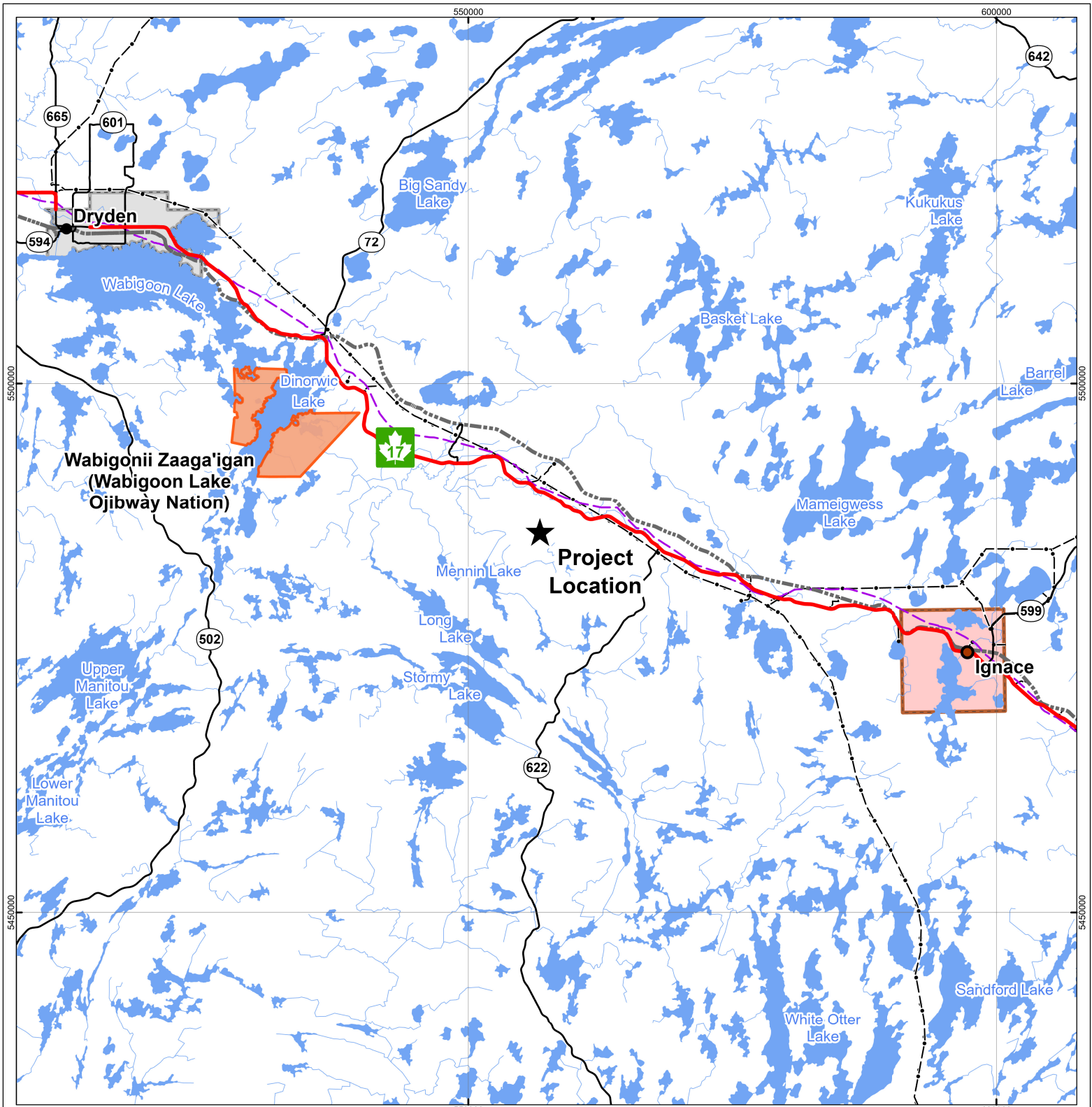
2. GENERAL PROJECT INFORMATION

Table 2.1 provides the Project name, sector, type, and location. The general proposed Project location, regional communities, and First Nations and Indigenous groups are displayed in Figure 2.1 and Figure 2.2, respectively.

Table 2.1: Project Name, Sector, Type, and Location



Project Name	Deep Geological Repository (DGR) for Canada’s Used Nuclear Fuel Project
Sector	Nuclear
Project Type	Nuclear Facility
Location	WLON and Ignace Area. The Project is located within WLON's territory, approximately 21 km southeast of the WLON reserve lands (Band #157), 12 km from the nearest WLON resident, and 43 km northwest of the Township of Ignace (Ignace), Ontario, along Trans-Canada Highway 17. The Project site is on the Canadian Shield, about 240 km northwest of Lake Superior (Thunder Bay) (cross country).





WLON = Wabigoon Lake Ojibway Nation.








LEGEND

Hosting Communities

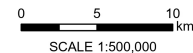
-  Wabigoon Lake Ojibway Nation
-  Township of Ignace

-  Project Location
-  Community
-  Municipal Boundary
-  Highway 17
-  Highway

-  Railway
-  Transmission Line
-  Natural Gas Pipeline
-  Watercourse
-  Waterbody

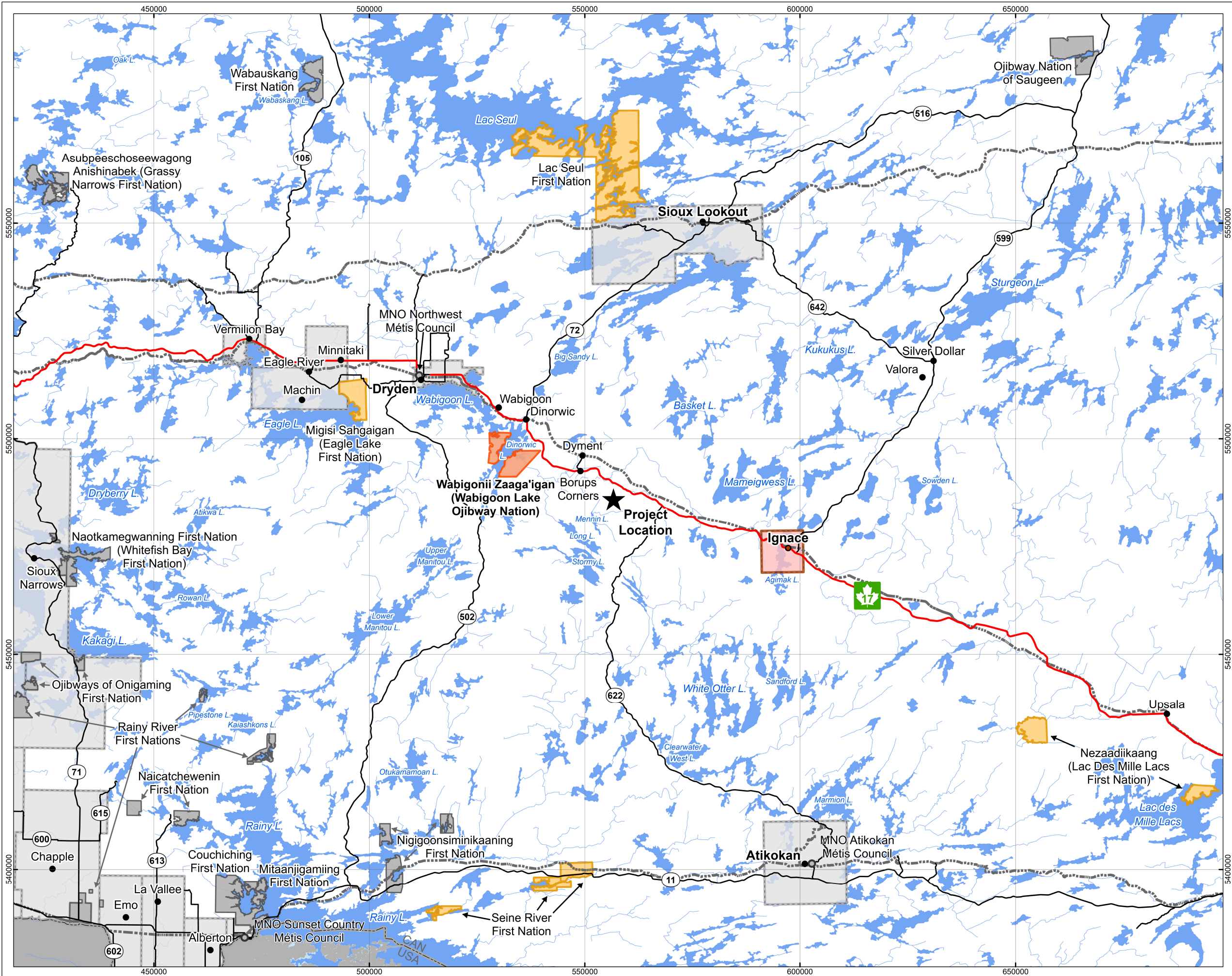
REFERENCE

Data: CanVec, Government of Ontario, GEO, NMO
 Projection: Universal Transverse Mercator
 Datum: NAD 83
 Coordinate System: UTM Zone 15N
 OCT-11-2025



TITLE
Project Location

FIGURE: 2.1



LEGEND

Hosting Communities

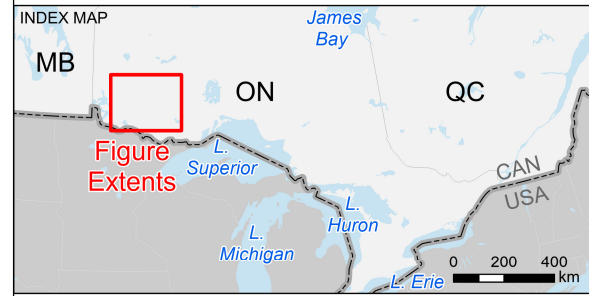
- Wabigoon Lake Ojibway Nation
- Township of Ignace

Potential Crown Consultation List Communities

- First Nation Reserve

Other Communities

- Community
- Northwestern Ontario Métis Community (Métis Nation of Ontario Region 1)
- Municipal Boundary
- First Nation Reserve
- Project Location
- Highway 17
- Highway
- Railway
- Watercourse
- Waterbody



REFERENCE

Data: CanVec, Government of Ontario, GEO, NMO, MNO, CIRNAC
 Projection: Universal Transverse Mercator
 Datum: NAD 83 Coordinate System: UTM Zone 15N

OCT-14-2025

SCALE 1:850,000

nwmo

NUCLEAR WASTE MANAGEMENT ORGANIZATION / SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

TITLE: Regional Communities

FIGURE: 2.2

3. PROPONENT INFORMATION

Table 3.1 provides the proponent’s name, contact information, and supporting consultant.

Table 3.1: Proponent Information

Proponent	Nuclear Waste Management Organization https://nwmo.ca
Executive Contact	Allan Webster Vice President, Regulatory Approvals Nuclear Waste Management Organization 22 St. Clair Avenue East, 4th floor Toronto, Ontario, Canada M4T 2S3 Email: awebster@nwmo.ca
Proponent Contact	Mackenzie Denyes, PhD, P.Geo., QP _{RA} Director, Impact Assessment & Licensing Nuclear Waste Management Organization 22 St. Clair Avenue East, 4th floor Toronto, Ontario, Canada M4T 2S3 Email: mdenyas@nwmo.ca
Supporting Consultant	Karine Glenn, P.Eng., Ing. Director, Regulatory Affairs Nuclear Waste Management Organization 22 St. Clair Avenue East, 4th floor Toronto, Ontario, Canada M4T 2S3 Email: kglenn@nwmo.ca
Supporting Consultant	WSP Canada Inc.

4. BUILDING RELATIONSHIPS WITH ANISHINAABE PEOPLES OF WABIGOON LAKE OJIBWAY NATION AND OTHER INDIGENOUS GROUPS IN CANADA

Commitment to Dialogue and the Foundation of Adaptive Phased Management

For more than two decades, the NWMO has placed engagement with Indigenous Nations and Peoples at the centre of its work to implement APM, Canada’s plan for the safe, long-term management of used nuclear fuel. APM emerged through broad dialogue with Canadians, Indigenous Peoples, and technical experts. NWMO has continued that dialogue and remains committed to building and maintaining strong, lasting relationships with Indigenous Nations and Peoples.

Legislated Engagement and Alignment with Federal Processes

The Project is governed by multiple legislative instruments, including the NFWA, the IAA and the NSCA. The NFWA establishes ongoing obligations for the NWMO to engage communities, assess and mitigate social, economic, and cultural effects, and report publicly on these outcomes throughout the life of the Project.

Federal Coordination through the NRCan–Nuclear Waste Management Organization Memorandum of Understanding

In 2009, a Memorandum of Understanding (MOU) between Natural Resources Canada (NRCan) and the NWMO was established. The MOU defines roles and responsibilities for consultation with Indigenous communities, in line with the Government’s duty to consult and the NWMO’s NFWA obligations. The NWMO are required to report to NRCan annually on their Indigenous engagement activities under the MOU in addition to their tri-annual reporting to the Minister of Energy under the NFWA. Since 2009, NWMO’s activities include open houses, presentations, interviews, and meetings focused on Project safety, field studies, economic impacts, and community long-term goals.

Community-Driven Site Selection and Demonstration of Willingness

A landmark in the Project’s development was completion of the collaborative site-selection process. Finalized in 2010, the community-driven approach emphasized safety, security, and the importance of informed and willing hosts, including both Indigenous Nations and municipal communities. By 2020, this rigorous process narrowed the focus to two potential host sites in Ontario: the WLON and Ignace area, and the Saugeen Ojibway Nation-South Bruce area.

Wabigoon Lake Ojibway Nation’s Hosting Agreement and Regulatory Process

In November 2024, the Anishinaabe Peoples of WLON voted to move forward from site selection into the regulatory decision-making phase of the Project and entered into a confidential Hosting Agreement with NWMO, signifying its role as the most proximate First Nation community and a willing, informed, and supportive host for the Project. Through this vote and signing of the Hosting Agreement, WLON has formally agreed to host the Project for its full duration, contingent on required approvals, including approval through WLON’s Regulatory Assessment and Approval Process. The NWMO acknowledges with gratitude the willingness of the Anishinaabe people of WLON to proceed with the regulatory decision-making phase. WLON’s story, authored by WLON, supports the IPD.

Broader Indigenous Engagement and Guiding Principles for Relationship-Building

The NWMO recognizes the importance of maintaining and strengthening relationships with all Indigenous groups that may be affected by the Project. In addition to its partnership with WLON, the NWMO has established Learn More Agreements with other First Nation and Métis communities. These agreements have supported early engagement, the exchange of information, and opportunities for participation in studies and community learning related to the Project.

The NWMO is committed to continue communication and collaboration throughout the Impact Assessment and licensing processes, guided by NWMO’s Reconciliation and Indigenous Knowledge Policies and detailed engagement plans. The NWMO remains dedicated to strengthening existing partnerships and cultivating new relationships where engagement has not yet occurred. The NWMO has identified the importance of trust in relationships. The Council of Elders and Youth is an independent advisory body to the NWMO that provides support in the application of Indigenous Knowledge in the implementation of the Project and that provides advice on issues that could enhance the development and maintenance of good relations with Indigenous Nations. The Council of Elders and Youth has made significant contributions to the development of NWMO policies. Applying learnings from Elders, knowledge holders, practitioners and First Nation members, the engagement and participation objectives for the Project with the Anishinaabe people of WLON and other potentially impacted Indigenous groups include:

- Amplifying and uplifting Indigenous voices and knowledge systems.
- Incorporating Indigenous perspectives and knowledge into Project planning and decision making.
- Building a respectful relationship grounded in reciprocal truth, honesty, and trust.
- Creating opportunities for equitable participation, collaboration, and partnership.

The NWMO is dedicated to actively engaging with diverse Indigenous group populations, including women, men, youth, and Elders, to gather different viewpoints. Furthermore, the NWMO recognizes the ongoing risks faced by Indigenous women and girls and supports the National Inquiry into Missing and Murdered Indigenous Women and Girls. The NWMO will work to address the Calls for Justice, with particular attention to number 13, which pertains to extractive and development industries.

The Nuclear Waste Management Organization’s Reconciliation Journey

The NWMO’s [Reconciliation Journey](#) is anchored by its [Reconciliation Policy](#). The Reconciliation Policy was established in 2019 through ceremony and sets out how NWMO will contribute to Reconciliation. The policy outlines the organization’s commitments to engaging Indigenous Peoples, delivering cultural awareness and Reconciliation training, and annually publishing a Reconciliation implementation plan. NWMO’s [Indigenous Knowledge Policy](#) guides collaboration with Indigenous communities and knowledge holders, and commits NWMO to consider Indigenous Knowledge in its work and respecting the value of what both Indigenous Knowledge systems and western science can contribute to Project development and decision-making.

During the site selection process, First Nation and Métis communities clearly expressed the need to understand how the Project could affect the environment, particularly the interconnected systems of water. In 2023, the NWMO published a [Water Statement](#), committing the NWMO to water protection and environmental responsibility. The NWMO also formed an internal working group with expertise in both Indigenous Knowledge and western science, which developed an integrative narrative that explored the relationship between water and the DGR’s multiple-barrier system. This presentation was created in collaboration with Anishinaabe peoples of WLON and the Council of Elders and Youth, so that it was grounded in First Nation perspectives and accessible to those seeking to learn more about the Project.

Guidance from the [Council of Elders and Youth](#) informed the NWMO’s policies and commitments, which are deeply embedded in all work undertaken at the NWMO, from human resource interview questions to technical studies and assessments for regulatory review. The NWMO publishes to its website a [Reconciliation Evaluation Report](#) for full transparency on the NWMO’s progress towards Reconciliation.

The NWMO will continue to apply Indigenous Knowledge to both technical safety and community well-being aspects of the Project when given permission to do so by the Indigenous Knowledge holders. In addition to building capacity and awareness within the NWMO and its contractors, as of 2022 the NWMO has invested millions of dollars to support Indigenous communities.

4.1 Summary of Indigenous Engagement Activities to Date

Between 2012 and 2024, the NWMO engaged extensively with WLON and other Indigenous groups in the area surrounding the Project. Engagement included outreach to groups located at greater distances, including those that expressed an interest in learning about the Project, where the potential for direct Project impacts would be low.

Engagement with Indigenous Peoples Before Site Selection Decision

The NWMO engaged extensively with the Wabigoon Lake Ojibway Nation (WLON) prior to the site selection decision, resulting in WLON agreeing to be a willing host and signing a Hosting Agreement. In addition to WLON, the NWMO established Learn More Agreements with other Indigenous communities and organizations in the area of Project to support engagement before the site was selected, as summarized in Table 4.1.

In 2017/18, the NWMO offered multi-year funding for regional Traditional Knowledge (TK) studies, enabling several Indigenous communities to participate in or complete their studies. As part of the siting process, the NWMO conducted site characterization activities and was designated by the Provincial Crown as the delegate for duty-to-consult during the borehole drilling program. Consultation activities included WLON, Eagle Lake First Nation, Seine River First Nation, Lac des Mille Lacs First Nation, Lac Seul First Nation, the Métis Nation of Ontario, and the Ojibway Nation of Saugeen. Key issues raised during engagement included environmental impacts, potential effects on Indigenous Rights and traditional territories, and the necessity for meaningful participation and respect for TK in the Project’s development.

