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October 28, 2020

Colin Webster
Vice President, Sustainability and External Affairs
Brookfield Place, 181 Bay Street, Suite 3910
Toronto, ON M5J 2T3
CWebster@alamosgold.com

Dear Mr. Colin Webster:

SUBJECT: Technical Review of the Environmental Impact Statement for the Lynn Lake Gold Project – Information Request Round 1 Package 1

The Impact Assessment Agency of Canada (the Agency) with input from federal authorities, Indigenous groups, and the public, is conducting a technical review of the Environmental Impact Statement (EIS) for the Lynn Lake Gold Project (the Project) received from Alamos Gold Inc. on July 27, 2020. Indigenous Groups contributed technical expertise and Indigenous knowledge.

Upon review of the EIS, the Agency, federal authorities, and Indigenous Groups identified gaps in the information provided. The information is necessary to determine whether the Project is likely to cause significant adverse environmental effects and to inform the Agency's preparation of the Environmental Assessment (EA) Report under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012).

The Agency prepared the attached Information Request Package 1 to allow Alamos Gold Inc. to continue the gathering of essential information in a timely manner. The Agency will provide Alamos Gold Inc. with a second information request Round 1 package in November.

All submissions regarding the technical review of the EIS will be made publicly available through the Canadian Environmental Assessment Registry (Reference #80140). Alamos Gold Inc. is encouraged to review all of the comments submitted as they include detailed information and advice to support Alamos Gold Inc. in responding to the information requests.

When responding to information requests, the Agency requests that Alamos Gold Inc.:

- consider the context and rationale for the required information for every question;
- present thorough discussions of any areas of uncertainty, applying a precautionary approach, given that some studies and plans may not be complete at this time;
- where uncertainty remains, provide clearly defined, detailed follow-up program measures, including proposed further mitigation measures; and
- present complete or summarized information and discussion within the information request responses, rather than limited responses to references to applicable reports.

In accordance with CEAA 2012, time taken by Alamos Gold Inc. to provide the required information is not included in the legal timeframe within which the Minister of the Environment and Climate Change must make an EA decision. Issuance of this Information Request Package pauses the timeline at day 130 of 365.

The Agency welcomes the opportunity to discuss the outcome of this review with you and provide further advice on how to best address the information required to move forward with the assessment process. If you have any questions, please contact me at Melissa.Pinto@canada.ca or 587-338-7191.

Sincerely,

<original signed by>

Melissa Pinto, Project Manager

Enclosure(s):
Lynn Lake Gold Project - Technical Review Information Requests Round 1, Package 1

c.c.: Chris Botswick, Vice President Technical Services, Alamos Gold Inc.
Michael Raess, Senior Environmental and Community Relations Coordinator, Alamos Gold Inc.
Karen Mathers, Project Manager, Stantec Consulting Ltd.

Lynn Lake Gold Project - Technical Review Information Requests Round 1, Package 1
October 2020

List of Acronyms and Abbreviations

Acronym or Abbreviation	Definition
ABA	Acid Base Accounting
ARD	Acid Rock Drainage
CCME	Canadian Council of Ministers of the Environment
CCN	Chemawawin Cree Nation
CEAA 2012	*Canadian Environmental Assessment Act, 2012*
CEQG	Canadian Environmental Quality Guidelines
CNWA	*Canadian Navigable Waters Act*
DFO	Fisheries and Oceans Canada
DO	Dissolved Oxygen
ECCC	Environment and Climate Change Canada
EIS	Environmental Impact Statement
EPT	*Ephemeroptera*, *Plecoptera* and *Trichoptera*
ETMA	East Tailings Management Area
IAAC	Impact Assessment Agency of Canada
LAA	Local Assessment Area
LSA	Local Study Area
m^3	Cubic metres
MAD	Mean Annual Discharge
MCCN	Mathias Colomb Cree Nation
MDMER	*Metal and Diamond Mining Effluent Regulations*
mg/kg	Milligrams per kilogram
mg/L	Milligrams per Litre
ML	Metal Leaching
MMF	Manitoba Metis Federation
MRSA	Mine Rock Storage Area
NPR	Neutralization Potential Ratio
OPS	Operational Policy Statement
PAG	Potentially Acid Generating
PDA	Project Development Area
PEL	Probable Effect Level
POPC	Parameters of Potential Concern
PR 391	Provincial Road 391
RAA	Regional Assessment Area
SDFN	Sayisi Dene First Nation
SFE	Shake Flask Extraction
TC	Transport Canada
TDG	Transportation of Dangerous Goods
the Project	Lynn Lake Gold Project
TMF	Tailings Management Facility
TSS	Total Suspended Solids
VC	Valued Component