Table 4.1: Engagement with Indigenous Peoples to Support Site Selection

Indigenous Community and Organization	When the NWMO Initiated Formal Engagement
Aboriginal People of Wabigoon	First engaged on October 24, 2015, and signed a Learn More agreement in 2018 (expired early 2025).
Dryden Native Friendship Centre	First engaged on March 16, 2020, and signed a Learn More agreement in 2020 (expires end of March 2026).
Eagle Lake First Nation	First engaged on May 10, 2011, and signed a Learn More agreement on December 21, 2017 (expired August 2022).
Grand Council Treaty #3	First engaged on October 4, 2022, through a relationship agreement (expired at the end of March 2025).
Lac Des Milles Lac First Nation	First engaged on September 30, 2015, and signed a Learn More agreement on April 28, 2016 (expired at the end of 2024).
Lac Seul First Nation	First engaged on April 20, 2012, and signed a Learn More agreement on September 21, 2017 (expired at the end of 2024).
Naotkamegwaning First Nation	First engaged on October 19, 2016, and signed a Learn More agreement in 2021 (expired at the end of 2024).
Nigigoonsiminikaaning First Nation	Signed a Learn More agreement in 2018 (expired at the end of 2024).
Northwestern Ontario Métis Community, Northwest Métis Council (formally Métis Nation of Ontario Region 1)	First engaged on October 19, 2016, and signed a Learn More agreement in 2021 (expired at the end of 2024).

Indigenous Community and Organization	When the NWMO Initiated Formal Engagement
Ojibway Nation of Saugeen	First engaged on April 27, 2016, and signed a Learn More agreement on September 12, 2018 (expired at the end of 2024).
Seine River First Nation	First engaged on April 20, 2012, and signed a Learn More agreement on August 25, 2016 (expired at the end of 2024).
Wabauskang First Nation	First engaged on November 24, 2021, and signed a Learn More agreement in 2021 (expired at the end of 2024).
Wabigoon Lake Ojibway Nation	In February 2014, a protocol agreement was signed between the NWMO and WLON, which allowed engagement to begin, including an NWMO community open house held in April 2014. Engagement has continued since 2014. Multiple agreements followed until WLON entered into a final agreement with the NWMO in 2024.

NWMO = Nuclear Waste Management Organization; WLON = Wabigoon Lake Ojibway Nation.

Summary of Engagement Activities Post Site Selection to Present Day

After the site-selection decision and through preparation of the IPD, the NWMO has worked with WLON to review and refine the language of the IPD, facilitating two opportunities to review and comment on the draft IPD, and coauthor select sections. Through Chief and Council, WLON authored “Wabigoon Lake Ojibway Nation’s Story”.

The NWMO engaged on the IPD with Eagle Lake First Nation, Lac Des Mille Lac First Nation, Lac Seul First Nation, and Seine River First Nation on July 29, 2025, by sending each Nation a letter that included an update on the upcoming regulatory process for the Project and an invitation to meet and share information on the Project and to discuss next steps. To date, there has been no formal response from any of the Nations to the letters.

4.2 Key Issues Raised in Engagement Activities to Date

4.2.1 Overarching Themes

Throughout more than a decade of engagement with WLON and other Indigenous groups, including engagement on the IPD, the NWMO has received important input across a broad range of topics. While concerns vary, Table 4.2 below outlines the overarching themes that have consistently emerged.

Table 4.2: Overarching Themes of Key Issues Raised in Indigenous Engagement

Safety and Environmental
Concerns have been raised about the overall safety of the Project, including risks of radiological and conventional contamination to people, water, land, and air, and potential impacts on species important to Indigenous communities.
Emphasis on the need for the Project to focus on the following: <ul style="list-style-type: none"> Protect water, land, air and wildlife with attention to species of cultural importance (e.g., moose, fish wild rice, lynx). Involve Indigenous Peoples in environmental data collection. Consider habitat disturbance and the loss of access to lands used for traditional practices.

Social, Economic, and Health

Concerns have been raised about potential impacts on historical and current use of sovereign territories that have cultural and economic importance.

The risk of disturbance to archaeological sites or other culturally significant lands is a concern.

The Project must meet key needs to:

- Respect and protect traditional lands, cultural sites, and values.
- Create employment, training, and capacity-building opportunities.
- Be carried out through fair collaboration and partnership with First Nations.
- Support continuous monitoring and adaptation to proven emerging nuclear waste disposal technologies.

Indigenous Rights and Title

Concerns have been aired regarding unceded title, treaty rights, and how the Project may affect these rights.

Calls have been made for clear processes regarding:

- Compensation, recognition of jurisdiction, and equitable partnership.
- Sustained employment and business development opportunities.
- Participation in decision-making frameworks, including Indigenous assessments.

Future Adaptability

It will be important to integrate new technologies over the life of the Project.

There is a desire for continued evaluation and responsiveness to evolving knowledge and First Nation values.

4.2.2 Areas of Focus and Shared Commitments with Wabigoon Lake Ojibway Nation

WLON continues to demonstrate strong leadership in shaping how the Project is planned, communicated, and integrated with Nation priorities. The participation of WLON in the Project has been both elevated and sustained, providing guidance that reflects Anishinaabe Values, governance, and responsibilities to the land and water. The Nation’s participation continues to shape the NWMO’s understanding of key priorities and informs shared commitments to be advanced throughout the IA process and the full lifecycle of the Project, which are summarized in this section.

All information shared by WLON is governed by Nation-led data governance protocols, reviewed by the WLON–NWMO Data Governance Subcommittee, to support the respectful and consent-based use of Indigenous Knowledge.

Governance and Decision Making

All decisions affecting WLON lands, waters, and people must uphold Anishinaabe laws, knowledge systems, and decision-making processes grounded in Anishinaabe Inaakonigewin. Co-development and co-design are important in all planning and implementation. Ceremony and spiritual practice are foundational, and data governance is recognized as a critical expression of WLON’s sovereignty and intellectual property rights.

Environmental Protection and Stewardship

A holistic approach to environmental protection must be taken, rooted in Anishinaabe Inaakonigewin and the understanding that all relations are interconnected. Priorities include the safeguarding of water, culturally significant species, and ecosystems, as well as WLON-led monitoring. The Nation would guide the management of excavated rock, co-develop all water-related infrastructure and plans, and participate in geological investigation and verification activities.

Land Use and Occupancy

The continued exercise of land-based responsibilities must be protected and upheld. This includes, but is not limited to, hunting, fishing, agriculture, medicine gathering, and access to significant sites (e.g., burial grounds, ceremonial spaces, wild rice harvesting areas).

Social, Economic, and Cultural Well-Being

Continued emphasis is being made on creating economic development opportunities, such as wage employment and sustainable resource use. The NWMO will also continue to make sure that project infrastructure, like worker accommodation camps and fire protection systems, are designed collaboratively to reflect community values and cultural protocols. There is a strong emphasis on providing dedicated, culturally appropriate spaces for ceremony and cultural practices, and supporting the transmission of Anishinaabe Knowledge across generations through programming and design.

All planning and implementation activities are guided by the principle of fostering the holistic health, safety, and wellness of WLON Anishinaabe Peoples, integrating cultural, environmental, and technical considerations in every aspect of the Project.

4.3 Plan for Future Indigenous Engagement and Participation

Based on the NWMO’s engagement to date with WLON, the NWMO understands that WLON will be affected by implementation of the Project. In addition to WLON, the following other Indigenous groups may also be affected:

- Eagle Lake First Nation
- Lac Seul First Nation
- Lac des Mille Lacs First Nation
- Seine River First Nation

The NWMO is committed to engaging with all Indigenous groups that may be affected by the Project. The NWMO will work closely with WLON, both through harmonization of studies with their regulatory process and collaboratively on the Impact Statement. Indigenous groups will be given opportunities to participate in regulatory studies, contribute insights, share Indigenous Knowledge, and collaborate on study development.

The NWMO will jointly develop processes to confirm that Indigenous Knowledge is shared, protected, and respected throughout regulatory work, including in IA and nuclear licensing, and will ensure that validation opportunities are provided to the Knowledge holders.

Recognizing the importance of community-specific approaches, the NWMO will tailor its communications and engagement activities to meet the preferences of each group involved. To facilitate inclusive participation, the NWMO will offer a range of engagement methods, including in-person and virtual sessions (such as interviews, workshops, and forums), the distribution of plain language information, and the use of online and interactive tools. These efforts are part of a broader commitment to ensuring that Indigenous perspectives and Indigenous Knowledge are integrated and respected at every stage of the Project.

The NWMO notes that the IAAC’s *Guide to Preparing an Initial Project Description and a Detailed Project Description* requires proponents to identify Indigenous groups that may be affected by carrying out the Project, provide a summary of engagement undertaken with Indigenous peoples of Canada, and outline plans for future engagement. Accordingly, the term potentially “affected Indigenous groups” has been used intentionally throughout Sections 4, and 22 of this Summary to ensure alignment with federal guidance and concordance across sections.

5. PUBLIC AND INTERESTED PARTIES ENGAGEMENT

5.1 Summary of Public and Interested Parties Engagement Activities to Date

Overview of Engagement Approach

Over the past two decades, the NWMO has worked proactively with municipalities, businesses, service providers, and environmental organizations. Engagement activities aim to foster transparent, enduring relationships and facilitate informed decision making at every stage of the Project.

Engagement Requirements

Engagement, participation, and communication are central to the Project and are mandated by statutory and regulatory frameworks, including the NFWA, the NSCA, and Hosting Agreements with the Township of Ignace and Wabigoon Lake Ojibway Nation. These frameworks require ongoing dialogue with communities, transparent reporting, independent oversight, and accessible information about Project safety and performance. The NWMO is committed to upholding these obligations through formal engagement processes, regulatory reviews, technical studies, and public hearings, ensuring inclusive and transparent involvement at every stage.

Site Selection Engagement Activities

The site-selection process for the Project began in 2010, with 22 communities expressing proactive interest in participating by 2012. The objective of public engagement at this stage was to raise awareness and provide balanced, objective information to the public and interested parties supported by Learn More agreements that empowered communities with additional resources. Community Liaison Committees, established by municipal councils, played a pivotal role in facilitating learning. They regularly discussed Project-related topics and disseminated scientific, safety, and other information about ethical matters related to the Project. NWMO staff provided support, along with experts from within Canada and around the world.

In 2020, the NWMO narrowed its focus to two potential host sites in Ontario: the WLON and Ignace area and the Saugeen Ojibway Nation-South Bruce area. Working closely with municipalities and Indigenous Nations, the NWMO conducted intensive social engagement and technical assessments to evaluate each site’s suitability and foster resilient partnerships.

Each community in the site-selection process established its own methods for defining and expressing willingness to host the Project. The NWMO tailored community-driven engagement to address each community’s needs, providing the necessary information for informed decision making, continuing to raise awareness, and informing the broader public.

The Township of Ignace undertook a multi-phased municipal community engagement program that included direct dialogue with residents, youth engagement, and a community vote. It was supported by the Willingness Ad Hoc Committee, which provided guidance to the Township Council.

As specified in the Hosting Agreement, the NWMO will provide business opportunities, frameworks to participate in regulatory decision making, employment and training, and financial benefits—and will also support emergency services. The NWMO is grateful to have received the willingness of the people of Ignace. Their willingness contributed to the NWMO completing the siting process and

continuing to meet its mandate to implement APM on behalf of all Canadians and Indigenous Peoples.

The site-selection process culminated in the choice of the WLO and Ignace area as the potential site for the Project.

Initial Project Description Engagement Activities

Following site selection, the NWMO’s engagement activities have shifted to focus on meeting the obligations of the Hosting Agreement with Ignace as well as the requirements of the Canadian Nuclear Safety Commission (CNSC) licensing processes and federal IA process.

To support transparency and public awareness, the NWMO provided a wide range of accessible communications and reports, including webinars, brochures, technical documents, implementation plans, local Learn More centre presentations, information sessions, exhibits, social media information posts, and multimedia resources through its website.

The purpose of public engagement after site selection was to enable early site-specific discussions with the public and interested parties while informing the Project design through various engagements.

The engagement strategy prioritized the early identifying of public and affected interests, understanding preferences for engagement methods, soliciting targeted feedback, and maintaining transparent reporting. The NWMO integrated Gender-based Analysis Plus into its engagement activities. This helped to ensure policies and programs are responsive and inclusive, considering a broad spectrum of intersecting factors such as age, disability, ethnicity, and geography.

5.2 Identifying Interested Parties

The NWMO developed an extensive list of public and interested parties. Table 5.1 reflects the communities, organizations, and select individuals who have expressed interest in the implementation of the APM in the area surrounding the Project site. As the Project progresses, the number and diversity of these groups may evolve.

Table 5.1: Communities, Organizations, and Select Individuals Expressing Interest in the Adaptive Phased Management

Communities and Service Boards
Host community (Ignace)
Immediate surrounding communities (inclusive of City of Dryden, Village of Wabigoon LSB, Melgund LSB)
Nearby communities (inclusive of Kenora District Municipal Association members): <ul style="list-style-type: none">• City of Kenora• Municipality of Red Lake• Municipality of Sioux Lookout• Township of Ear Falls• Township of Pickle Lake• Township of Sioux Narrows-Nestor Falls

Public Interest Groups and Environmentally Focused Organizations and Agencies

Siting community supporters and critical voice organizations

National, regional, and local civil society organizations:

- We the Nuclear Free North
- Northwatch
- Environment North
- Sunset Country Spirit Alliance
- No Nuclear Waste in Northwestern Ontario
- NOCANDU
- Northwest Nuclear Watch

Regulatory Authorities and Government Ministries or Agencies

Federal authorities:

- IAAC
- CNSC
- NRCan
- ECCC
- DFO
- Department of Justice Canada
- Crown-Indigenous Relations and Northern Affairs Canada
- Transport Canada
- Employment and Social Development Canada
- Health Canada

Provincial authorities:

- MECP
- MNR
- MTO
- IAFNER
- MCM

Industry and Academic Organizations

Ontario Power Generation

Bruce Power

Hydro-Québec

Hydro One Networks Inc.

New Brunswick Power

Atomic Energy of Canada Limited

Nuclear and energy industry representatives, trade unions, chambers of commerce

University professors, researchers, and related nuclear expert committees

International Used Nuclear Fuel Management Organizations:

- NUMO (Japan)
- ANDRA (France)
- NAGRA (Switzerland)
- SKB (Sweden)
- Posiva (Finland)

ANDRA = French National Radioactive Waste Management Agency; CNSC = Canadian Nuclear Safety Commission; DFO = Fisheries and Oceans Canada; ECCC = Environment and Climate Change Canada; IAAC = Impact Assessment Agency of Canada; IAFNER = Ontario Ministry of Indigenous Affairs and First Nations Economic Reconciliation; LSB = Local Service Board; MCM = Ontario Ministry of Citizenship and Multiculturalism; MECP = Ontario Ministry of Environment, Conservation, and Parks; MNR = Ontario Ministry of Natural Resources; MTO = Ontario Ministry of Transportation; NAGRA = National Cooperative for the Disposal of Radioactive Waste; NOCANDU = Northern Ontario Coalition Against Nuclear Dumping Underground; NUMO = Nuclear Waste Management Organization of Japan; NRCan = Natural Resources Canada; SKB = Swedish Nuclear Fuel and Waste Management Company.

5.3 Key Issues Raised

5.3.1 Overarching Themes

Since 2013, the NWMO has published annual “What We Heard” reports to capture feedback from individuals, organizations, and communities engaged in the site-selection process for the Project. These reports document perspectives from residents near potential sites and the wider Canadian public. Public input has played a significant role in shaping the NWMO’s engagement strategies and informing project design, planning, and consideration in the preparation of the IA and the CNSC licensing processes.

Key themes raised include the protection of people and the environment, emphasizing the need for a project that is safe, secure, and environmentally responsible. Concerns centre on human health and safety, particularly potential risks from radioactivity and contamination, confidence in long-term safety measures, facility design, and the reliability of storage systems.

Environmental protection issues frequently cited involve the impacts on air, water, land, and wildlife; the effectiveness of water management systems; the suitability of the geological formation; and the Project’s resilience to extreme weather events.

Community well-being (CWB) and readiness also feature prominently in public feedback. Communities have highlighted challenges such as housing shortages, strained infrastructure and public services, and the need for local priorities in youth retention, education, and training.

Economic development opportunities, including job creation, new business prospects, and sustained local benefits, are important areas of interest. The readiness of health and social services to support incoming families and workers, along with the goal of enhancing CWB, are also key concerns.

The NWMO continues to be committed to documenting and reflecting public feedback as well as regularly reviewing insights with host communities and an independent advisory council. Community voices are guiding planning, assessment, and decision making as the Project advances.

5.3.2 Areas of Focus and Shared Commitments with the Township of Ignace

The Township of Ignace continues to demonstrate strong leadership in shaping Project planning, communicating its details, and integrating it with community priorities. Ignace’s participation reflects a commitment to ensuring that the Project contributes to local well-being, supports long-term sustainability, and aligns with the Township’s vision for growth and revitalization.

The IPD includes the “Township of Ignace Story” which was co-developed by the NWMO and the Township of Ignace following the Township’s review of a draft version of the IPD and the Licensing Appendix, which was added to address comments raised seeking clarity on the process for regulatory review, design optimization, and safety oversight for the Project

Through ongoing collaboration with the NWMO, Ignace has identified shared goals focused on transparency, economic prosperity, safety, and environmental protection. These goals give guidance on social, economic, and infrastructure priorities that are designed to ensure the community benefits from the Project; they are summarized here:

Municipal Leadership and Transparency

Ignace values open communication and coordination through established committees and public engagement. Residents have emphasized the importance of timely information on Project milestones and regulatory processes, as well as opportunities for public participation.

Economic and Social Development

The Township places strong emphasis on maximizing local economic and social benefits by hosting as many Project-related staff and facilities in town as possible. There is significant community interest in locating the worker accommodation camp within or near the town of Ignace to help stimulate local business growth and strengthen the regional economy.

Broader priorities include housing, health care, and essential infrastructure improvements, as well as workforce development and business-readiness initiatives. Participants also encouraged the NWMO to explore creative opportunities to strengthen the local economy and support long-term growth.

Facility Design, Safety, and Environment

Ignace has shown active interest in several aspects of Project design and nuclear safety. Participants in the IPD review raised concerns about blasting underground during periods of used-fuel emplacement and sought assurance that such activities would be strictly separated and safely managed. They also questioned the absence of a ramp in the repository design, noting that reliance on vertical shafts could pose safety risks if an elevator or hoist were to fail and suggesting that a ramp could enhance both safety and evacuation options.

In addition, residents emphasized the importance of radiation protection, emergency preparedness, and clear communication about the Project as a nuclear facility rather than simply a mining project. The Township also stressed protection of local lakes and ecosystems and encouraged learning from previous Canadian and international projects.

Together, these focus areas reflect a partnership grounded in transparency, safety, and shared commitment to a sustainable and prosperous future for Ignace and its residents.

5.4 Plan for Future Public and Interested Parties Engagement

The NWMO will continue open and transparent engagement with the public and interested parties throughout the regulatory decision-making process. Building on the engagement completed during site selection and development of the Initial Project Description, future engagement will focus on sharing information, obtaining input, and ensuring accessibility at key Project milestones.

As the integrated impact assessment and initial licence processes advance, the NWMO will provide plain-language materials and will host public sessions to discuss Project progress, potential effects, and mitigation measures. Engagement methods will be regularly reviewed and adjusted based on feedback to ensure inclusiveness and effectiveness.

Future engagement will reflect two main levels of participation:

- **Involve:** Direct collaboration with the Township of Ignace, as outlined in the Hosting Agreement, to participate in regulatory planning, provide local knowledge, and share input on social, economic, environmental, and infrastructure considerations.

- **Inform:** Ongoing communication with nearby communities, the public, and interest groups to share updates on Project activities and regulatory milestones, including opportunities for feedback through meetings, events, or Learn More agreements.

This approach ensures that engagement remains responsive, accessible, and proportionate to the needs and interests of the public and communities most affected by the Project.

6. REGIONAL ASSESSMENT

Based on the NWMO’s review of public information sources, there are no regional studies or regional assessments conducted for the area in proximity to the Project. There is one regional assessment in progress in the Ring of Fire area, which will be centred on the mineral deposits in northern Ontario, approximately 534 km northeast of the Project.

7. STRATEGIC ASSESSMENT

The requirements in the federal government’s *Strategic Assessment of Climate Change* (Government of Canada 2020), conducted under Section 95 of the IAA, is applicable to the Project. An initial estimate of greenhouse gas emissions for the Project is provided in Section 22 of the IPD and summarized in Section 23 of this Plain Language Summary.

Most energy needs of the Project will be met by electricity provided by the Province of Ontario. The NWMO will meet the requirements of the Government of Canada’s *Strategic Assessment of Climate Change* and will prioritize the implementation of best available technologies and environmental practices to reduce direct greenhouse gas emissions.

Based on public information sources, there are no other applicable strategic assessments required.

B. PROJECT INFORMATION

8. PURPOSE OF AND NEED FOR THE PROJECT AND POTENTIAL BENEFITS

The Project is a key component of Canada’s plan for the safe, long-term management of used nuclear fuel and an important part of the country’s transition to net-zero emissions. It represents the implementation of APM, which was selected by the Government of Canada in 2007 under the NFWA as Canada’s plan for managing used nuclear fuel.

APM combines a technical method, which includes the construction and operation of a Deep Geological Repository, with a management system that is adaptive, inclusive, and grounded in engagement with Canadians and Indigenous Peoples. The Project will be licensed by the CNSC for its full lifecycle, from site preparation to post-closure monitoring, ensuring independent oversight, transparency, and accountability. The Project will also remain subject to the conditions of the NFWA.

Purpose of the Project

The purpose of the Project is to provide a permanent, safe, and environmentally responsible solution for the management of all of Canada’s used nuclear fuel. The Project would contain and isolate approximately 5.9 million used fuel bundles in a stable geological formation, eliminating the need for ongoing active management and protecting people and the environment for generations to come. In doing so, the Project fulfills Canada’s legislated responsibility under the NFWA to implement APM on behalf of Canadians and Indigenous Peoples.

The capacity of 5.9 million used fuel bundles is the projected total inventory of used nuclear fuel expected to be produced in Canada from the current fleet of reactors to end of life.

Need for the Project

Currently, used nuclear fuel is safely stored in licensed interim facilities at reactor sites. While effective in the short term, this approach requires continuous active management and is a long-term burden on future generations. The need for the Project arises from the requirement to transition from interim storage to a permanent, passive disposal solution that ensures long-term safety, minimizes environmental risk, and upholds intergenerational responsibility. The Project also addresses the broader policy objective of sustaining nuclear energy as a low-carbon, reliable power source that contributes to Canada’s climate goals.

Potential Benefits

The Project is likely to drive a wide range of benefits for host communities, the region, and Canada as a whole, including:

- Permanent and safe containment of used nuclear fuel, protecting people and the environment.
- Support for Canada’s climate actions and net-zero objectives so that nuclear energy remains a sustainable and socially responsible energy source.
- Long-term employment, training and business opportunities in Northwestern Ontario and across Canada.
- Advancement of intergenerational equity by removing the need for future generations to actively manage nuclear waste by reducing long-term environmental risks.

By implementing APM through the development of the Project, the NWMO is fulfilling its mandate under the NFWA and contributing to Canada’s clean energy future in a manner that is scientifically sound, socially responsible, and environmentally sustainable.

9. RELATED PROVISIONS IN THE *PHYSICAL ACTIVITIES REGULATIONS*

Section 28(b) of the *Physical Activities Regulations* (SOR/2019-285) identifies as a designated project “the **construction and operation** of a new facility for the long-term management or disposal of irradiated nuclear fuel or nuclear waste”. The proposed Project meets this description as it involves the construction and operation of a Deep Geological Repository for the long-term management of Canada’s used nuclear fuel.

This NWMO Project is not part of a larger project listed on the IAA’s project list. Its scope includes lifecycle phases associated with the construction and operation of the DGR, while site characterization, decommissioning, closure, and post-closure monitoring phases will remain under the regulatory oversight of the CNSC pursuant to the NSCA. These phases do not independently trigger the IAA, as they are not listed in the *Physical Activities Regulations*.

The impact assessment for the Project will be conducted in an integrated manner with the initial licence application to the CNSC. This integrated assessment will include a conceptual post-closure safety analysis consistent with the CNSC’s graded approach, which allows for detailed design to be developed and refined at later licensing stages.

In accordance with *REGDOC-1.2.1, Guidance on Deep Geological Repository Site Characterization*, site characterization is a distinct and essential phase that precedes site preparation. It provides the scientific and technical information required to support the DGR design and safety case and forms a necessary part of the data set for future licensing under the NSCA. *REGDOC-1.2.1* specifies that site characterization information is re-evaluated throughout the DGR lifecycle. Accordingly, site characterization work is not a designated activity under the IAA, as it is required by the CNSC to support the initial licensing process for the site preparation, construction and operation of a DGR.

10. ACTIVITIES, INFRASTRUCTURE, STRUCTURES, AND PHYSICAL WORKS

10.1 Overview

The DGR is designed to safeguard people and the environment for generations by employing a system of engineered and natural barriers, such as site geology, specialized fuel containers, bentonite clay, and other protective elements. The Project encompasses both surface and underground infrastructure, including access roads, a rail spur, water management systems, and dedicated areas for managing excavated rock and organic material. The currently proposed conceptual site plan for the Project and associated surface facilities is displayed in Figure 10.1 and Figure 10.2. The conceptual site plan for the Project may change, including due to the IA and nuclear licensing processes. The conceptual site plan covers approximately 340 ha. A generic, illustrative layout of the underground facility under consideration for the initial CNSC licence is provided in Figure 10.3.

Both WLON and the Township of Ignace provided detailed comments on this section during their review of the draft IPD. The NWMO is committed to continuing to work collaboratively with both host communities throughout the impact assessment and licensing phases to ensure their perspectives inform ongoing design refinements and decision-making.

The NWMO will work collaboratively with WLON to understand and uphold appropriate cultural and environmental monitoring practices. This would include any ceremonial requirements prior to the commencement of activities. The NWMO will respect WLON’s ceremony and cultural protocols, with specific practices to be confirmed in dialogue with the Nation.

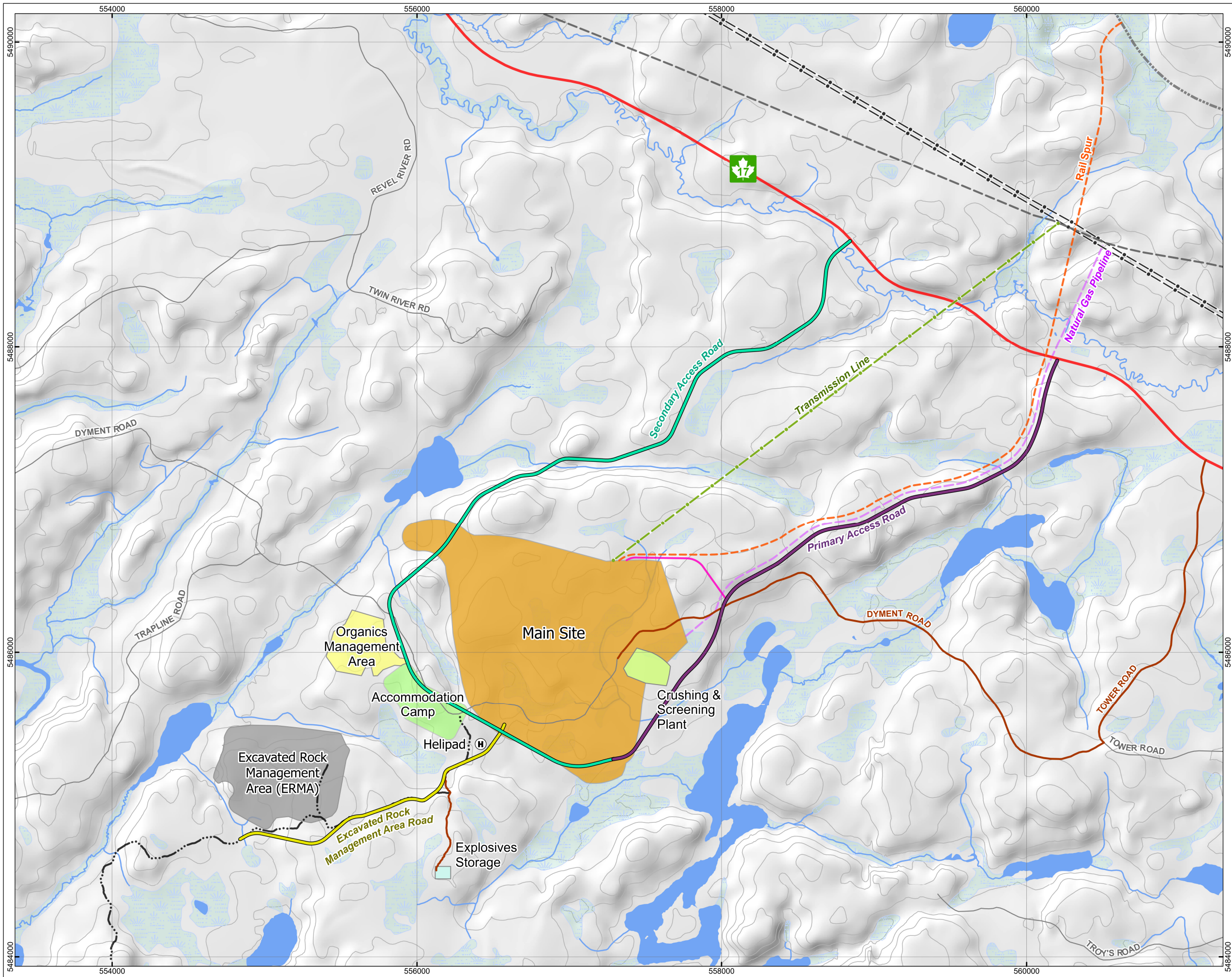
The NWMO plans to work with Knowledge holders and land users, including WLON Anishinaabe trappers, hunters, and harvesters, to support a shared understanding of land and resource use in the area surrounding the Project site. This will be undertaken in accordance with WLON’s data governance protocols and the Hosting Agreement to ensure Indigenous Knowledge and subject matter expertise meaningfully inform Project planning and implementation.

The Project’s surface facilities will be secured with a perimeter fence, with a second, restricted access “Protected Area” for sensitive operations as required by *Nuclear Security Regulations*. Key facilities in the Protected Area include the used fuel packaging plant, main, service, and ventilation shaft complexes, and storage for low- and intermediate-level radioactive waste. All access shafts to the underground repository are also within the Protected Area. Other surface facilities not directly involved in nuclear fuel handling are located outside the Protected Area but within the perimeter fence.

The DGR will use three vertical shafts to access a centrally located services area, with placement arms and rooms radiating outwards for the secure emplacement of used fuel containers each surrounded by bentonite clay for containment. Excavation will continue throughout operations, which are expected to last 50 to 60 years under CNSC licensing. After operations, there is planned to be an approximately 100-year period of extended monitoring, decommissioning, and closure, followed by a transition to institutional control by Canadian and Ontario authorities. This long-term oversight will include ongoing environmental monitoring and active controls, such as prohibiting mining at the site.

The Project will require successive licences from the CNSC for site development, construction, operation, and, eventually, decommissioning, with an overall development and construction phase anticipated to take about 10 years.

The Project site is within an area subject to a Ministry of Natural Resources issued Sustainable Forest Licence and includes some preliminary work, including roads branching off Dyment Road used for tree harvesting operations, clearance of a small amount of land for access roads, and drill pads for initial field investigations of site geological conditions. The site is otherwise undeveloped, without on-site infrastructure and facilities.



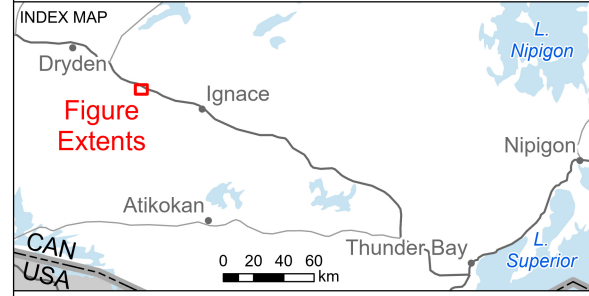
LEGEND

Proposed Project Infrastructure

- Main Site
- Excavated Rock Management Area (ERMA)
- Accommodation Camp
- Organics Management Area
- Crushing & Screening Plant
- Explosives Storage
- Transmission Line
- Natural Gas Pipeline
- Rail Spur
- Primary Access Road
- Secondary Access Road
- Excavated Rock Management Area Road
- Direct Substation Access Road
- Existing Road Upgrades
- Helipad

Existing Present Day Infrastructure

- Transmission Line
- Natural Gas Pipeline
- Railway
- Highway 17
- Road
- Temporary Access Road
- Elevation Contour (10m interval)
- Watercourse
- Waterbody
- Wetland



REFERENCE

Data: GEO, Government of Ontario, Natural Earth
 Projection: Universal Transverse Mercator
 Datum: NAD 83 Coordinate System: UTM Zone 15N
 OCT-11-2025

Scale: 0 0.5 1 km
 SCALE 1:24,000

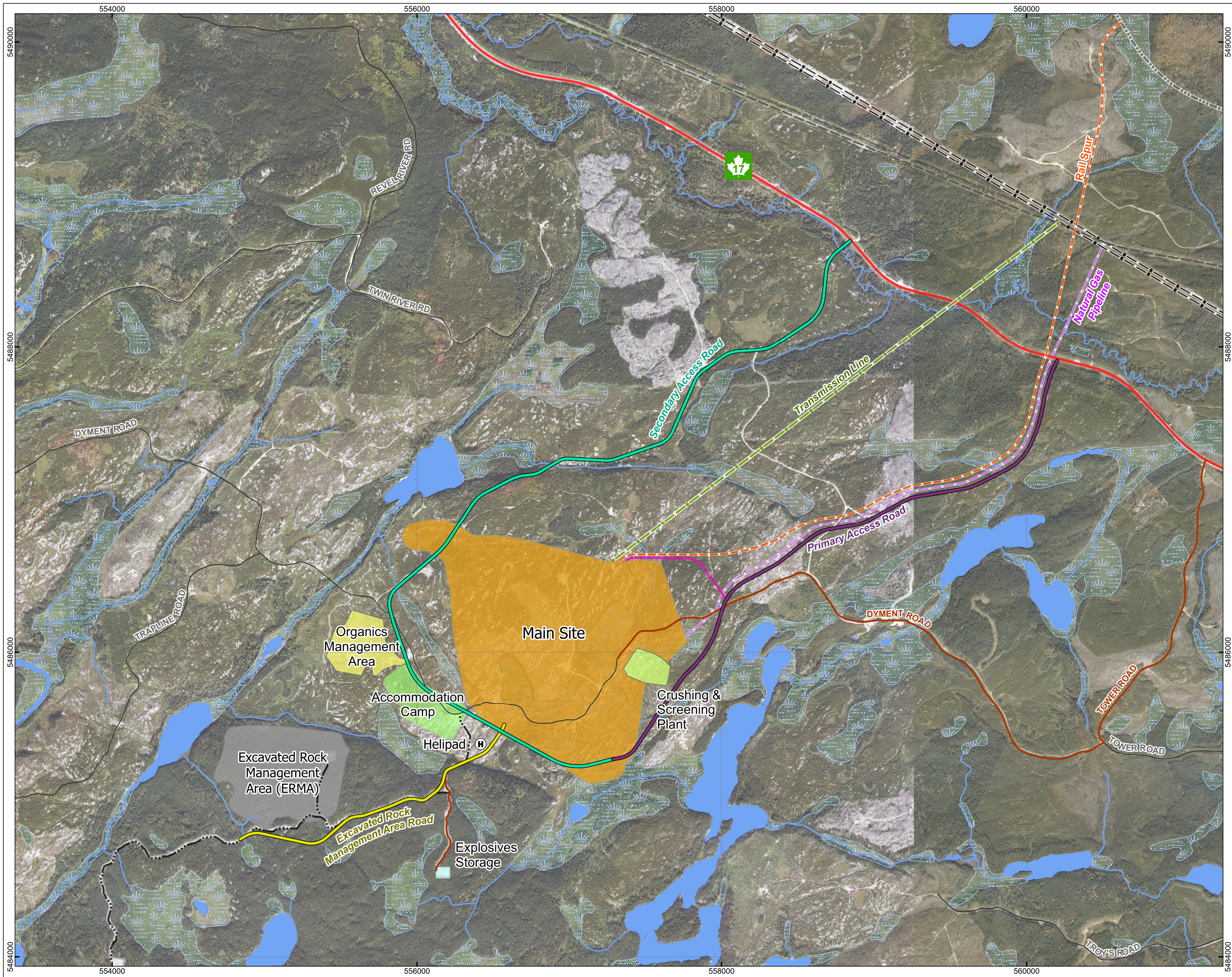
nwmo

NUCLEAR WASTE MANAGEMENT ORGANIZATION / SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

TITLE

Currently Proposed Conceptual Site Plan

FIGURE: 10.1



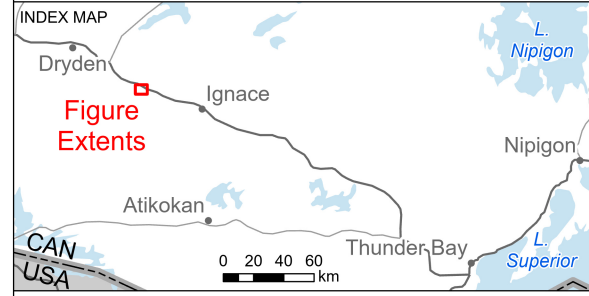
LEGEND

Proposed Project Infrastructure

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Existing Present Day Infrastructure

- Transmission Line
- Natural Gas Pipeline
- Railway
- Highway 17
- Road
- Temporary Access Road
- Watercourse
- Waterbody
- Wetland



REFERENCE

Data: GEO, Government of Ontario, Natural Earth
 The left satellite image was taken in September 2021, and the right satellite image was taken in October 2017.
 Projection: Universal Transverse Mercator
 Datum: NAD 83 Coordinate System: UTM Zone 15N

OCT-11-2025

0 0.5 1 km

SCALE 1:24,000

nwmo

NUCLEAR WASTE MANAGEMENT ORGANIZATION

SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

TITLE

Currently Proposed Conceptual Site Plan Satellite

FIGURE: 10.2

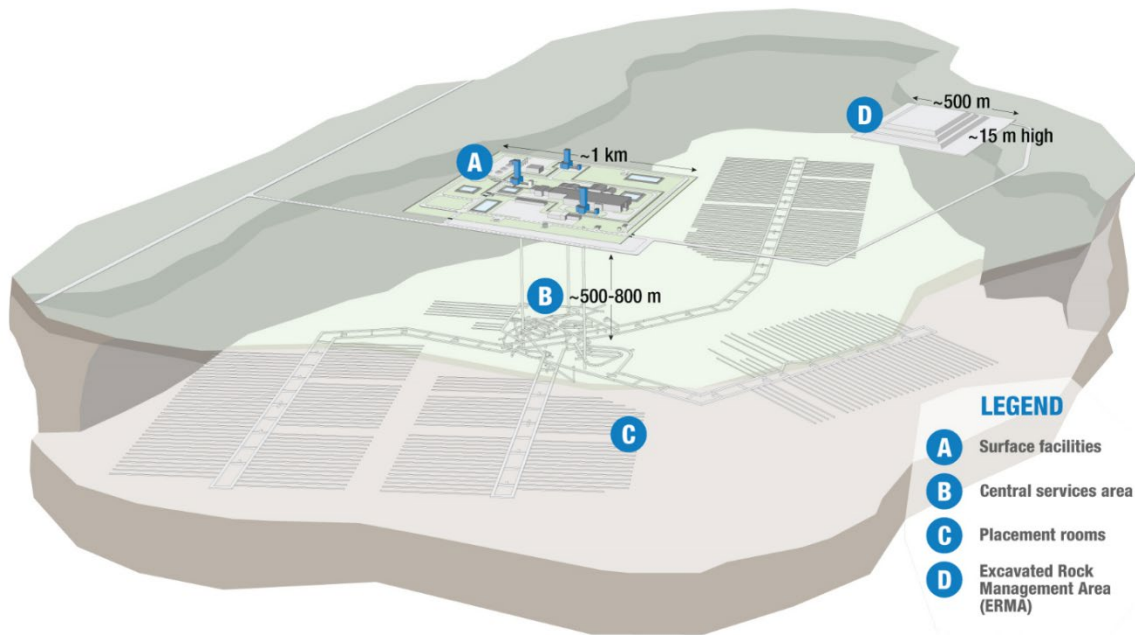


Figure 10.3: Illustration of Generic Project Site Layout (surface and underground)

10.2 Preliminary List of Project Facilities

A preliminary list of all known facilities within the Project are listed in Figure 10.1. Temporary facilities identified in Table 10.1 are intended to be in place until the permanent infrastructure is in place. The proposed facilities may change, as they will continue to be refined as the Project design progresses.