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	Information Requests
Project Description					
IAAC-01	IAAC	2.1 Purpose of the project	1.3 Purpose of the Project 24.0 Benefits of the Project	The EIS Guidelines require the EIS to describe the purpose of the Project including: the rationale, the background, the problems or opportunities that the Project is intended to satisfy, the proponent's stated objectives, and information related to broader private or public sector policies, plans or programs, related to the Project if applicable. The EIS Guidelines require the EIS to describe the predicted environmental, economic, and social benefits of the Project. This information will be considered in assessing the justifiability of any significant adverse residual environmental effects as defined in Section 5 of CEAA 2012, if such effects are identified. The EIS states that the purpose of the Project is to develop the Lynn Lake gold deposits for the purpose of extracting gold to process and sell. EIS Chapter 24 also identifies economic benefits ("creation of approximately $2,466.8 million in net revenue") associated with the Project over the course of its lifespan and the benefits related to Gross Domestic Product, government revenues, third party payments, and net revenue generation. The EIS does not describe how the Project would contribute to objectives related to the broader private sector policies, plans or programs and there is a lack of background information around the opportunities the Project intends to satisfy. Additional information is required for the Project, including considerations for the justifiability of the Project, in the current economic, social, and environmental contexts.	a. Provide rationale for the Project in terms of economic, social, and environmental considerations, speaking to justifiability of the Project in the current economic, social, and environmental contexts. b. Provide information on how the objectives of the Project contribute to broader private or public sector policies, plans or programs and objectives.

IAAC-02	TC-01	1.4 Regulatory framework and the role of government	1.4.1.1 Federal Requirements Table 1-2	The EIS Guidelines require the EIS to identify federal legislation and other regulatory approvals that are applicable to the Project. The EIS does not accurately describe the requirements of the federal *Transportation of Dangerous Goods Act* (TDG Act) and *Transportation of Dangerous Goods Regulations* (TDG Regulations). Requirements under the TDG Act and TDG Regulations may be applicable with respect to the potential transportation of explosives, cyanide, and other substances and products that may be used in support of the Project. Understanding proposed Project activities related to the TDG Act and Regulations is necessary to support full understanding of potential pathways for environmental effects. Note: If an activity related to transporting dangerous goods in a way that is not in compliance with the TDG Regulations is proposed, an Equivalency Certificate must be requested using information requirements in Part 14 of the TDG Regulations showing how the activity will be carried out and that it will provide a level of safety equivalent to complying with the Regulations.	a. Clarify the requirements of this Project with respect to the federal TDG Act and TDG Regulations. b. Identify and discuss any associated potential environmental effects, including VCs not otherwise included in keeping with requirements of CEAA 2012, Section 5(1)(c).
IAAC-03	MMF-21 TC-02	1.4 Regulatory framework and the role of government 6.1.6 Fish and fish habitat 6.3.1 Fish and fish habitat	EIS Summary 1.4.2 Other Environmental Regulatory Requirements Table 1-4	The EIS Guidelines require the EIS to identify federal legislation and other regulatory approvals that are applicable to the Project, in addition to identifying and assessing effects to fish and fish habitat. The existing Hughes River bridge and repairs to support mine related traffic may require subsequent approval from TC under the *Canadian Navigable Waters Act* (CNWA). Further information about the existing Hughes River bridge is needed in order to determine if a CNWA approval may be required. The Hughes River includes spawning habitat and is of importance to Indigenous Groups. The current conditions (e.g., erosion and sedimentation) at the bridge are unclear. Information regarding the proposed use and subsequent repair of the bridge is required to determine the effects to water quality and fish habitat including from spills/accidents.	a. Clarify whether there is/was approval (permit/authorization) for the existing Hughes River bridge under the former *Navigable Waters Protection Act*. b. Provide the following information for the Hughes River bridge: i. its location (latitude and longitude); ii. the date the bridge was built; iii. current owner of the existing bridge over the Hughes River; iv. original owner of the bridge, if known; v. as-built drawings of the existing bridge, including width, height, abutments, and in-water footprint; vi. condition of the bridge, including any potential issues (i.e., erosion and sedimentation);