Table 10.1: Preliminary List of Project Facilities

Surface
Temporary facilities and infrastructure
Temporary laydown area
Temporary fuel facilities
Temporary communication system
Temporary waste rock stockpile
Temporary rock crusher
Temporary explosives magazine
Temporary concrete batch plant
Temporary electrical supply
Temporary sumps and underground dewatering infrastructure
Temporary water management
Temporary work trailers, lunchrooms, washrooms, and training facilities
Accommodation camp temporary utilities
Primary buildings/facilities
ERMA and auxiliaries
OMA and auxiliaries
UFPP
LLW storage facility
ILW storage
Active solid waste handling facility
Active liquid waste treatment system
Waste management area
Quality control office and laboratories
Administration buildings (including offices)
Maintenance garage
Sealing material storage bins
Sealing material compaction plant
Warehouse and storage building(s)
Service shaft complex
Main shaft complex
Exhaust ventilation shaft complex
Concrete batch plant
Emergency response building(s)
Organics management area
Water management
Water management ponds
Freshwater pumphouse and pipeline
Water management infrastructure and distribution system
Water storage tanks
Service water treatment plant
Potable water treatment plant
Domestic sewage treatment plant
DGR dewatering settling pond
Process water settling pond
Discharge pipeline and associated discharge infrastructure
Power supply

Surface
Electricity transmission line
Switchyard and substation
Emergency generators
On-site electrical distribution lines
Fuel and reagents
Warehouse and hazardous materials storage building
Diesel and propane tanks
Reagents/chemicals storage areas
Air compressor building
Other on-site infrastructure
Parking area
Weigh scales
Communications infrastructure
Primary and secondary access roads within property
Guardhouses
Natural gas distribution system
Utility corridor
On-site roads
Security infrastructure and fencing
Accommodation camp
Storage yard
Helicopter pad
Primary access road connection to Highway 17
Secondary access road connection Highway 17
Rail spur connection to regional rail line
Connection to regional Hydro One transmission line
Connection to regional natural gas pipeline
Connection to regional telecommunications line
Underground
Central services area
Placement arms
Placement panels and placement rooms
Main shaft
Exhaust ventilation shaft
Service shaft
Underground Demonstration Facility
Explosives magazine
Auxiliary facilities

DGR = Deep Geological Repository; ERMA = excavated rock management area; ILW = intermediate-level waste; LLW = low-level waste; OMA = Organics Management Area; UFPP = Used Fuel Packaging Plant.

10.3 Description of Activities by Phase

The following list provides a summary of proposed activities for each phase of the Project:

- **Site preparation**—Includes all activities to be completed under the initial licence application to the CNSC. Activities associated with the initial licence include initial clearing, grubbing, terracing, and contouring of the Project site to provide the necessary topography to construct the surface facilities. Site preparation activities also includes the construction of non-nuclear infrastructure such as roads, site water management features and the accommodation camp.
- **Construction**—Includes all activities to be completed under the Licence to Construct application to the CNSC. The construction phase will focus on construction of the nuclear facilities, including surface infrastructure such as the Used Fuel Packaging Plant (UFPP) and underground development, including the exhaust ventilation, service and main shafts, dewatering infrastructure

and the underground DGR for the emplacement of the used fuel. Construction of the remaining surface facilities will also be completed during the construction phase.

- **Operations**—Includes all activities to be completed under the Licence to Operate application to the CNSC. The primary activities would be in handling and transfer of used fuel. Prior to the start of operations, the underground placement panels would be developed with first and last placement rooms to allow for geoscientific verification and testing. Placement rooms would continue to be excavated in different panels as emplacement is happening. Excavated rock will be crushed, brought to the surface and transported to the excavated rock management area.
- **Decommissioning and closure**—The decommissioning, final closure, the institutional control period, and eventual release from licensing of the Project will be governed by the CNSC. The governance will follow all associated regulations and codes and will be informed by ongoing engagement with relevant members of the public and Knowledge holders and affected interested parties. Activities would include decommissioning of surface structures, systems, and components, the UFPP, low-level and intermediate-level waste storage facilities and removal of intermediate-level waste to a licensed facility. Long-term monitoring would provide further data to demonstrate the long-term safety of the Project.

Transportation of nuclear and non-nuclear materials within existing highways and railways is independently regulated and ongoing, does not require changes to current infrastructure or regulations and would continue regardless of the Project’s implementation. These activities are governed by existing federal and provincial standards, such as the CNSC’s *Packaging and Transport of Nuclear Substances Regulations* and the *Transportation of Dangerous Goods Regulations* and are not considered part of the Project’s designated or incidental activities. For the impact assessment and licensing process, transportation-related effects are therefore limited to traffic and transportation activities along the new access roads, site roads, and rail spur constructed for the Project, and activities related to the Project within broader transportation networks remain outside the Project’s scope.

11. ESTIMATED MAXIMUM PRODUCTION CAPACITY OF THE PROJECT

An estimated 5.9 million bundles of used fuel will be processed in the UFPP over its operational lifetime of approximately 50 years (about 120,000 used fuel bundles per year). On average, per the current conceptual reference design, 10 used fuel containers (UFCs) are planned to be processed and placed in the repository each workday, or approximately 2,500 UFCs each year. Alternative UFC designs may be examined throughout optimization perspectives.

To achieve this throughput, the UFPP is likely to incorporate multiple processing lines. Based on annual shipping (receipt) assumptions, the maximum number of certified transportation packages received at the UFPP in any given year is estimated to be approximately 885, holding between 120 and 192 used fuel bundles in each certified transportation package. The UFPP is designed to receive and process up to five certified transportation packages each day. Modules and baskets filled with used fuel may be placed into temporary dry storage, as required, until modules can be accepted for processing inside the UFPP.

11.1 Description of Production Process

Used fuel is delivered daily to the UFPP, where it is systematically unloaded, processed, and transferred into UFCs for repository placement. The process involves several automated and remotely controlled steps: unloading fuel bundles into UFCs, shielding and welding, copper coating and inspection, and assembling each unit within a bentonite buffer box. These buffer boxes are then

dispatched underground for emplacement in the repository, with multiple parallel operations conducted to meet annual processing targets.

Once underground, buffer boxes are precisely placed in placement rooms. Once placement rooms are filled, they are sealed with bentonite and concrete, ensuring secure containment and isolation. All activities within the placement rooms are remotely operated to maintain safety and efficiency, with sealing materials and buffer boxes manufactured on site.

The entire process is designed for robust oversight and efficiency. It supports the annual transfer of approximately 2,500 buffer boxes and upholds rigorous standards for long-term security and environmental protection.

12. ANTICIPATED SCHEDULE

The Project is estimated to start site preparations and construction in 2030 and extend through the decommissioning and closure period, ending in approximately 2193.

The approximate durations for the site preparation and construction phase, operations phase, and decommissioning and closure phases are provided in Table 12.1.

Table 12.1: Assumed Project Phases and Planning Timelines

Project Phase	Approximate Timeline (Year)	Phase Duration (Years)
Site Preparation and Construction	2030–2042	13
Operations	2043–2092	50
Decommissioning and Closure a. Extended monitoring b. Decommissioning and closure	2093–2192	100
Institutional Control ¹	2193+	

CNSC = Canadian Nuclear Safety Commission.

13. ALTERNATIVES TO AND ALTERNATIVE MEANS

13.1 Alternatives to the Project

The Government of Canada, through the NFWA, mandated the NWMO to comprehensively assess and recommend approaches for the long-term management of used nuclear fuel. This assessment of alternatives to the Project was completed over three years and is documented in *Choosing a Way Forward: The Future Management of Canada’s Used Nuclear Fuel*, included in Appendix B of the IPD and available on the NWMO’s website. Since the NWMO’s mandate is to design and implement a long-term solution for the management of Canada’s used nuclear fuel, a no-action alternative (i.e., proceed without a plan for long-term management of used nuclear fuel) was not considered as part of this previous assessment of alternatives to the Project.

Through the assessment documented in *Choosing a Way Forward: The Future Management of Canada’s Used Nuclear Fuel*, the NWMO identified and studied four technically feasible options:

- Option 1—deep geological disposal in the Canadian Shield
- Option 2—storage at nuclear reactor sites
- Option 3—centralized storage, either above or below ground
- Option 4—APM, which in part involves many features of the three technical methods listed in the NFWA

The NWMO completed a comparative analysis of benefits, risks, and costs for each of the four options. It adopted an inclusive and collaborative approach, actively engaging both technical experts and a diverse cross-section of the Canadian public and Indigenous Peoples.

This process incorporated a wide range of perspectives, knowledge, and societal values into the assessment and selection of long-term used nuclear fuel management options, so that the chosen approach aligned with scientific best practices and was broadly regarded as socially acceptable. The analysis drew upon a wide variety of reports, background papers, dialogues, and assessments conducted over the course of the study. It concluded by recommending proceeding with Option 4, APM.

In 2007, based on the outcomes of the *Choosing a Way Forward: The Future Management of Canada’s Used Nuclear Fuel* study, the federal government selected the NWMO’s recommendation for APM. With this decision, it dismissed all other alternatives and mandated the NWMO to implement APM, including the DGR.

Given this comprehensive assessment and the subsequent federal decision to proceed with APM, further assessment of alternatives to the Project is not required through the IA process.

Potential Alternative Means

Table 13.1 presents a list of alternative means for the Project currently being considered by the NWMO. Technically and economically feasible options associated with each alternative mean are still being considered through ongoing studies. This list is preliminary and will be subject to revision based on the results of further engineering and study.

Table 13.1: Potential Alternative Means for the Project

No.	Topic	Alternative Means
1	Access road alignments	<ul style="list-style-type: none"> • Options for primary and secondary access road alignments.
2	Energy sources	<ul style="list-style-type: none"> • Options for heating and electricity supply.
3	Transmission line alignment	<ul style="list-style-type: none"> • Variations in alignment and location of transmission line and associated infrastructure.
4	Source of water supply	<ul style="list-style-type: none"> • Options for using surface water or groundwater sources for water supply.
5	Water Discharge	<ul style="list-style-type: none"> • Options for location of the effluent water discharge point(s).
6	Water Treatment	<ul style="list-style-type: none"> • Alternative treatment technologies and techniques to control effluent water quality.
7	ERMA	<ul style="list-style-type: none"> • Variations in configuration and siting of the ERMA.
8	OMA	<ul style="list-style-type: none"> • Variations in configuration and siting of the OMA.

APM-REP-05000-0211-R000

Initial Project Description Plain Language Summary (English) – Deep Geological Repository (DGR) for Canada’s Used Nuclear Fuel Project
December 2025

No.	Topic	Alternative Means
9	Waste management	<ul style="list-style-type: none">Options for managing conventional and radioactive waste generated on site.
10	Accommodation camps	<ul style="list-style-type: none">Options for the location of permanent and temporary accommodations camps.

ERMA = Excavated Rock Management Area; OMA = Organics Management Area.

C. LOCATION INFORMATION AND CONTEXT

14. PROPOSED LOCATION

The Project is on land within WLON territory, approximately 21 km southeast of the WLON reserve lands, 12 km from the nearest WLON resident. It is 43 km northwest of the Township of Ignace, Ontario, along Trans-Canada Highway 17. The site is on the Canadian Shield, about 240 km northwest of Lake Superior (Thunder Bay) via a straight line from the approximate location of the Project.

The Project is within the Wabigoon Forest Management Unit and Dryden Forest Management Unit. While the NWMO does not currently own the lands for which the Project is proposed, they are Crown-owned, under the administration and control of the Province of Ontario Ministry of Natural Resources. An arrangement is planned to be established with the Ontario Ministry of Natural Resources for the transfer of the Crown lands that will be needed for the Project to the NWMO.

14.1 Proposed Geographic Coordinates

The centre of the Project is approximately 556793E 5485960N, Zone 15 North American Datum 83.

14.2 Description of the Land and Surrounding Areas

The Project is located on provincial Crown land in the Kenora Mining Division, Northwestern Ontario, near Highway 17 between Dryden and Ignace. The site includes various land claims and ownership parcels. The area also intersects with several features, including highways, hydro, and rail corridors.

Proximity to Residences and Communities

The closest non-Indigenous communities to the Project include:

- the community of Borups Corners (approximately 10 km to the northeast)
- the community of Dymont (approximately 13 km to the northwest)
- the community of Dinorwic (approximately 28 km to the northwest)
- the Local Service Board of Wabigoon Village (approximately 35 km to the northwest)
- the Township of Ignace (Ignace) (approximately 35 km to the southeast)
- the City of Dryden (Dryden) (approximately 40 km to the northwest)
- the Municipality of Sioux Lookout (Sioux Lookout) (approximately 50 km to the north)

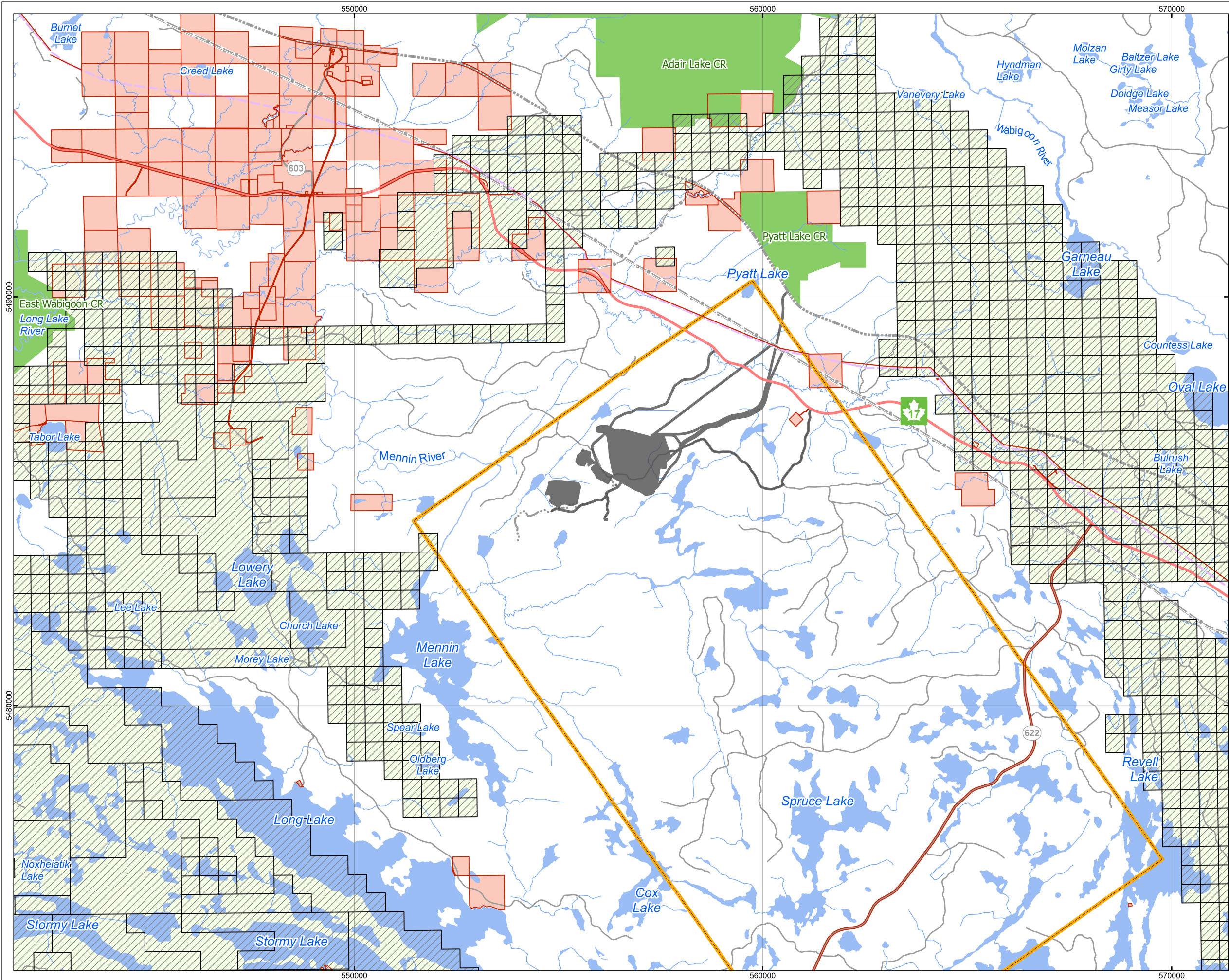
Proximity to Indigenous Lands and Communities

The following distances were measured in a straight line from the approximate Project centroid to the nearest edge of reserve lands. Distances to First Nation reserve lands in proximity of the Project include:

- WLON (approximately 21 km to the northwest)
- Eagle Lake First Nation (approximately 60 km to the northwest)
- Lac Seul First Nation (approximately 64 km to the north)
- Seine River First Nation (approximately 85 km to the south)
- Lac Des Mille Lacs First Nation (approximately 107 km to the southeast)

Proximity to Federal Lands

There are no federal lands in close proximity to the Project. The Project is located inland with no related marine or port features. It is understood that the closest federal lands are the Whiteshell Laboratories, owned by Atomic Energy of Canada Limited and located approximately 286 km (cross country) from the Project near Pinawa, Manitoba.



LEGEND

Proposed Project Infrastructure

- Proposed DGR Project Footprint

Existing Present Day Infrastructure

- Transmission Line
- Natural Gas Pipeline
- Railway
- Highway 17
- Highway
- Road
- Temporary Access Road

Other Features

- Temporary Withdrawal Area (current as of June-24-2024)
- Land Ownership Parcel
- Claim - Ministry of Northern Development and Mines (current as of May-08-2024)
- Conservation Reserve (CR)
- Watercourse
- Waterbody

INDEX MAP

Figure Extents

REFERENCE

Data: GEO, Government of Ontario, Natural Earth, and MINES
 Projection: Universal Transverse Mercator
 Datum: NAD 83 Coordinate System: UTM Zone 15N
 OCT-11-2025

SCALE 1:90,000

nwmo
 NUCLEAR WASTE MANAGEMENT ORGANIZATION / SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

TITLE

Land Tenure and Land Use

FIGURE: 14.1

15. BIOPHYSICAL ENVIRONMENT

In accordance with CNSC REGDOC-1.2.1, *Guidance on Deep Geological Repository Site Characterization*, site characterization information must be collected before and throughout all phases of licensing. The NWMO's geoscience and environmental programs are designed to characterize the biophysical environment and confirm that the proposed site can safely contain and isolate used nuclear fuel to protect people and the environment.

This section describes the existing conditions for the following biophysical environment components:

- meteorological environment
- geology and geological hazards
- geochemistry of excavated materials
- topography, soil, and sediment
- atmospheric, acoustic, and visual environment
- groundwater and surface water
- vegetation, riparian, and wetland environment
- fish and fish habitat
- birds, migratory birds, and their habitat
- terrestrial wildlife and wildlife habitat
- Species at Risk (SAR) and their habitat
- climate change
- ambient radioactivity

For many of the environmental components studied, the NWMO has already undertaken extensive and technically rigorous field programs to verify site suitability and to inform the preliminary safety assessment work that supported site selection. Additional work will be completed to further support the initial licence application to the CNSC and the federal IA process. The studies completed to date are considered sufficiently advanced to support the screening-level assessment of potential effects presented in Section E of the IPD.

This assessment indicates that most components are anticipated to have a low level of risk of adverse effects following the implementation of mitigation measures, as both the likelihood of occurrence and the potential magnitude of negative impacts are small. This approach aligns with the Impact Assessment Agency of Canada's (IAAC) Operational Policy Statement, which seeks to balance focused and relevant information requirements with the need to identify any potential effects that may be material to decision making.

15.1 Meteorological Environment

The Dryden meteorological station, located about 55 km northwest of the Project, provides historical climate data. The station records show variability in temperature, wind, and precipitation over time and across seasons. Extreme temperatures range from 37.5°C in summer to -43°C in winter, with an annual average temperature of 2.4°C.

The area receives an average annual precipitation of 720 mm, with higher amounts from May to October and lower amounts from November to April. The region also experiences about 175 cm of snowfall per year. South winds prevail, shifting to northeast in April. The NWMO has established an on-site meteorological monitoring station to compare with Dryden's data, ensuring representativeness. Data collection began in 2021, covering various parameters like air

temperature, humidity, and wind speed. Results from June 2022 to July 2023 were statistically similar to other regional stations.

The NWMO will continue to collect data to characterize the site area meteorological conditions and consider them in the design of the Project per the requirements of REGDOC-1.2.1.

15.2 Geology and Geological Hazards

The Canadian Shield has been tectonically stable for about a billion years, with localized movement 600 million years ago. The area has undergone cycles of deposition and erosion over the last 500 million years. There are no signs of earthquakes or volcanic activity in the area that would impact the long-term containment of used fuel.

Since 2014, the NWMO has conducted extensive geological investigations at the Project on the Canadian Shield. The NWMO has a comprehensive understanding of the site’s geoscientific characteristics, including potential geological hazards, supporting its suitability and safety for a DGR.

The site is within the Revell Batholith, a 2.7 billion-year-old rock unit, which is suitable for hosting a DGR due to its uniform composition and low movement, or deformation. Deep geology studies undertaken by the NWMO indicate a sufficient volume of homogeneous granitoid rock at a depth of 500 to 800 m, suitable for a DGR. A 3D model shows the Revell Batholith extends nearly 4 km deep.

Surficial geotechnical data collection, additional borehole drilling, seismic surveys, and surface characterization activities will continue to support the regulatory submissions. Ongoing seismic monitoring and a Probabilistic Seismic Hazard Assessment are also planned to provide the information needed for developing a safe design for the structures, systems and components of the DGR. Future work will also include drilling up to an additional 10 deep boreholes and 10 shorter exploration boreholes, along with geological mapping and shallow geotechnical investigations.

15.3 Geochemistry of Mined or Excavated Materials

The NWMO is conducting geochemical testing of rock core samples to support preliminary technical studies related to excavated rock management (both static and kinetic testing to determine the geochemical characteristics and long-term reaction rates of the samples).

Rock mineralogy data from over 100 core samples confirm the bedrock’s homogeneity, with approximately 95 percent of the rock classified as granodiorite-tonalite. This rock type is favourable for constructing a repository due to its low concentrations of sulphur-bearing minerals, which are unlikely to affect the durability of the copper barriers.

The granodiorite-tonalite and amphibolite exhibit low porosity, which helps retard radionuclide movement. The average connected porosity of the granodiorite-tonalite is 0.45 percent, and the total porosity is 1.32 percent. For amphibolite, the connected porosity is 0.15 percent, and the total porosity is 1.79 percent. These properties suggest that the rocks will not adversely affect the environment or water quality once excavated and managed at the surface.

The ongoing geochemical testing program will support preliminary technical studies related to excavated rock management. Given the existing knowledge of the Revell Batholith geology, the results are not expected to show that the rock is potentially acid generating or has metal leaching potential.

Future work will include leachate testing to characterize soluble parts of the excavated rock and to determine whether the leachate becomes acidic or has high concentrations of metals or salt. A comprehensive testing program will be conducted to verify the preliminary findings that the rock at repository horizon is non-potentially acid generating and not toxic.

15.4 Topography, Soil and Sediment

The Project on the Canadian Shield has ground elevations ranging from 400 to 450 m above sea level, with the land sloping northwest. Local watercourses flow southwest towards Mennin Lake. Valleys along the site’s western and southern limits may indicate structural features extending into the bedrock.

Surficial soils consist mainly of glacial till, with overburden material estimated to be 0 to 30 m thick. Approximately 70 percent of the land surface is exposed bedrock or thinly covered by Quaternary sediments.

A baseline soil quality data collection program has been in place since 2021, analyzing contaminants of potential concern (COPCs) such as metals, organics, and nutrients. Most COPC levels were measured below published guidelines, though some exceedances were noted, reflecting the natural, local geology.

Sediment samples collected in 2022 from 23 sites showed variable particle sizes, with silt and clay dominating ponds and lakes, and sands in watercourses. Most samples had COPC levels below published detection limits, but some metals and total organic carbon exceeded guidelines, indicating naturally elevated concentrations.

Additional evaluation of soil and sediment will be completed during ongoing site characterization.

15.5 Atmospheric, Acoustic, and Visual Environment

The local atmospheric environment around the Project is influenced by various sources of COPCs, including industrial emissions from nearby facilities such as Domtar Inc.’s Dryden Mill, Produits Forestiers Résolu’s Ignace Sawmill, and TransCanada PipeLines Ltd.’s Station 58. These industries release fuel combustion by-products; volatile organic compounds; polycyclic aromatic hydrocarbons; dioxins; and furans, metals, chlorinated hydrocarbons, and sulphides.

Additionally, the intersecting rail corridor and Trans-Canada Highway contribute to fugitive dust and fuel combustion by-products. Off-grid diesel-fired power generators and seasonal sources like forest fires also affect air quality.

There are no existing air quality monitoring stations near the Project. The closest stations with publicly available data are in Thunder Bay (240 km away) and Winnipeg (350 km away). A baseline air quality data collection program is underway, and results will be included in the CNSC licence application and the integrated Impact Statement.

Figure 15.1 shows the general existing visual environment.



Figure 15.1: Typical Landscape of the Wabigoon Lake Ojibway Nation and Ignace Area

15.6 Groundwater and Surface Water

The hydrogeology and hydrogeochemistry of the Project site involve understanding the movement of water through rock, referred to as transmissivity. Transmissivity was determined through groundwater sampling, hydraulic packer testing, and geophysical logging.

Groundwater samples were collected from boreholes, with only five instances below 200 m depth where groundwater flowed sufficiently to allow sampling. The composition of groundwater samples indicates increased salinity with depth, suggesting the positive finding of reduced fracture connectivity at deeper levels.

Packer testing in six boreholes showed very low groundwater velocities at potential repository depth. Hydraulically conductive features had higher transmissivity, often associated with fractures near rock contacts. Long-term pressure monitoring confirmed increasing groundwater salinity below 600 m, indicating a stable hydrogeological environment.

Groundwater geochemistry showed fresh water in shallow zones and higher salinity in deep zones, with no evidence of glacial meltwater penetration. Porewater samples indicated old water with residence times over a million years and reducing conditions below 600 m. Baseline groundwater quality data collection is ongoing.

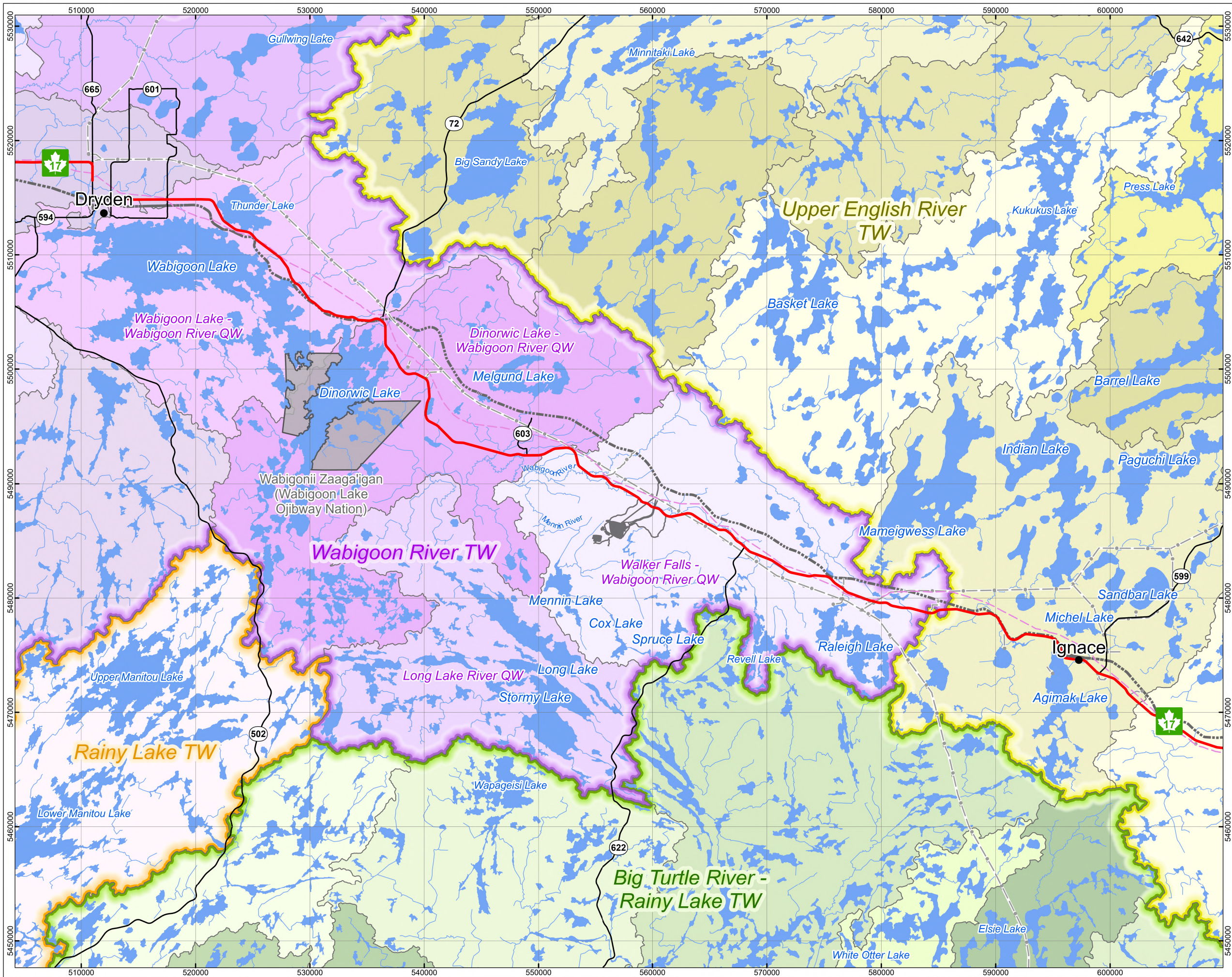
The hydrology of the site is within the Wabigoon River watershed, with water flowing towards Mennin Lake and the Wabigoon River, which and drains into Wabigoon Lake and eventually into Hudson Bay (Figure 15.2). Logging activities have influenced local hydrology, causing more runoff. The NWMO is collecting baseline hydrology data, including water level logging, flow measurements, and bathymetric surveys. Seasonal variations in water levels are within a reasonable range, and flow data for rivers are being established.

The NWMO is collecting baseline surface water quality data quarterly. Data from July 2021 to May 2023 show that the water quality in and around the Project site is typical of a northern, forested environment with mature forests and few human developments.

The water quality is generally good, with suitable dissolved oxygen levels for aquatic life, slightly acidic pH, and low to moderate clarity. Most COPCs are below relevant published guidelines, though some samples exceeded guidelines for phosphorus, aluminum, copper, manganese, and mercury. Bacteriological tests found some E. coli exceedances in the Mennin and Wabigoon rivers and the unnamed watercourse. Overall, the results indicate that some parameters are elevated in the area before the Project’s development.

Water from three, closely spaced wells was included in initial shallow groundwater data collection, and added to the database from six deep boreholes. Long-term monitoring installations will continue to support groundwater system characterization. Ongoing data collection includes quarterly or monthly measurements of groundwater chemistry, nutrients, ions, metals, radionuclides, and semi-volatile organic compounds.

The baseline hydrology program will continue quarterly and monthly measurements of water levels, stream and river flows, and meteorological data. Continued collection of surface water quality measurements will include parameters, such as water chemistry, nutrients, ions, metals, treated sewage effluent indicators, radionuclides, and semi-volatile organic compounds.



LEGEND

Proposed Project Infrastructure

- Proposed DGR Project Footprint

Existing Present Day Infrastructure

- Transmission Line
- Natural Gas Pipeline
- Railway
- Highway 17
- Highway

Tertiary Watersheds (TW) and Quaternary Watersheds (QW)

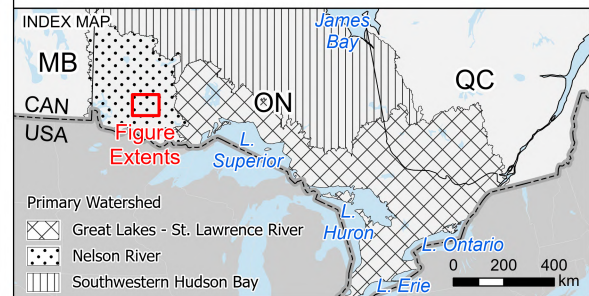
- Wabigoon River TW
- Wabigoon River QW
- Upper English River TW
- Upper English River QW
- Big Turtle River TW
- Big Turtle River QW
- Rainy Lake TW
- Rainy Lake QW

● Community

Wabigoon Lake Ojibway Nation

Watercourse

Waterbody



REFERENCE

Data: CanVec, Government of Ontario, Natural Earth, GEO, OWB, NTS

Projection: Universal Transverse Mercator

Datum: NAD 83 Coordinate System: UTM Zone 15N

OCT-30-2025

0 2 4 6 8 10 km

SCALE 1:320,000

nwmo

NUCLEAR WASTE MANAGEMENT ORGANIZATION

SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

TITLE

Watersheds, Waterbodies and Watercourses

FIGURE: 15.2

15.7 Vegetation, Riparian, and Wetland Environment

Vegetation and wetlands baseline studies within and surrounding the Project included desktop studies followed by field surveys in 2022. The area is primarily upland conifer forest, with some wetlands and rare plant communities.

Two vegetation species of conservation concern and several species of interest to Indigenous Rights holders have been identified. Wetlands are abundant, with swamps being the most common type. A larger number of species were detected in marshes, followed by swamps relative to peatlands (bogs and fen). Marshes naturally contain more open water than other wetland types; therefore, they may also naturally contain more aquatic species. A higher relative percent (by area) of marshes were present in the surrounding region relative to the Project site. This means it is likely that wetlands on site and surrounding the Project site have lower biodiversity relative to wetland marshes in the greater surrounding region.

Future vegetation field studies may include a combination of plant (floristic) inventory and intuitive meander techniques to detect rare plants; culturally important plants; weeds, introduced, and invasive species within and surrounding the Project site; and surveys for potential rare and exemplary plant communities.

Further baseline studies will be conducted to characterize biodiversity in wetland and riparian environments, including water, sediment, and soil.

15.8 Fish and Fish Habitat

The NWMO conducted baseline fish and fish habitat studies in 2021 and 2022. Spawning, rearing, overwintering, and migratory areas for fish were observed within the local and regional investigation areas. The studies observed 55 fish species in the regional area, including 26 detected through eDNA metabarcoding.

Larger lakes have greater species richness. Several important fish habitats, including spawning and nursery areas of various species, were documented within the surrounding region. At this time of study, no potentially important fish habitat (i.e., required to fulfill important life stages of fish species) has been documented within or surrounding the Project site. Potential barriers to fish movement, such as beaver dams and river rapids, were identified in the regional area.

Planned work includes fish community surveys and benthic invertebrate studies. Fish community studies will inform and characterize food web interaction studies within the study areas.

15.9 Birds, Migratory Birds, and Their Habitat

From 2021 to 2022, the NWMO completed ecosystem mapping, habitat suitability modelling, and eDNA sampling to gather baseline information on birds and bird habitat around the Project site. These studies identified 64 upland breeding bird species (including 10 SAR), 3 shorebird species and 10 waterbird species, (all protected under the *Migratory Birds Convention Act*), and 7 raptor species (including 1 SAR). The studies also identified important habitats for these birds, such as breeding and nesting areas.

Future studies will characterize migratory birds, upland breeding birds, waterbirds, and raptors presence and habitat within and around the Project site. These studies will estimate relative abundance, seasonal habitat use, and describe food webs and trophic linkages. Survey methods may include point count surveys, acoustic surveys, autonomous song meters, and various observation techniques for different bird communities.

15.10 Terrestrial Wildlife and Wildlife Habitat

The NWMO has collected baseline data on wildlife and their habitats around the Project site to inform the Project, using both desk-based research and field surveys. Key findings include:

- moose—important for First Nations and communities, with specific habitats identified for feeding and mineral licks
- carnivores—14 species potentially present, with some SAR (e.g., gray fox)
- small mammals—29 species potentially present
- semi-aquatic mammals—5 species potentially present, with beaver and muskrat widely distributed
- bats—6 species potentially present, with 2 SAR detected through acoustic studies
- amphibians—7 species detected
- reptiles—no species detected yet, but potential habitats identified
- invertebrates—surveys not yet conducted, but Yellow-banded bumble bees and Monarch butterflies could be present

Future studies will focus on various wildlife groups around the Project, as necessary, to inform licensing requirements and the Impact Statement. Future field studies for terrestrial invertebrates will be determined based on previous study results and discussions with local Indigenous Nations and communities, and regulatory agencies.