					vii. capacity of the bridge to handle high flows (i.e., 100 year flooding); viii. a description of the Hughes River at the crossing site, including river characteristics such as: channel width, depth, substrate, and water velocity; and ix. photographs of the bridge and current site conditions. b. Describe the mitigation measures/considerations in the design/repairs of the Hughes River bridge. Include any adaptive management considered should the design/repairs not work as intended.
IAAC-04	MCCN-04	3.2 Project activities	2.3.1.1 Resource Extraction and Storage 2.3.2.1 Resource Extraction, Storage and Processing 2.7 Project Phases	The EIS Guidelines require a schedule, including time of year, frequency, and duration, for all Project activities. EIS Chapter 2 references a "pre-production phase" or "pre-production years" representing when ore will be stockpiled. It is unclear from the schedule information provided in Section 2.7 when this proposed pre-production phase would occur, and the full extent of the activities that will occur. Understanding proposed Project activities related to the "pre-production phase" or "pre-production years" is necessary to support full understanding of potential pathways for environmental effects.	a. Clarify what is meant by a "pre-production phase" and "pre-production years". Include the full extent of activities "pre-production phase" and "pre-production years" would entail and when it would be scheduled to occur in relation to other construction and operational activities identified in the EIS.
IAAC-05	MCCN-09	2.2 Alternative means of carrying out the project 4.3 Study strategy and methodology	2.9.3 Evaluation of Alternative Means for Carrying Out the Project	The EIS Guidelines state that the EIS will identify and consider the environmental effects of alternative means of carrying out the Project that are technically and economically feasible. Where the conclusions drawn from scientific, engineering, and technical knowledge are inconsistent with the conclusions drawn from Aboriginal traditional knowledge, the EIS will present each perspective on the issue, including documentation of Indigenous Groups' input. The EIS states that the assessment of Project alternative means considered Indigenous knowledge and current use of lands and resources for traditional purposes. The EIS states that Project design and siting took into consideration various traditional activities, practices, sites, areas, and resources. It is not clear how Indigenous	a. Describe how Indigenous input is reflected in the alternative means assessment, including how siting of key Project components considered Indigenous knowledge and land and resource use. b. Describe any comments from Indigenous Groups regarding alternative means for carrying out the Project and indicate how these comments were incorporated into the assessment. c. Identify how Indigenous input from engagement activities since May 2020 and traditional land use studies will be incorporated into the alternative means assessment including Project siting.

				input is reflected in the alternative means assessment as it is not discussed in the text supporting the summary analysis tables. Understanding how Indigenous knowledge was incorporated into the assessment of alternative means is necessary to understand the potential for environmental effects.	
IAAC-06	IAAC MCCN-08	2.2 Alternative means of carrying out the project 4.3 Study strategy and methodology	2.9 Alternative Means for Carrying out the Project	The EIS Guidelines indicate that the EIS will identify and consider the environmental effects of alternative means of carrying out the Project that are technically and economically feasible. The proponent will complete the assessment of alternative means in accordance with the Agency's OPS ("*Addressing "Purpose of" and "Alternative Means" under the Canadian Environmental Assessment Act, 2012*"). The OPS states that the proponent can identify a preferred means. The analysis and rationale for the choice should be explained and documented in the EIS in sufficient detail to provide context and allow reviewers to understand the choice. The EIS Guidelines indicate that where the proponent has not made final decisions concerning the placement of Project infrastructure, the technologies to be used, or that several options may exist for various Project components, the proponent shall conduct an environmental effects analysis at the same level of detail for each of the various options available (alternative means) within the EIS. In the EIS, for various Project components, alternative means are assessed for one option. The analysis and rationale for why it is the preferred option requires additional explanation. • The EIS indicates that truck transport using existing roads was the only option available and the on-site processing of the ore at the MacLellan site was determined to be the preferred option. Additional information on truck transport options and alternatives to truck transport are required as to understand effects associated with transporting ore between the Gordon and MacLellan site. • For fuel storage, the EIS indicates that no other alternative means were assessed as they were not considered technically or economically viable to meet applicable regulations and standards. • One option was assessed for the management of contact water including its discharge. Contact water will be locally collected	a. Provide an analysis of alternative means of ore transportation. If ore transportation by truck is the only feasible option, describe considerations of various timing options, number of trucks used to transport ore, the amount of ore being transported per truck, and location options, and assess the associated effects to VCs. Describe any recommendations or concerns from Indigenous Groups associated with the transportation of ore and how they were incorporated or addressed. b. Describe what other options for fuel storage were considered and provide the analysis and rationale for the preferred option. c. Describe under what circumstances contact water would be released and where it would be released to. Describe and assess alternative discharge locations. d. Describe alternatives for mine life variation (i.e., different lengths of time for mining) that were considered and the associated effects to VCs, including labour and economy. Provide a summary of analysis table, similar to the ones presented in Section 2.9.3.

				and treated through a central contact water collection pond and/or treatment plant prior to discharge. The EIS indicates that under normal operation, there will be no discharge of water from the TMF to the environment; therefore, no alternative discharge points were assessed. However, the EIS notes that if necessary, the water will be treated to meet applicable federal and provincial regulatory requirements prior to discharge to the environment, including the authorized limits of deleterious substances specified in Schedule 4 of the MDMER. • Mine life variations (different lengths of time for mining) were not identified and presented in this section. Different mine life variations could affect VCs, including labour and economy. This information is required to understand the environmental effects of alternative means of carrying out the Project that are technically and economically feasible.	
IAAC-07	CCN-25 CCN-26 CCN-83 CCN-87 CCN-91 IAAC SDFN-30 SDFN-91 SDFN-97	3.1 Project components 3.2.1 Site preparation and construction 6.1.9 Indigenous peoples	2.1 Project Location 2.3.1.2 Utilities and Infrastructure 2.3.2.3 Utilities and Infrastructure 15.4 Assessment of Residual Environmental Effects on Land and Resource Use 17.4.3.3 Project Residual Effects	The EIS Guidelines require the EIS to identify permanent and temporary linear infrastructure, including roads, railroads, pipelines, and power supply. The EIS Guidelines require the EIS to provide information on the construction of access roads and to describe restrictions to access and travel routes for conducting traditional practices. The EIS states that the proponent has permits for the Gordon and MacLellan access roads which grant “exclusive rights for usage” and specifically states that the Gordon site access road will continue to be under the proponent’s “care and control” during operation. The EIS states that the access roads to the MacLellan and Gordon sites are currently used by land and resource users, and that access may be restricted to the public during construction and operation of the Project. The EIS notes a trail that will be taken out of commission during site preparation at the MacLellan site and it will remain inaccessible during operations. Alternate routes to harvesting areas may be required. The spatial and temporal extent of restrictions are required to determine potential impacts on access to resources for Indigenous use and for the public.	a. Provide details of the access restrictions, access modifications, and restriction durations on the access roads to the Gordon and MacLellan sites for all phases of the Project. Provide a map demonstrating the spatial extent of access restrictions. b. Provide information on the exact location of the Project fence line around the mine sites. Include this information on a map as in part a. c. Provide information on the implementation of “exclusive rights for usage” and “care and control” and describe how these restrictions on the access roads (from PR 391 to Gordon and MacLellan sites) will impact Indigenous and public use. d. Describe the extent of impact of access restrictions, including indirect implications for access restrictions to areas outside the Project fence line. Consider the implications to sites and resources used for traditional purposes and to Indigenous Groups who would have access without the Project.