15.11 Species at Risk and Their Habitat

The NWMO is collecting baseline data on federally and provincially listed SAR around the Project. Studies have identified various habitats and species, including:

- ungulates—no woodland caribou habitat within the regional area
- carnivores—potential presence of American badger and gray fox
- small mammals—no SAR detected
- semi-aquatic mammals—no SAR detected
- bats—detected Silver-Haired Bat, Eastern Red Bat, Hoary Bat, Little Brown Myotis, and Northern Myotis; all are SAR
- herpetofauna—observed Snapping Turtle
- terrestrial invertebrates—potential presence of Yellow-banded Bumble Bee and Monarch butterflies
- terrestrial vegetation—Black Ash found approximately 10 km from the Project site
- birds—detected SAR Barn Swallow, Canada Warbler, Evening Grosbeak, Red-headed woodpecker, Olive-sided Flycatcher, Common Nighthawk, Eastern Wood-Pewee, Eastern Whip-poor-will, Lesser Yellowlegs, American White Pelican, and Golden Eagle
- fish: Detected American eel, but further investigation needed

Future studies on SAR will focus on specific species around the Project, as necessary, to support regulatory processes.

15.12 Climate Change

A 2019 report predicts significant temperature increases by the 2050s and 2080s, with more substantial changes in winter. Precipitation is also expected to rise, mainly in winter and spring.

The NWMO installed a temporary weather station at the Project site in 2021. The data from this station and other regional stations show similar climate patterns. This baseline data will help in planning for water management considering these climate changes.

The NWMO has completed an initial Strategic Assessment of Climate Change for the Project and will meet the requirements laid out in the Government of Canada’s *Strategic Assessment of Climate Change*, aiming to reduce GHG from site preparation and construction activities.

The NWMO will continue to collect local and regional meteorological data, including ground frost, snow cover, evapotranspiration, and ice dynamics, for the Impact Statement and the initial licence application to the CNSC.

15.13 Ambient Radioactivity

The section provides information on baseline radioactivity of the area of the Project, including background dose rates, radon concentrations, and radioactivity concentrations in various environmental media.

- Background dose rates—Average background radiation in Canada is about 1.8 millisieverts (mSv) per year, lower than the global average of 2.4 mSv. Radiation levels vary based on location and elevation.
- Radon concentrations—A Health Canada survey found that most homes in the Northwestern Health Unit area, including the Project site, had radon levels below the national guideline of 200 Becquerels (Bq)/m³.
- Baseline radioactivity—The NWMO’s baseline program includes data on surface water, sediment, air, shallow groundwater, soil, and tissue samples. No radionuclides exceeded published guidelines in surface water, and most soil samples had radionuclides below detection limits. Detected radionuclides in soil, like Plutonium-238 and Strontium-90, are attributed to historical nuclear activities. Nineteen naturally occurring radionuclides were assessed in groundwater. No radionuclides exceeded the available guidelines in groundwater.

In addition to continuing the participatory tissue sampling program to collect voluntarily shared samples of the fish, game, and berries native to the proposed site, the NWMO will implement a targeted campaign to sample traditional foods consumed by Indigenous groups and local communities. The planned work also includes continuing to collect radiological parameters in air, soil, and surface water.

Planned data collection within each of these environmental mediums was described earlier in Section 15.5 (atmospheric environment), Section 15.4 (soil quality), and Section 15.6 (surface water quality).

16. HEALTH, SOCIAL, AND ECONOMIC CONTEXT

Socio-economic reporting for APM, including the assessment of the effects of the NWMO’s activities on a community’s way of life and its social, cultural, and economic aspirations, is a mandatory requirement of the NFWA. The NWMO has reported on the effects of APM every three years since it was selected in 2007 as Canada’s plan under Section 18 of the Act. The NWMO has also submitted mitigation measures for social, economic, and cultural impacts for all phases of the Project to the federal government as part of *Choosing a Way Forward: The Future Management of Canada’s Used Nuclear Fuel*, and as required by Section 12(6).

In the case of social, economic, and cultural components, the wealth of available baseline studies completed in the area suggests that many of the anticipated impacts are positive. The publicly

available Ignace Hosting Agreement further outlines commitments that reinforce these positive outcomes through sustained investment in community well-being, infrastructure, and economic development.

The NWMO’s current socio-economic baseline is presented in the *Social, Cultural, Economic, and Health Baseline Studies, Preliminary Report*. The report is supported by extensive data collection and engagement with nearly 500 individuals and 70 organizations, as well as targeted community-specific studies such as the Ignace Area Community Well-Being Studies (InterGroup 2024).

These studies examined how the Project aligns with the Ignace community vision, which is structured around four themes: people, community and culture, infrastructure, and economics and finance. The findings indicate that the Project could strengthen long-term economic stability, attract new residents and businesses, and improve local services and infrastructure through proactive planning.

The Project is located in a sparsely populated area, with nearby communities including Borups Corners, Dymont, Dinorwic, Wabigoon Village, Ignace, Dryden, and Sioux Lookout. The baseline studies aim to capture a broad area to characterize the surroundings of the Project site, with further refinement to occur as regulatory work progresses. The NWMO will update or produce additional social, cultural, economic, and health baseline studies, as required, to include potentially affected Indigenous groups.

In many cases, for the social, economic, and cultural components studied, additional work will be completed to support the IA process, particularly the assessment of Indigenous Peoples. However, the work completed to date, which has been reviewed by IAAC and the Government Review Team, is considered sufficiently advanced to support the screening-level assessment presented in Section E of the IPD.

This assessment demonstrates that many of these components are anticipated to have a low level of risk of adverse effects following the implementation of mitigation measures, as both the likelihood of occurrence and the degree of potential negative impact are small. This approach is consistent with the IAAC’s Operational Policy Statement, which seeks to balance focused and relevant information requirements with the need to identify potential effects that may be material to decision making.

While the current baseline primarily reflects non-Indigenous and municipal communities, the NWMO recognizes that Indigenous data are not yet represented. The NWMO will work collaboratively with potentially affected Indigenous groups through the IA process to ensure that Indigenous social, cultural, economic, and health data are respectfully incorporated into the assessment.

The NWMO’s *Social, Cultural, Economic, and Health Baseline Studies, Preliminary Report* is briefly summarized in the sections that follow and the Ignace Area Community Well-Being Studies (2023) are publicly available on the Ignace Community Nuclear Liaison Committee website at www.icncl.ca/communitystudies.

16.1 Health Conditions

The *Social, Cultural, Economic, and Health Baseline Studies, Preliminary Report for Engagement, WLON-Ignace Area* (InterGroup 2024) compares health outcomes for Ignace, the Dryden Health Hub, and the Northwestern Health Unit (NWHU) with Ontario averages.

Key findings of this report includes higher rates of chronic diseases and mental health issues in the NWHU compared to the remainder of Ontario. Cancer rates are higher in Ignace, with lung, prostate, and colon cancers being the most common. Mental health and addiction services are stated insufficient, particularly for youth. Injury rates are high in the NWHU, and mortality rates are lower in Ignace compared to the Dryden Health Hub.

16.2 Social Determinants of Health

The social determinants of health are non-medical factors that influence health outcomes, such as income, education, employment, and housing. In 2020, a significant percentage of households in Ignace, Kenora district, and Ontario were considered low income. Education levels in Ignace are lower compared to the remainder of Ontario, with a higher percentage of residents having no certificate, diploma, or degree.

Housing quality is poorer in northwestern Ontario, with a higher percentage of dwellings needing major repairs compared to the provincial average. Housing costs vary, with Ignace having lower costs than Dryden and Kenora. Health indicators show that residents in the NWHU area have higher body mass index scores, smoking rates, and heavy drinking rates compared to Ontario as a whole. Ignace mothers reported higher breastfeeding rates compared to the NWHU.

Mental health is a priority for local health services, and disparities exist between Indigenous and non-Indigenous populations in health outcomes. Other social determinants of health investigated include culture, race, racism, homelessness, and social cohesion.

16.3 Access to Community Health Care

Health services in the area surrounding the Project site are provided by several organizations. In Ignace, the Mary Berglund Community Health Centre Hub offers general health care, mental health services, and a pharmacy but is operating near capacity and lacks space for expansion. Residents requiring specialized care travel to larger centres such as Dryden, Kenora, Sioux Lookout, or Thunder Bay. Service gaps remain in areas such as addiction treatment, mental health support, senior care, and crisis response.

16.4 Traditional Foods and Medicines

People in northwestern Ontario consume a variety of locally harvested foods, including fish (e.g., walleye and pike), and plants (e.g., berries, mushrooms, and wild rice). Hunting for moose, grouse, duck, and deer is common, as is trapping beaver and marten. Drinking water sources include wells and larger lakes like Wabigoon Lake for Dryden and Michel Lake for Ignace.

Studies show that traditional foods in the area generally have low levels of contaminants, though mercury in fish and lead from hunting shot are exceptions. The First Nations Food, Nutrition & Environment Study found that traditional foods, such as moose, walleye, and blueberries, are commonly consumed. Some lakes in the area have fish consumption advisories due to mercury and polychlorinated biphenyls, but the Project is not expected to release these contaminants.

As discussed in Section 15.13, the NWMO’s environmental data collection program includes a participatory tissue sampling program through which local community members can submit relevant foodstuffs for chemical and radiological analysis. This includes fish, wild game, fruits and vegetables, medicinal plants, maple syrup, and honey. In addition to continuing the participatory tissue sampling program, the NWMO will implement a targeted campaign to sample traditional foods consumed by Indigenous groups and local communities.

16.5 Population and Demographics

Population and demographic trends across the area surrounding the Project site reflect an aging population, modest regional growth, and the continued demographic importance of Indigenous groups and communities. Sioux Lookout and Dryden have experienced population increases, while Ignace has declined and Wabigoon has remained stable.

The Kenora Census Division has grown steadily since 1991, supported by a younger and expanding Indigenous population whose median age remains lower than that of non-Indigenous residents. In contrast, smaller municipalities show rising median ages and limited population replacement, driven by youth out-migration and an aging workforce. First Nations such as

Wabigoon Lake Ojibway Nation, Eagle Lake, Lac Seul, Lac Des Mille Lacs, and Seine River have all seen moderate population growth and gradual aging, though on-reserve populations vary.

These demographic patterns influence local infrastructure, housing, education, recreation, and health service needs and highlight the ongoing influence of the region’s resource-based economy on population mobility and community change.

16.6 Community and Culture

CWB in the region is shaped by social, economic, environmental, cultural, and political factors that support residents’ quality of life. Communities value their small-town character, connection to nature, and resource-based economy, though challenges persist with food insecurity, aging populations, and income disparities. The area has a long Indigenous history, with Indigenous Peoples maintaining deep cultural and spiritual ties to the land within the Treaty #3 territory. Settler communities such as Ignace, Dryden, and Sioux Lookout each developed around rail, forestry, and mining industries and now function as service hubs with CWB Index scores ranging from the mid-70s to low 80s. Smaller communities like Melgund and Wabigoon face limited resources and service capacity but share similar cultural values centred on community resilience, northern identity, and connection to the natural environment.

16.7 Infrastructure and Services

16.7.1 Currently Available Baseline Data

Overall, the region’s infrastructure and services are generally adequate but face notable gaps in childcare, senior supports, and shelter services. Housing diversity is limited, and population aging and youth out-migration present ongoing challenges.

Ignace’s infrastructure was originally built for a larger population and remains in good condition, though upgrades to its sewage treatment plant will be required within the next decade. Dryden, the regional service hub, has significant capacity in its water and wastewater systems but limited childcare and senior services.

Smaller municipalities such as Sioux Lookout maintain functional but aging infrastructure, rely heavily on volunteer fire services, and face pressures related to wastewater capacity and mental health supports. Unincorporated communities, including Wabigoon, Melgund, and Dinorwic, depend on private water and wastewater systems and have minimal waste collection and emergency services.

16.8 Non-Indigenous Land and Resource Use

The Project would cover approximately 342 ha on provincial Crown land in the Kenora Mining Division in Northwestern Ontario. The region has been disturbed by tree harvesting in the past, and there are no active mines, claims, or abandoned mines within the site. There are several mining claims and leases within 5 to 10 km of the site. The site is situated within trapline DR024, Bait Harvest Area DR0046, and overlaps with trapline IG033 and Bear Management Area IG-09A-040. It is also located within the Ontario Federation of Snowmobile Clubs’ District 17, with residents using all terrain vehicles and snowmobiles through the site as an unofficial trail system.

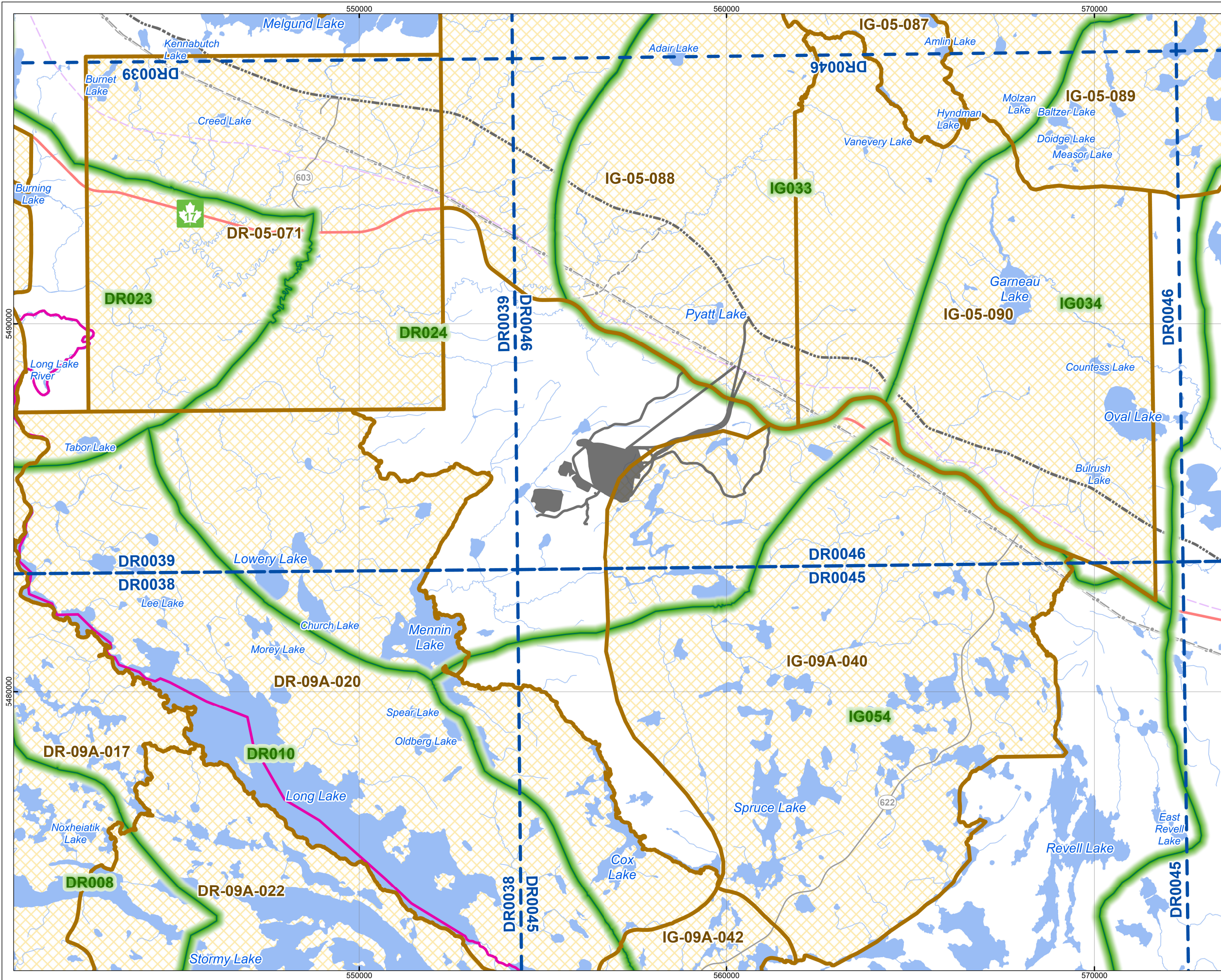
In the broader regional area, there are more than 90 landowner parcels, camps/cottages, recreational fishing spots, a tourist camp, hiking, all terrain vehicle, and snowmobile trails. There are no active mines, commercial fishing licenses, commercial fisheries, or navigable waters at the Project site and surrounding area.

Government of Ontario administrative areas in the broader area include Fisheries Management Zones 4 and 5, Wildlife Management Units, Bait Harvest Area DR0046, and traplines DR024, IG033, and IG054. Four Bear Management Areas are also in the broader area. The Project site is

predominantly in the Wabigoon Forest Management Unit but extends into the Dryden Forest Management Unit to the north.

Outfitting and guiding are critical to tourism in the area, offering hunting and fishing experiences. Fishing is the most popular tourism activity, followed by hunting. The natural environment is a source of enjoyment and pride for communities, and its integrity is crucial to their sense of place and quality of life.

Residents participate in various land and resource use activities, including fishing, hunting, trapping, gathering, hiking, using all terrain vehicles, snowmobiling, and boating. Hunting and fishing are both a lifestyle and a source of food for residents. Traditional land and resource use, including access to culturally important resources and traditional foods, is present in the area. Within the Project site, there is minimal land and resource use activity, and the site generally does not interfere with community use. Commercial uses include forestry, trapping, and bait harvesting.



LEGEND

Proposed Project Infrastructure

- Proposed DGR Project Footprint

Existing Present Day Infrastructure

- Transmission Line
- Natural Gas Pipeline
- Railway
- Highway 17
- Highway

Other Features

- Ontario Trail Network
- Bait Harvest Area
- Registered Trapline Area
- Bear Management Area
- Watercourse
- Waterbody

INDEX MAP

Figure Extents

REFERENCE

Data: GEO, Government of Ontario, Natural Earth
 Projection: Universal Transverse Mercator
 Datum: NAD 83 Coordinate System: UTM Zone 15N
 OCT-11-2025

SCALE 1:100,000

nwm
 NUCLEAR WASTE MANAGEMENT ORGANIZATION / SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

TITLE
 Bait Harvest Areas, Registered Traps, Bear Management Areas, and Ontario Trail Network

FIGURE: 16.1

16.9 Economic Conditions

Northwestern Ontario’s economy is primarily resource-based, with a long history of mining and forestry operations. The cyclical nature of these industries has led to economic fluctuations, affecting population changes in the surrounding communities. Other industries include health care, retail trade, public administration, educational services, and tourism, with health care and retail trade being among the largest employers.

The local population is aging, and retaining younger people has been challenging due to better employment opportunities in larger communities. The Project is expected to create employment, potentially affecting labour force characteristics, income, education, training, business opportunities, municipal finances, and the cost of living.

In 2021, the Kenora Census Division had a total of 50,995 people aged 15 and over, with 29,250 in the labour force. The participation rate declined from 64.1 percent in 2006 to 57.3 percent in 2021. The employment rate also decreased from 58.5 percent in 2006 to 52.4 percent in 2021. The unemployment rate remained relatively stable, with 8.8 percent in 2006 and 8.7 percent in 2021. The average personal income in 2020 was \$49,360, with males earning \$54,700 and females \$44,080. Indigenous individuals had an average personal income of \$39,342 compared to \$54,325 for non-Indigenous individuals.

In Ignace, the participation rate declined from 66.9 percent in 2006 to 51.3 percent in 2021. The employment rate also decreased from 60.3 percent in 2006 to 44.6 percent in 2021. The unemployment rate increased from 10.6 percent in 2006 to 13 percent in 2021. The average personal income in 2020 was \$53,100, with males earning \$70,400 and females \$35,400.