				EIS Chapter 16 describes that public access is defined by the Project fence line. The EIS also states that local residents will be notified of the restrictions and prohibitions on access. The EIS does not provide confirmation of the exact location of the fence line denoting access restrictions or prohibitions. The EIS does not provide sufficient information to determine how prohibited zone selection considers impacts to the rights of Indigenous Groups and how the proponent intends to notify Groups of the restrictions.	e. Describe how the prohibited zone determination considered Section 35 Rights of the *Constitution Act*, 1982. Provide the plans to notify local resident and Indigenous Groups of any prohibited zones or access restrictions. f. Describe how access will be enforced and monitored.
IAAC-08	IAAC MCCN-05 MMF-05 TC-05	3.1 Project components 3.2 Project activities	EIS Summary 2.3.2.3 Utilities and Infrastructure 2.4.2 Manitoba Hydro Substation and Transmission Line 10.4 Assessment of Residual Environmental Effects on Fish and Fish Habitat 12.4.2.2 Project Pathways 15.4 Assessment of Residual Environmental Effects on Land and Resource Use	The EIS Guidelines require the EIS to identify activities to be carried out during each Project phase including the routes, locations, and water crossings of any permanent and temporary linear infrastructure (roads, railroads, pipelines, power supply). EIS Chapter 2 states that the proponent will "provide the new 138 kV-34.5 kV substation and 34.5 kV distribution line to the MacLellan site from Lynn Lake". The EIS noted that alignment, rights-of-way, and location of the distribution line and substation have not been determined and that associated infrastructure elements are in preliminary planning stages. EIS Chapter 12 suggests that "clearing for the power distribution line right-of-way segment from PR 391 to the site will involve approximately 10 ha of land. An additional 3.2 km segment from a new station built by Alamos near Lynn Lake to PR 391 at the entrance to the site is required […]The power distribution line may require new access road(s) of 0.5 km (approx.) in length to be built for access to the distribution line". The EIS states that "The [power] line is anticipated to require two watercourse crossings." The EIS does not provide sufficient detail to understand the power supply component of the Project in terms of the routes, the configuration of infrastructure (extents of above ground, overhead, and underground infrastructure), as well as the preliminary considerations of environmental constraints (such as watercourses and wetlands or known areas of habitat for rare species and archeological resources). Information is required on the power distribution line and associated activities, including any watercourse crossings, to understand the potential effects of this component of the Project across VCs.	a. Provide maps and descriptions of the proposed routing, rights-of-way, and linear features of the MacLellan power supply component of the Project. Clarify the preliminary spatial layout of power supply and distribution infrastructure (above ground, below ground, and overhead lines, substations, and transformer locations) as well as the extent and preliminary locations of each type of proposed infrastructure. b. Present the analysis of the potential environmental effects and proposed mitigations of the power supply and distribution system component of the Project activities on all VCs. c. Describe how sensitive features (water crossings, watercourses, wetlands, sensitive habitat for rare species, and archeological resources) will be considered, the effects to the sensitive features, and what mitigations will be applied. Describe the potential effects of watercourse crossings on fish and fish habitat and any related proposed mitigation. d. Provide the anticipated watercourse crossing locations of the power line that will be constructed, as well as their size and crossing type.

IAAC-09	MCCN-05 TC-04	3.1 Project components 3.2 Project activities	2.3.2.3 Utilities and Infrastructure 2.9.3.2 Access to Project Sites	The EIS Guidelines require that the EIS describe Project activities with enough detail, such as expected material inputs and an indication of the activity's magnitude and scale, to predict the Project's environmental effects (including changes to Indigenous Group's current uses of lands and waters). The EIS states that the construction of a new single-lane steel bridge crossing of the Keewatin River to accommodate Project-related traffic can potentially affect surface water, fish, and fish habitat. Further information for the proposed new bridge is required to assess the nature and degree of potential interference with navigation.	a. Provide the following information for the proposed new bridge across the Keewatin River: i. plan and profile drawings; ii. water level measurements; and iii. construction methodology.
IAAC-10	IAAC	3.2.1 Site preparation and construction 3.2.2 Operation	2.3.1.2 Utilities and Infrastructure 2.3.2.3 Utilities and Infrastructure	The EIS Guidelines indicate that the EIS must provide information on the adjustments required to PR 391, and that transport of materials be considered as part of Project activities. The EIS states that the potential need for upgrades to PR 391 and/or weight exception requirements to support the Project are being discussed with Manitoba Infrastructure. There is no description of the potential road upgrade construction activities in the EIS, nor an explanation of the weight exemption requirements and the status of the discussion. Information is required on the proposed construction activities related to use of PR 391, and the potential effects across VCs.	a. Describe of the proposed extent and scope of construction activities on PR 391. b. Describe the status of discussions with Manitoba Infrastructure. Include the status of any current plans pertaining to responsibilities for maintenance of the upgrades and funding for the work. c. Describe the responsibilities of the proponent and of Manitoba Infrastructure for any construction activities proposed on PR 391. d. Assess the potential effects of any construction/upgrades on PR 391 on all VCs. e. Describe mitigation measures, where applicable, and assess the significance of residual effects. Propose a monitoring and follow-up program.
IAAC-11	ECCC-01 IAAC MCCN-02	3.1 Project Components 3.2 Project Activities 6.1.1 Atmospheric Environment	2.3.1 Gordon Site 6.1.2.1 Indigenous Engagement	The EIS Guidelines indicate that the EIS must include a description of the activities to be carried out during each phase of the Project and that sufficient information must be provided to predict environmental effects. The EIS must also include a schedule, including time of year, frequency, and duration for all Project activities. EIS Chapter 2 indicates that based on a conservative assumed haulage rate of 4,100 tonnes per day, the Project is estimated to require 7 truckloads per hour for 20 hours per day for ore transportation	a. Describe the assumptions associated with the haulage rate estimate in the EIS. b. Describe the hours and days when truck transportation will occur. c. Provide a summary of the anticipated vehicle traffic on PR 391 during different phases (construction,

		6.6.1 Effects of potential accidents and malfunctions		between the Gordon and MacLellan sites during the first six years of mining operations. It is unclear whether this means 365 days a year for 6 years straight. The EIS indicates that the Project will require: regular tanker truck shipments of water (to Gordon site), gasoline, and diesel; employee daily bussing; and that weekly shipping of materials such as explosives and cyanide will occur. The total number of truck trips per week are not provided. Understanding daily and weekly truck trips, as well as timing and conditions of truck travel, is important for estimating potential risk of collisions with wildlife, and also potential for accidents and spills. EIS Chapter 6 states that "Due to the small increase in truck traffic on PR 391 compared to baseline traffic and the distance of Nelson House from PR 391, the Project residual effects on air quality at Nelson House are expected to be negligible and are therefore, not addressed in this chapter." Traffic can negatively affect air quality through emissions from combustion engines and fugitive emissions of particulate matter from road dust. A quantitative description is required in order to understand the traffic effects on air quality.	operation, and decommissioning) of the Project, including anticipated effects on VCs. i. Provide daily and weekly traffic estimates, including a breakdown of vehicle types and their respective cargo. ii. Explain why the increase in traffic is considered "small", specifically noting the baseline traffic count and percentage increase from baseline traffic that would result from the Project. iii. Describe associated mitigation, follow-up, and monitoring measures to address effects to VCs from the increase in traffic on PR 391, including those specific to accidents and malfunctions.
IAAC-12	IAAC	3.2 Project activities	2.3 Project Activities and Components 13.0 Assessment of Potential Effects on Labour and Economy 14.0 Assessment of Potential Effects on Community Services, Infrastructure, and Wellbeing Table 14-1	The EIS Guidelines state that the EIS will include descriptions of the activities that will be carried out in each phase, including the transportation of employees. EIS Chapters 13 and 14 note that the majority of workers will drive in, drive out/fly in, fly out. There is an indication that the proponent is planning on using the Lynn Lake airport for air transport, including the transportation of employees, as "Capacity of air transportation infrastructure" is included as a measurable parameter in identifying whether there is a change in transportation services and infrastructure in Table 14-1. There is an indication that the proponent is planning an airstrip on site, as EIS Chapter 21 states that fog could affect charters flying to site. Additional information and clarification is required to understand what activities related to air transport are needed for the Project and how these activities affect VCs.	a. Clarify whether the Lynn Lake airport (or other existing airport/airstrip) will be used for air transportation. Identify the "care and control" of any airport/airstrip. Identify any anticipated construction/upgrading activities for the existing airport/airstrip that will be used. Identify if a new airstrip (specify location) will be built to accommodate air transportation activities related to the Project. b. Describe the types of air transportation, frequency of flights, materials and/or personnel transported by air, and related air transportation activities that will be required by the Project. c. Describe the applicable regulatory approvals that would be required to carry out air transportation for the Project on the identified airport/airstrip.