In Dryden, the participation rate declined from 64.7 percent in 2006 to 58 percent in 2021. The employment rate decreased from 60.9 percent in 2006 to 53.1 percent in 2021. The unemployment rate increased from 5.9 percent in 2006 to 8.3 percent in 2021. The average personal income in 2020 was \$52,850, with males earning \$62,550 and females \$43,600.

In Sioux Lookout, the participation rate declined from 78.5 percent in 2006 to 70.6 percent in 2021. The employment rate decreased from 75.3 percent in 2006 to 66.7 percent in 2021. The unemployment rate increased from 4.2 percent in 2006 to 5.7 percent in 2021. The average personal income in 2020 was \$60,200, with males earning \$66,200 and females \$54,500.

D. INDIGENOUS, FEDERAL, PROVINCIAL, TERRITORIAL, AND MUNICIPAL INVOLVEMENT AND EFFECTS

17. FINANCIAL SUPPORT FROM FEDERAL AUTHORITIES

No financial support is being provided by federal authorities to the Project.

18. FEDERAL LAND THAT MAY BE USED

No federal lands are being used for the purpose of carrying out the Project.

19. INDIGENOUS, FEDERAL, AND PROVINCIAL ENVIRONMENTAL APPROVALS

The Project has been selected by the Government of Canada as Canada’s plan for the long-term management of used nuclear fuel. The NWMO is responsible for implementing that plan subject to all applicable Indigenous, federal, and provincial approvals and permits.

19.1 Wabigoon Lake Ojibway Nation’s Regulatory Assessment and Approvals Process

Wabigoon Lake Ojibway Nation is exercising its jurisdiction through its RAAP. The RAAP is WLON’s regulatory process grounded in Anishinaabe law, values, and responsibilities, and reflects WLON’s authority to review and decide on development within its territory.

The NWMO is contractually committed, through the Hosting Agreement, to supporting WLON in the implementation of the RAAP with respect to the Project. The language used to define the WLON RAAP in this section has been provided by WLON to define their process in NWMO’s IPD. NWMO has retained this language to be respectful of WLON’s leadership and contributions to the IPD.

19.2 Federal Approvals

Under the IAA, preliminary actions require consideration of whether impact assessments are necessary for activities associated with designated projects, as defined in the *Physical Activities Regulations* (SOR/2019-285).

Specifically, Section 28(b) designates “the construction and operation of a new facility for the long-term management or disposal of irradiated nuclear fuel or nuclear waste” as a project requiring assessment. The IPD must be prepared according to the *Information and Management of Time Limits Regulations* (SOR/2019-283), including an initial compilation of project information.

After submission of the IPD and stakeholder engagement, the IAAC determines whether an impact assessment is required, considering whether other means exist to address adverse effects within federal jurisdiction, as well as direct or incidental adverse effects. If the IAAC requires an impact assessment and the Project activities are regulated under the *Nuclear Safety and Control Act* (NSCA), the Minister must refer the assessment to a review panel under Section 43 of the IAA.

In accordance with NSCA paragraph 2(g) and paragraph 1(e) of the *Class I Nuclear Facilities Regulations*, the Project is classified as a Class 1B nuclear facility. Paragraph 26(e) of the NSCA states, “Subject to the Regulations, no person shall, except in accordance with a licence to prepare a site, construct, operate, modify, decommission or abandon a nuclear facility.”

Licensing requirements are detailed in Section 3 of the *General Nuclear Safety and Control Regulations* and the *Class I Nuclear Facilities Regulations*. Additional applicable regulations include the *Nuclear Security Regulations*, *Radiation Protection Regulations*, and *Packaging and Transport of Nuclear Substances Regulations, 2015*, which apply to all nuclear facilities.

The CNSC also issues REGDOCs relevant to waste management facilities and long-term safety assessments, notably the REGDOC-2.11.1 Series. More generally, the regulatory framework for a licence is organized into 14 safety and control areas. These areas, and examples of regulatory documents that will apply to the Project, are listed in Table 19.1.

Table 19.1: Canadian Nuclear Safety Commission Regulatory Documents Applicable to the Project

Document Number	Topic
Key references related to waste management facilities	
REGDOC-1.2.3	<i>Licence Application Guide: Licence to Prepare Site for a Deep Geological Repository</i>
REGDOC-1.2.1	<i>Guidance on Deep Geological Repository Site Characterization</i>
REGDOC-2.11	<i>Framework for Radioactive Waste Management and Decommissioning in Canada</i>
REGDOC-2.11.1	<i>Waste Management, Volume I: Management of Radioactive Waste (to be published)</i>
REGDOC-2.11.1	<i>Waste Management, Volume III: Safety Case for the Disposal of Radioactive Waste</i>
Other areas relevant to a licence application	
REGDOC-2.1.1	<i>Management System</i>
REGDOC-2.1.2	<i>Safety Culture</i>
REGDOC-2.2.1	<i>Human Factors</i>
REGDOC-2.2.4	<i>Fitness for Duty, Volume III: Nuclear Security Officer Medical, Physical, and Psychological Fitness</i>
REGDOC-2.3.1	<i>Conduct of Licensed Activities: Construction and Commissioning Programs</i>
REGDOC-2.4.3	<i>Nuclear Criticality Safety</i>
REGDOC-2.4.4	<i>Safety Analysis for Class IB Nuclear Facilities</i>
REGDOC-2.5.1	<i>General Design Considerations: Human Factors</i>
REGDOC-2.5.4	<i>Design of Uranium Mines and Mills: Ventilation Systems</i>
REGDOC-2.7.1	<i>Radiation Protection</i>
REGDOC-2.8.1	<i>Conventional Health and Safety</i>
REGDOC-2.9.1	<i>Environmental Protection: Environmental Principles, Assessments and Protection Measures</i>
REGDOC-2.9.2	<i>Environmental Protection: Controlling Releases to the Environment</i>
REGDOC-2.10.1	<i>Nuclear Emergency Preparedness and Response</i>
REGDOC-2.11.2	<i>Decommissioning</i>
REGDOC-2.12.2	<i>Site Access Security Clearance</i>
REGDOC-2.12.3	<i>Security of Nuclear Substances: Sealed Sources and Category I, II or III Nuclear Material, Version 2</i>
REGDOC-2.13.1	<i>Safeguards and Nuclear Material Accountancy</i>
REGDOC-3.1.2	<i>Reporting Requirements, Volume I: Non-Power Reactor Class I Facilities and Uranium Mines and Mills</i>

Document Number	Topic
Key references related to waste management facilities	
REGDOC-3.2.1	<i>Public Information and Disclosure</i>
REGDOC-3.2.2	<i>Indigenous Engagement</i>
REGDOC-3.3.1	<i>Financial Guarantees for the Decommissioning of Nuclear Facilities and Termination of Licensed Activities</i>
REGDOC-3.5.3	<i>Regulatory Fundamentals</i>
REGDOC-3.6	<i>Glossary of CNSC Terminology</i>

Note: Current versions of the CNSC regulatory documents can be found on the CNSC website (www.cnsccsn.gc.ca).
CNSC = Canadian Nuclear Safety Commission; REGDOC = regulatory document.

In addition to the IA and CNSC licensing, the Project may also be subject to other federal approvals and authorizations, including those under the *Fisheries Act*, *Species at Risk Act*, *Aeronautics Act*, and *Explosives Act*. Table 19.2 provides a list of potential federal permits and approvals that the Project may be subject to.

Table 19.2: Other Potential Federal Permits and Approvals for the Project

Potential Permit/Approval	Responsible Authority	Description/Facility
SARA Permits – SARA	ECCC	For wildlife species listed on Schedule 1 of SARA, if any part of their critical habitat or the residences of their individuals is affected by the Project.
Migratory Bird Permits - <i>Migratory Birds Convention Act, 1994</i>	ECCC	If birds on Schedule 1 of the <i>Migratory Birds Convention Act, 1994</i> , are present, this may require additional work to be completed by the proponent regarding the nest abandonment notification provisions.
Nest Protections – <i>Migratory Birds Regulations, 2022</i>	ECCC	For protection of nests containing eggs or young if affected by the Project.
Authorization for Harmful Alteration, Disruption or Destruction of Fish Habitat or Death of Fish by means other than Fishing – <i>Fisheries Act</i>	DFO	For direct impacts on fish habitat if needed, and indirect impacts on fish habitat, including flow reductions. An approved fisheries offset plan will be required.
Approval by National Protection Program – <i>Canadian Navigable Waters Act</i>	Transport Canada	For work in, on, under, through or across navigable waters.
Aeronautical Obstruction Clearance – <i>Canadian Aviation Regulations, Aeronautics Act</i>	Transport Canada	Marking and lighting for structures that could interfere with aeronautical navigation.
ERAP, or Equivalency Certificate – <i>Transportation of Dangerous Goods Act, 1992</i>	Transport Canada	An approved emergency response plan for storage of explosives and explosive-related materials.
CoF under the <i>Canadian Transportation Act</i>	Transport Canada	Certificate for transport packages and licence for the transport of used nuclear fuel.

Potential Permit/Approval	Responsible Authority	Description/Facility
Certificate of Transport Packages, and Transport Licences – <i>Packaging and Transport of Nuclear Substances Regulations, 2015</i>	CNSC	Transportation of used nuclear fuel.
Licence for Magazine – <i>Explosives Act</i>	NRCan	Licence for explosive magazine to ensure that explosives are appropriately stored.
Land Use Clearance – <i>Aeronautics Act</i>	Nav Canada	Construction of tall structures, use of cranes, transmission line towers that may interfere with local airstrips/aerodromes.
ROC – <i>Railway Safety Act</i>	Transport Canada	Authorizes railway operation in Canada.

CNSC = Canadian Nuclear Safety Commission; CoF = Certificate of Fitness; DFO = Fisheries and Oceans Canada; ECCC = Environment and Climate Change Canada; ERAP = Emergency Response Assistance Plans; NRCan = Natural Resources Canada; ROC = Railway Operating Certificate; SARA = *Species at Risk Act*.

19.3 Potential Provincial Approvals

Provincial approvals may also apply to federal undertakings. As discussions about the applicability of Ontario provincial laws to the Project have not yet occurred, aspects of the Project may be subject to provincial regulatory requirements. The following could be applicable to the Project:

- EAs
- Class EA requirements, such as
 - Class EA for Resource Stewardship and Facility Development Projects
 - Class EA for Transmission Facilities
 - Class EA for Provincial Transportation Facilities and Municipal Highways

In addition, some activities may trigger requirements outlined in Ontario Regulation 50/24, (e.g., emergency diesel generators) if they do not meet the exemption criteria.

Provincial permits and permissions may also be required related to:

- protected species
- merchantable timber and aggregates
- work within waterways
- work on and transfer of public lands
- air and noise emissions
- sewage works, including stormwater management works and large subsurface sewage disposal systems if on-site sewage generation is greater than 10,000 litres per day (L/d)
- water takings over 50,000 L/d

19.4 Canadian Codes and Standards, Safeguards, and International Guidance

The Project is governed by a comprehensive framework of Canadian codes, standards, and international obligations. Key national requirements include adherence to standards for radioactive waste management, civil and fire safety, electrical installations, nuclear facility management systems, environmental monitoring, occupational health and safety, and labour relations. Compliance with these will be demonstrated in future licence applications.

Additionally, Canada’s international treaty commitments regarding nuclear safeguards are addressed through specific CNSC licence conditions and a dedicated safeguards program. While Canadian guidance and standards are informed by international best practices and documents, only Canadian authorities hold regulatory powers over the Project.

E. POTENTIAL EFFECTS OF THE PROJECT

This section aims to offer comprehensive information for IAAC to support the creation of Tailored Impact Statement Guidelines for the Project, if it is determined that an IA is required. The section is structured as follows:

- A description of any changes that, as a result of the carrying out of the Project, may be caused to components of the environment that are within legislative authority of Parliament (Section 20).
- A description of any changes to the environment that, as a result of carrying out the Project, may occur on federal lands or lands outside Ontario (Section 21).
- A description of any impact on Indigenous Peoples of Canada as a result of carrying out of the Project (Section 22).
- An estimate of any greenhouse gas emissions associated with the Project (Section 23).
- A description of any waste and emissions that are likely to be generated during any phase of the Project and a description of the plan to manage them (Section 24 and 25).
- An overall summary of conclusions and a path forward (Section 26).

20. DESCRIPTION OF ANY CHANGES TO COMPONENTS OF THE ENVIRONMENT WITHIN THE LEGISLATIVE AUTHORITY OF PARLIAMENT

As any work or undertaking constructed for the possession or use of a nuclear substance is declared to be to the general advantage of Canada in subsection 71 of the NSCA, the Project is a federal work or undertaking as defined under the *Canadian Environmental Protection Act, 1999*. Therefore, any non-negligible adverse effects within federal jurisdiction, as defined under the IAA, include changes to the environment, or to health, social, and economic conditions and the positive and negative consequences of those changes that are likely to be caused by the carrying out of the Project.

As described in the *Guide to Preparing an Initial Project Description and a Detailed Project Description* (IAAC 2025), the description of effects provided in this IPD could be reviewed by IAAC in determining whether an impact assessment is required. Should it be determined that an IA is required, IAAC will prepare Tailored Impact Statement Guidelines.

20.1 Identification of Potential Effects, Pathways of Change, and Risk Screening

As described in the *Operational Policy Statement: Development of Tailored Impact Statement Guidelines* (IAAC 2022), the development of the Guidelines is informed by the anticipated level of risk inherent in a predicted effect. Risk is a function of the likelihood that an adverse effect may happen, following the application of mitigation measures, and the degree of negative impact that may result from its occurrence. To meet the requirements of Schedule 1, Part E of the *Information and Management of Time Limits Regulations*, and inform the development of Tailored Impact Statement Guidelines as outlined in the Operational Policy Statement, this section presents a systematic consideration of how Project components and activities may interact with the environment and result in changes (i.e., non-negligible effects) to the environment and health, social, and economic conditions of non-Indigenous Peoples.

The objectives of this section are to:

- identify components of the natural, social, health, and economic environments that could potentially be affected by the Project
- identify pathways of changes and potential non-negligible effects on each previously identified component and describe the degree of the adverse or positive effect
- identify environmental design features, mitigation, and protection measures that would be implemented to reduce adverse effects or enhance positive effects
- identify the potential for residual effects on previously identified components
- provide a preliminary screening of risk inherent to predicted residual effects, informed by likelihood and degree of impact

20.1.1 Valued Components and Intermediate Components

Valued components are key environmental, health, social, and economic aspects of particular importance to stakeholders that may be affected by the Project and guide focused, transparent IA. Identified valued components include:

- climate change
- fish and fish habitat

- vegetation, riparian, and wetland environments
- migratory and SAR birds
- terrestrial wildlife and wildlife habitat
- non-Indigenous health conditions
- non-Indigenous economic conditions
- non-Indigenous social conditions
- Indigenous physical and cultural heritage, and structures, sites, or things of significance
- current use of lands and resources for traditional purposes by Indigenous Peoples
- health conditions of Indigenous Peoples
- social conditions of Indigenous Peoples
- economic conditions of Indigenous Peoples

Intermediate components are physical or environmental factors like air or water quality that support valued components. They are assessed to understand their influence on these ultimate receptors. Identified intermediate components include:

- air quality
- noise, vibration, and light
- hydrogeology (groundwater quality and quantity)
- hydrology
- surface water quality
- topography, sediment, and soils

The final list of valued components and intermediate components will be refined through the IA process, informed by feedback from Indigenous groups, the public, and federal authorities.

20.1.2 Pathways of Change Screening

A pathway of change screening was completed to identify potential adverse effects on valued components and intermediate components. The screening identifies potential adverse effects by evaluating how Project activities may interact with intermediate and valued components. A description of their degree of magnitude was provided to inform a preliminary understanding of the effect before applying environmental design features or mitigation measures.

The NWMO then identified feasible design and mitigation practices to avoid or minimize effects. Where residual effects were identified (i.e., effects that could not be fully avoided or mitigated and a measurable change to components still exists), they were carried forward to preliminary residual effects risk screening. 4 in the IPD presents the pathways of change screening.

The pathways of change screening and preliminary risk assessment screening presented in this section are focused on changes to the environment or to the health, social, and economic conditions of non-Indigenous Peoples. Section 22 describes the anticipated impacts on Indigenous Peoples, following a similar approach.

20.1.3 Preliminary Residual Effects Risk Screening

The preliminary residual effects risk screening is a qualitative tool used to evaluate the inherent risk of residual environmental effects identified during the pathway of change screening. It helps identify valued and intermediate components that may be more susceptible to adverse effects and, therefore, require further assessment during the Impact Statement phase.

Risk is conceptualized as a function of two dimensions: the likelihood that an adverse effect will occur after mitigation measures are applied, and the degree of negative impact that may result from its occurrence (IAAC 2022). Definitions for both “degree” and “likelihood” are provided in Table 20.1.

Table 20.1: Definitions for Different Degree and Likelihood Ratings

Rating	Degree	Likelihood
High	<ul style="list-style-type: none"> Exceeds regulatory guideline thresholds. Results in a clear, noticeable impact on environmental, social, or economic components. The change is well beyond natural variation. 	<ul style="list-style-type: none"> The effect is certain to occur.
Moderate	<ul style="list-style-type: none"> Approaching regulatory guideline thresholds but does not exceed them. More pronounced than natural variation and may result in perceptible effects on environmental, social, or economic components. 	<ul style="list-style-type: none"> The effect is probable to occur.
Low	<ul style="list-style-type: none"> A noticeable change that remains well within regulatory guideline values. Comparable to natural variation. 	<ul style="list-style-type: none"> The effect is possible to occur.
Negligible	<ul style="list-style-type: none"> A change that is sufficiently small such that it is unlikely to result in any noticeable effect on environmental, social, or economic components. Remains well below regulatory guideline thresholds. Within the bounds of natural variation. 	<ul style="list-style-type: none"> The effect is unlikely to occur.

The accompanying risk matrix (Table 20.2) combines these two dimensions to categorize outcomes from negligible to extreme risk using a colour-coded scale. The matrix provides an anticipated level of residual risk for consideration in developing the Tailored Impact Statement Guidelines as described in the Operational Policy Statement.

Table 20.2: Risk Matrix

Degree	High	Low risk	Moderate risk	High risk	Extreme risk
	Moderate	Low risk	Low risk	Moderate risk	High risk
	Low	Negligible risk	Low risk	Low risk	Moderate risk
	Negligible	Negligible risk	Negligible risk	Low risk	Low risk
		Negligible	Low	Moderate	High
Likelihood					

In this screening, high or extreme risks indicate potential for significant adverse effects without additional mitigation or controls and require further analysis. For example, continual exceedances of ambient air quality guidelines at sensitive receptors (such as hospitals, schools, or community areas) would pose a high risk to human health.

Moderate risks suggest that additional controls may be needed to prevent significant effects, such as near-exceedances of air quality criteria under certain conditions. Low or negligible risks indicate that no further mitigation or analysis is required, as effects (for example, concentrations of contaminants of concern in air quality) remain well below applicable guidelines or within natural variation.

The preliminary risk screening concluded that residual adverse effects on identified intermediate and valued components are anticipated to be negligible to low risk, following the implementation of environmental design features, mitigation, and protection measures. The outcomes of the preliminary residual effects risk screening serve to focus the scope of the Impact Statement on those components where residual effects may be more pronounced so that the assessment remains targeted, proportionate, and aligned with the principles of the Operational Policy Statement. A summary of the preliminary risk screening is presented in Table 20.3.