			21.0 Assessment of Potential Effects of the Environment on the Project		d. Provide an updated assessment (including cumulative effects) for VCs affected by this activity, including effects to community services, infrastructure, and wellbeing.
IAAC-13	ECCC-32 IAAC	3.1 Designated project 3.2.1 Changes to the environment 6.1.2 Geology and geochemistry	2.3.2.2 Other Waste Storage and Management 2.4.1 Borrow Sources 5.2.5.4 Soils	The EIS Guidelines include borrow areas in the scope of the environmental assessment and specify that the EIS should include a description of the borrow materials (source and quantity) for the Project. The EIS Guidelines also indicate that the geochemical characterization of expected mine materials should be described in order to predict the ML and ARD potential. The EIS indicates that specific sources of rockfill and aggregate for construction have not yet been determined, but would be from non-acid generating mine rock and from local quarries and borrow pits near the Project site, and that the quarries and borrow pits will be determined and evaluated for geotechnical and environmental suitability as detailed Project planning and engineering proceeds. The EIS also indicates that some preliminary investigation at the MacLellan site west of Lynn Lake identified six potential borrow source areas and four potential quarries. The borrow material for construction should undergo a similar geochemical assessment as waste rock to ensure that there is no potential for ARD/ML and that the material is suitable for construction. Additional details are required about the borrow pits and quarries, including potential locations, distance from the mine sites and access road requirements, and geochemical characterization of the potential material. This information is necessary to determine the potential effect of borrow pits and quarries on VCs.	a. Provide a map showing potential borrow pit and quarry locations. Indicate how material will be accessed, and whether additional access roads will be required. b. Assess how borrow pits and related activities (i.e., access roads, blasting) will affect VCs. Present mitigation measures and assess significance of residual effects. Discuss associated monitoring and follow-up. c. Include a description of potential borrow sources and how they will be characterized and assessed for ARD/ML. If this characterization cannot yet be completed, provide a methodology and sampling program that will be used to assess the suitability of borrow pit and quarry material for use in constructing the Project. The program should outline and provide rationale for the parameters to be analyzed, the thresholds that are acceptable, the sampling intensity, and how material will be managed and stored. d. Assess how source material for construction may interact with the environment, including potential pathways of effects to all VCs. Present mitigation measures, including criteria for source material selection that could mitigate effects, and assess significance of residual effects. Discuss associated monitoring and follow-up.
IAAC-14	ECCC-14 MMF-15	3.1 Project components	2.3 Project Activities and Components Maps 2-1 and 2-2 9.4.1.3 Mitigation	The EIS Guidelines indicate that the EIS must describe the Project by presenting Project components, including water management facilities proposed to control, collect, and discharge surface drainage and groundwater seepage to the receiving environment from all key components of the mine infrastructure (e.g., pit water and/or underground mine water, mine effluent).	a. Provide detailed information on the location and design of the seepage/runoff ditches used for water control around the waste rock stockpiles, the TMF, or other infrastructure subject to seepage and runoff. ii. Describe whether and how contact water collection ditches designed for the 1:25-year storm event will provide sufficient capacity to

				The EIS indicates that seepage and runoff collection ditches will be constructed in the perimeter around waste rock stockpiles/storage areas so that seepage/runoff can be controlled. While drainage ditches are displayed on Maps 2-1 and 2-2, no detailed information on the design or location of these ditches is given, or commitments regarding the timing of construction. The EIS indicates that contact water collection ditches will be designed to convey the 1:25-year storm event. It is unclear whether designing for the 1:25-year storm event would provide sufficient capacity for contact water management. Information about seepage and runoff management is required because of the possible adverse environmental effects to fish and fish habitat and wildlife, including species of cultural importance.	manage potential extended high precipitation conditions, potential extreme precipitation events, and potential future increases in precipitation volumes. iii. Describe how contact water will be prevented from entering the environment if one or more storm events greater than the 1:25 year storm occurs. iv. Indicate when contact water collection ditches will be constructed, and how they will be managed during the various Project phases.
IAAC-15	ECCC-31 MCCN-01 MCCN-03	3.1 Project components 3.2 Project activities 6.1.2 Geology and geochemistry	2.3.1.1 Resource Extraction and Storage 5.2.6 Geochemistry	The EIS Guidelines state that the EIS must describe the Project by presenting Project components and characteristics that will assist in understanding the environmental effects of the Project, including ore storage and stock pile footprints, locations, volumes, development plans, and design criteria. The EIS states that, ore stockpiles are not expected to generate ARD and have moderate leaching potentials for aluminum, fluoride, sliver, and copper. However, kinetic testing showed that there is high leaching potential for arsenic and cadmium for the MacLellan site ore. The EIS indicates that ore from the MacLellan and Gordon site open pits will contain 52% and 66% non-PAG materials respectively. The rest of the ore could be PAG. ARD is not likely to occur with blended ore stockpiles during operation, considering the minimum ARD onset time is predicted to be 14 years compared to the much shorter residence time of the ore in the stockpiles. The EIS indicated that blending of PAG and non-PAG material and/or dry and/or wet covers will be used to control ARD/ML from mine rock. However, limited details are provided in the EIS on how the proponent will achieve blending or completed mixing of waste rock or ore stockpiles. The EIS indicates that contact water from ore stockpiles will be collected and managed during operation. It is not clear if the stockpile	a. Clarify if the ore stockpile will be lined and provide a rationale if the ore stockpile will not be lined. b. Provide details of the Environmental Management Plan describing how the ore stockpiles will be managed. i. Provide details of how blending will be achieved for ore stockpiles. ii. Identify any other best management practices to minimize ARD/ML from ore stockpiles, and examine if there are ways to reduce the amount of time that ore is stockpiled. c. Discuss alternative options for ore stockpiling in order to mitigate the associated risks (i.e., ARD/ML).