The NWMO recognizes these are preliminary conclusions, as the completion of the quantitative modelling to describe anticipated effects has not yet been completed. Nevertheless, there is a high level of confidence in the proposed mitigation and protection measures, which are grounded in proven practices and established regulatory standards. Comprehensive monitoring programs will be implemented to verify the performance of environmental design features and mitigation measures, with adaptive management applied as needed to ensure continued effectiveness.

In reaching these conclusions, the analysis also considered the oversight provided by other legislation and regulatory frameworks, including the NSCA, NFWA, and applicable federal and provincial permitting requirements. Together, these frameworks provide robust safeguards that reduce residual risk and support the rationale for excluding certain components from further assessment in the Impact Statement under the IAA.

While these intermediate and valued components may not be material to decision making under the IAA due to their negligible to low-risk characterization, they remain important to decision making under the NSCA and harmonization with WLON’s Indigenous-led assessment. Further assessment, including required studies, modelling, and evaluation, will be undertaken and incorporated into the NWMO’s integrated initial licence application and Impact Statement.

Table 20.3: Preliminary Residual Effects Risk Screening Results

Intermediate or Valued Component	Degree of Adverse Residual Effects	Likelihood of Adverse Residual Effects	Risk of Adverse Residual Effects
Intermediate Components			
Air quality	Low	Low	Low risk
Noise, vibration, and light	Negligible	Negligible	Negligible risk
Hydrogeology	Low	Low	Low risk
Hydrology	Low	Moderate	Low risk
Surface water quality	Low	Moderate	Low risk
Topography, soils, and sediment	Low	Moderate	Low risk
Valued Components			
Climate change	Negligible	High	Low risk
Fish and fish habitat	Negligible	Moderate	Low risk
Vegetation, riparian, and wetland environments	Negligible	High	Low risk
Migratory and species at risk birds	Negligible	Moderate	Low risk
Terrestrial wildlife and wildlife habitat	Negligible	Low	Low risk
Non-Indigenous health conditions	Negligible	Negligible	Negligible risk
Non-Indigenous economic conditions	Not applicable; only positive residual effects anticipated		
Non-Indigenous social conditions	Low	Moderate	Low risk

21. POTENTIAL CHANGES TO THE ENVIRONMENT ON FEDERAL LANDS OR LANDS OUTSIDE ONTARIO

There are no federal lands located near the Project site, and no portion of the proposed development is planned to occur on federal lands. Additionally, although the NWMO is an entity regulated at the federal level by the CNSC, it is not a federal government agency or federal authority. Rather, it is a not-for-profit organization mandated by the federal government under the NFWA to manage Canada’s nuclear waste. The NWMO is entirely funded by the nuclear industry.

There are no expected changes to federal lands, including reserve lands, from the Project.

Subject to the outcome of the IA process, the Project lands will be transferred from the provincial Crown and become privately held by the NWMO. They will not be classified as federal lands.

The Project will not result in changes to the natural, biophysical, or human environment in provinces or territories outside of Ontario. This will be confirmed through future modelling.

The Project is located more than 210 km from the Ontario–Manitoba border. The Project is not of a scale or location that it could result in changes to the environment outside of Canada. The Project is located more than 140 km from the Ontario–United States border.

22. POTENTIAL EFFECTS ON ANISHINAABE PEOPLE OF WABIGOON LAKE OJIBWAY NATION AND OTHER INDIGENOUS GROUPS IDENTIFIED IN SECTION 4.3

The NWMO recognizes that WLON is the most proximate Nation to the Project, with the closest member located 12 km from the Project site. A foundational principle derived through the engagement component during the NWMO's site-selection process was the requirement that the most proximate Indigenous community to the Project be a host community.

As explained in Section 4.3, the NWMO will continue to engage with WLON and other Indigenous groups that may be affected by the carrying out of the Project to understand what aspects of the Project could result in impacts on, or changes to, their environment. To this end, and to meet the requirements of Section 21 and 22 of the *Guide to Preparing an Initial Project Description and a Detailed Project Description* (IAAC 2025), the NWMO has presented only a preliminary assessment of non-negligible adverse impacts that may be caused by the carrying out of the Project with respect to Indigenous Peoples. This assessment is based on Project-related engagement and technical studies completed to date. The assessment of effects on Indigenous Peoples would follow the same approach as that presented in Section 20.

Currently, the valued components for WLON and other Indigenous groups that may be affected by the carrying out of the Project (Table 22.1) are based on the *Guide to Preparing an Initial Project Description and a Detailed Project Description* (IAAC 2025). These valued components are considered preliminary and will be defined through future engagement.

Through engagement, the NWMO will aim to understand how the carrying out of the Project may affect these components as defined by each Nation. The NWMO's engagement will be informed by Anishinaabe and Indigenous Knowledge shared by each First Nation and the assessment of Project effects on intermediate and valued components presented in Section 20.

Table 22.1: Indigenous Groups, Preliminary Valued Components, Measurement Indicators, Assessment Endpoints, and Components That Could Influence or Inform Their Assessment

Potentially Affected Indigenous Group	Valued Components	Measurement Indicators and Assessment Endpoints	Intermediate Components and Valued Components That Could Influence Assessment of Indigenous Group Valued Components
<ul style="list-style-type: none"> • Wabigoon Lake Ojibway Nation • Eagle Lake First Nation • Lac Seul First Nation • Lac des Mille Lacs First Nation • Seine River First Nation 	<p>Components are to be defined by each Indigenous group. The preliminary list here reflects the requirements of Schedule 1, Section 21, of the <i>Information and Management of Time Limit Regulations</i>:</p> <ul style="list-style-type: none"> ▪ Indigenous physical and cultural heritage, and structures, sites, or things of significance (e.g., on both reserve and non-reserve lands, spiritual lands, ceremonial sites). ▪ Current use of lands and resources for traditional purposes (e.g., wild rice, blueberries, moose [plus cumulative effects from forestry and mining], trapping, fish, peat resources, sport fishing, chanterelles, restricted access). ▪ Health and well-being of Indigenous Peoples (e.g., contaminants in fish, wildlife, water, seepage). ▪ Social conditions of Indigenous Peoples (e.g., proximity to the site for First Nation members). ▪ Economic conditions of Indigenous Peoples (e.g., wild rice, cutting wood, baitfishing, benefits to the First Nation, chanterelles). 	<p>To be defined by each Indigenous group through engagement</p>	<ul style="list-style-type: none"> ▪ Air quality ▪ Noise, vibration, and light ▪ Groundwater ▪ Hydrology ▪ Surface water quality ▪ Topography, sediment, and soils ▪ Fish and fish habitat, including aquatic species at risk ▪ Vegetation, riparian, and wetland environments ▪ Migratory and species at risk birds ▪ Terrestrial wildlife and species at risk

22.1 Initial Project Description Conclusions for Potential Effects on Wabigoon Lake Ojibway Nation’s Anishinaabe Peoples and Other Indigenous Peoples

A pathway of change and risk assessment screening cannot be completed for potentially affected Indigenous groups at this stage, as future engagement will define valued components and measurement indicators, and assessment endpoints will inform the scope of the assessment.

Although engagement specific to the regulatory process has only recently been formally initiated with WLON and other potentially affected Indigenous Peoples, the NWMO acknowledges that many years of relationship-building and collaboration have already provided valuable insights. Drawing on this foundation, the NWMO has identified preliminary understandings of potential Project impacts on the Anishinaabe Peoples of WLON, and potentially on other Indigenous Peoples who may be affected by the Project.

These understandings will continue to evolve through ongoing engagement during the IA and nuclear licensing processes.

Physical and Cultural Heritage

- A cultural heritage screening was conducted using the Ontario Archaeological Sites Database, which found no known sites near the initial borehole drilling program locations.
- WLON undertook a cultural verification study with the NWMO to confirm the absence of artifacts before site establishment, helping identify borehole IG-BH01 as having the least potential impact. This collaborative process reduced potential impacts on archaeological, historical, and cultural heritage values.
- The NWMO also plans to work with WLON Indigenous Knowledge holders and land users, including Anishinaabe trappers, hunters, and harvesters, to support a shared understanding of land and resource use in the area surrounding the Project site. The NWMO is committed to working in collaboration with the community and in accordance with appropriate data governance protocols to ensure that Indigenous Knowledge and Indigenous subject matter expertise inform the planning and implementation of the Project.
- For all phases of the Project, the NWMO will work collaboratively with host First Nation WLON to understand and uphold appropriate cultural and environmental monitoring practices, including any ceremonial requirements before starting activities. The NWMO will respect WLON ceremony and cultural protocols, with specific practices to be confirmed in dialogue with the community.
- The NWMO will also respect the physical and cultural heritage of other potentially affected Indigenous groups if they have historically exercised Rights within WLON’s territory, although to a lesser extent.

Land and Resource Use for Traditional Purposes

- The Project will result in adverse changes to land access and use for operational, safety, and security purposes. This may affect the ability of Anishinaabe Peoples of WLON and other Indigenous Peoples to access lands for current and traditional use.
- Perceptions of risk associated with radioactive materials may also influence traditional practices in the area, even in the absence of direct physical barriers.
- As the Project is located within the territory of WLON, Anishinaabe Peoples of WLON are expected to experience these effects and the other Indigenous Peoples referred to in Chapter 3 may also be impacted.

Indigenous Economic Conditions

- The overall impact of the Project on economic conditions is expected to be positive.
- The Hosting Agreement, which remains confidential at the request of the community, covers a broad range of themes. These include, but are not limited to, topics like: business opportunities, employment and training, and environmental and regulatory program requirements.
- Members of other Indigenous Nations may also benefit, including through job creation, local investment, and improved regional infrastructure.

Indigenous Health Conditions

- The NWMO will conduct detailed human health and ecological risk assessments to demonstrate that the Project does not pose adverse effects on Indigenous health conditions.
- These studies form part of the Safety Case required under the NSCA. The Safety Case will serve as a key platform for ongoing dialogue with interested Indigenous Peoples.

Indigenous Social Conditions

- The NWMO will work collaboratively with WLON and other potentially affected Indigenous groups to understand and address social determinants of health related to the Project. These could include non-negligible adverse effects on mental and physical health and effects on vulnerable Indigenous populations.
- Under the NFWA, the NWMO must report in a triennial report on the socio-economic effects of Project activities on Indigenous Peoples’ way of life, culture, and aspirations. The report is submitted to the Minister of Natural Resources Canada and tabled in Parliament.
- The combined requirements of the NSCA and NFWA provide alternative regulatory means to assess and address health, social, and economic impacts on Indigenous Peoples, in combination with the IA process.

Collaborative Implementation and Monitoring

- The NWMO is committed to validating mitigation and enhancement measures with WLON.
- Regulatory monitoring and follow-up programs will be co-developed and implemented collaboratively with WLON to ensure that Project activities align with community expectations and protect Indigenous Rights and values of WLON.

23. ESTIMATE OF GREENHOUSE GAS EMISSIONS

Canada's nuclear power plants have provided clean, reliable, and low-carbon energy for decades. However, used nuclear fuel remains radioactive for a very long time and requires careful, permanent management. The Project is also a critical component of Canada's nuclear fuel cycle, providing the permanent solution required to address the final stage of managing used fuel responsibly. By securing long-term management of used fuel, it supports the continued role of nuclear energy as a reliable, low-carbon power source and contributes directly to Canada's commitments on climate change and achieving net-zero emissions.

The Project will emit GHGs throughout all phases, including direct and indirect emissions from various sources like mobile fleets, heating plants, backup generators, blasting, land clearing, electricity consumption, and used nuclear fuel transport.

The NWMO has estimated the maximum annual emissions for the construction and operations phases to be 14,480 and 10,834 tonnes of carbon dioxide equivalent, respectively, with the heating plant being the largest contributor.

The NWMO will meet the requirements of the Government of Canada's Strategic Assessment of Climate Change and will prioritize the implementation of best available technologies and environmental practices to reduce direct greenhouse gas emissions between start of site preparation and construction activities.

24. LIST OF POTENTIAL WASTE AND EMISSIONS

The potential release of wastes and emissions due to implementation of the Project is shown in Table 24.1 for all phases.

Table 24.1: List of Potential Waste and Emissions

Potential Wastes and Emissions	Project Phase			
	Site Preparation	Construction	Operations	Decommissioning
Non-radioactive waste				
Atmospheric emissions, including:				
Drilling and blasting of rock	X	X	X	
Loading and offloading of excavated rock and overburden	X	X	X	
Vehicle and heavy equipment travel	X	X	X	X
Wind entrainment from exposed earth and mineral waste, such as within overburden stockpiles and ERMA	X	X	X	X
GHG emissions will derive from heavy equipment operation and fuel combustion	X	X	X	X
Noise from the operation of heavy equipment for construction and handling of excavated materials (e.g., trucks, shovels, loaders) and potentially from underground development and ventilation	X	X	X	X
Blasting noise from underground (although blasts will be a very limited duration)		X	X	X
Air contaminant emissions from the operation of construction and mining vehicles and equipment	X	X	X	X
Loading and offloading of concrete rubble				X
Liquid emissions:				
Contact water and surface contact water, including groundwater intercepted by the subsurface drainage and dewatering system. Contact water will contain suspended solids from shaft construction activities and earth-moving activities, ammonia residuals from ammonia-based explosives, and residual hydrocarbons from heavy equipment operation.	X	X	X	X
Precipitation and groundwater that come into contact with surface facilities will be collected using ditches and sumps and will be directed to the water management systems. Runoff from the stockpiles (waste rock and overburden) may contain suspended solids, salts, and dissolved metals. A comprehensive geochemistry testing program is underway to support a prediction of water quality, including for residual metals arising from the natural bedrock that become exposed through underground development-related activities.	X	X	X	X

Potential Wastes and Emissions	Project Phase			
	Site Preparation	Construction	Operations	Decommissioning
Domestic sewage and conventional wastewater (sewage/showers)	x	x	x	x
Excess site water	x	x	x	x
Cementitious solid wastes (e.g., wastes from concrete batch plant)	x	x	x	x
Excess water from the water management and treatment system that meets regulatory requirements for water quality and quantity will be discharged to the environment.	x	x	x	x
Solid wastes, including:				
Domestic waste such as food scraps, refuse, clothing, metal tins, scrap metal, glass, plastic, wood, and paper	x	x	x	x
Conventional construction waste such as machinery, equipment, and other materials	x	x	x	x
Other waste, including hazardous wastes:				
Used machine oils, solvents, lube oils, and other designated substance waste	x	x	x	x
Used batteries and other electronic/electrical waste	x	x	x	x
Soil and sediment waste from excavation activities	x	x	x	x
Radioactive Waste				
Atmospheric emissions, including:				
Air contaminant emissions of radioactive particulates and gases due to used fuel handling			x	
Liquid emissions, including:				
Radioactive wastewater (from washing down UFTPs, UFCs, and other equipment), which is captured and sent to the radioactive liquid waste handling facility			x	
Spills from equipment and machinery			x	
Solid wastes, including:				

Potential Wastes and Emissions	Project Phase			
	Site Preparation	Construction	Operations	Decommissioning
Solid radioactive wastes arising from maintenance of the used fuel transfer systems			X	
Conventional solid wastes from operations (e.g., wastes from cement batch plant and sealing material plant, scraps from installation of services in underground repository)			X	
Spent filters and ion exchange media from treatment processes			X	
Spent equipment/tools from maintenance of hot cell equipment			X	
Used air filters from UFPP and LLW storage building nuclear ventilation system			X	
Used HEPA filters and typical HVAC filters			X	X
Active wastes from UFPP and nuclear structures, systems, and components				X
UFTP				X

ERMA = Excavated Rock Management Area; GHG = greenhouse gas; HEPA = high efficiency particulate air; HVAC = heating, ventilation, air cooling; LLW = low-level waste; UFC = Used Fuel Container; UFPP = Used Fuel Packaging Plant; UFTP = Used Fuel Transportation Package.

25. ENVIRONMENTAL MANAGEMENT SYSTEM

The NWMO's environmental management system is designed to minimize Project-related environmental impacts and help to ensure compliance with CNSC licensing requirements. The system incorporates adaptive management and continuous improvement to monitor, assess, and address environmental effects throughout the Project's lifecycle.

Regulatory and follow-up monitoring, including effluent, emissions, and groundwater protection programs, will be implemented in accordance with CNSC regulatory documents (REGDOC 1.2.3, REGDOC-2.9.1, REGDOC-2.9.2) and relevant Canadian Standards Association standards (N288.4, N288.5, N288.7). International best practices from the International Atomic Energy Agency will also guide the program. Should unforeseen effects arise, corrective measures will be taken to prevent or minimize adverse outcomes.

26. OVERALL CONCLUSIONS AND PATH FORWARD

The Project represents Canada's plan for the safe, long-term management of used nuclear fuel. It aligns with the values Indigenous Peoples and Canadians have said were a priority: to safely manage used nuclear fuel instead of leaving it as a burden for generations to come. The Project provides a permanent and responsible solution for future generations, grounded in decades of scientific research, sustained community engagement, and alignment with international best practices.

The NWMO has undertaken thorough studies to confirm the suitability of the Project site and inform agreements with local Indigenous and municipal partners. Preliminary assessments show that, after applying mitigation and protection measures, most pathways of change to human and natural environments are expected to pose negligible to low risks of adverse effects. This aligns with IAAC's Operational Policy Statement, which seeks to balance focused information requirements with the risk of overlooking effects that may be material to decision making.

Additional modelling and analysis will be completed to support both the initial licence application to the CNSC under the NSCA and the Impact Statement. Within the impact assessment process, further effects analysis under the IAA will focus on components that may interact with Indigenous Peoples, including their health, land use, Rights, governance and cultural relationships with the environment.

The Project will have an impact on traditional land and resource use via changes to land use and land access for operational, safety, and security purposes. Additionally, perceptions of potential radioactive contamination from the disposal of used nuclear fuel may result in alterations to traditional land use. The Project is located in the territory of WLON and the most proximate Indigenous community; therefore, it is anticipated that Anishinaabe Peoples of WLON will experience these impacts the most.

Engagement with WLON, the Township of Ignace, and other potentially affected Indigenous communities will continue to play a central role in identifying pathways of change, understanding land and resource use, and characterizing potential impacts on Indigenous Rights and interests. These perspectives will inform the assessment of significance and the development of mitigation measures to help ensure Indigenous Knowledge, values, and laws are appropriately reflected in Project implementation. The NWMO understands that other Indigenous Peoples may have historically exercised their treaty or constitutional Rights within WLON's territory and, therefore, may also be impacted to some degree. The NWMO will engage Indigenous groups affected by the Project.

The Project is expected to deliver lasting socio-economic and cultural benefits, including employment, training, and business opportunities, for Indigenous and non-Indigenous communities

in the local and regional areas, as well as improved infrastructure and services. The Project also contributes directly to Canada’s climate change and net-zero goals by providing the final step in the nuclear fuel cycle, a safe and permanent solution that enables continued use of low-carbon nuclear energy.

The NWMO has determined, through extensive investigations since 2010, that the chosen site is technically suitable for the safe containment and isolation of used nuclear fuel. The organization will use the CNSC’s graded licensing approach to verify this and will continue to refine its technical, geoscience, and environmental programs to support regulatory requirements. The Project is expected to produce low levels of greenhouse gas emissions, and the NWMO is committed to collaborating with WLON to develop a GHG Management Plan in alignment with Canada’s climate change strategy.

Overall, the initiative is designed to protect public health, advance environmental and economic sustainability, and fulfill Canada’s commitments to safety, Reconciliation with Indigenous Peoples, and climate leadership.

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