				will be lined to ensure adequate collection and management of this contact water. Information about the management of ore stockpiles is required because associated ARD/ML can adversely affect VCs, including fish and fish habitat and wildlife, including species of cultural importance.	
IAAC-16	MCCN-07	3.1. Project components 6.1.5 Groundwater and Surface Water 6.5 Significance of residual effects	2.8.2.1 Contact Water	The EIS Guidelines indicate that the EIS must describe the Project by presenting Project components, associated and ancillary works that will assist in understanding environmental effects, including a description of the water management facilities and water treatment requirements. The EIS states that "[w]ater collected in the sumps and/or small ponds and during open pit dewatering will be pumped to water management ponds located at each site**, tested if required**, and discharged directly to the environment, if it meets applicable federal and provincial regulatory discharge requirements" (emphasis added). The criteria to determine whether testing will be required are not provided. These details are necessary to determine when contact water will be treated, and whether or not it will be discharged to the environment without being tested.	a. Clarify the criteria leading to the requirement to test Project-related contact water. b. Confirm how compliance of all contact water with applicable federal and provincial regulatory discharge requirements will be ensured prior to any discharge to the environment, including details for water treatment.
IAAC-17	TC-03	6.1.11 Human environment 6.3.4 Indigenous peoples	2.3.1.4 Water Development and Control	The EIS Guidelines require that the EIS present baseline information to enable the identification of how the Project could affect the human environment, the current use of all waterways and an analysis of those effects; and a description and analysis of the how the Project-caused changes to the environment will affect Indigenous activities in the Project area, including "the use of navigable waters." Further detailed Project information about the relocation of the diversion channel is required to assess the nature and degree of potential interference of the Project with navigation.	a. Provide the following information regarding the diversion channel: i. whether the existing and new diversion channels are within the PDA; and ii. the construction methodology, flow rates, and flow regime for the new diversion channel. b. Provide details about whether there will be dewatering of any natural waterways that could impact navigation. Include estimated volumes/diversion capacities and describe how the dewatering of these waterways will impact navigation.

Cumulative Effects					
IAAC-18	IAAC	4.2.2 Community knowledge and Aboriginal traditional knowledge 6.6.3 Cumulative effects assessment	4.3.2.1 Spatial Boundaries	The EIS Guidelines require that the spatial and temporal boundaries for the cumulative effects assessment are established and justified for each VC, and that the spatial boundaries for the cumulative effects assessment will generally be larger than the boundaries for the corresponding Project effects. The EIS Guidelines also indicate that the proponent should integrate Aboriginal traditional knowledge into all aspects of the assessment, including spatial and temporal boundary determination. Section 4.3.2.1 of the EIS indicates that the RAA is the area established for context for the determination of significance of Project-specific effects, and is also the area in which potential cumulative effects are assessed. However, the EIS does not provide justification for the RAA as an appropriate spatial boundary for the cumulative effects assessment, nor are details of whether Aboriginal traditional knowledge integrated into the boundary selection. Appropriate spatial boundaries are necessary to support understanding of cumulative changes to all VCs, including effects to current use of lands and resources for traditional purposes.	a. For each VC, provide rationale and justification for the spatial and temporal boundaries selected for the assessment of cumulative effects. b. Describe how Aboriginal traditional knowledge was used in the establishment of temporal and spatial boundaries for cumulative effects.
IAAC-19	IAAC	6.6.3 Cumulative effects assessment	Throughout EIS	The EIS Guidelines state that cumulative effects may result if the Project has residual adverse effects on a VC and if the same VC is affected by other past, present, and future physical activities. Each EIS section that assesses effects to VCs also discusses effects related to cumulative effects and a table that identifies the "Interactions with the Potential to Contribute to Cumulative Effects". Some projects/activities in these "Interactions with the Potential to Contribute to Cumulative Effects" tables are noted with a dash, indicating that residual adverse effects between these projects/activities and the Project are not expected for the particular VC. There is no discussion provided on how it was determined that overlapping residual adverse effects are not expected. Sufficient information should be provided to determine why projects/activities were not carried forward in the cumulative effects assessment.	a. For each "Interactions with the Potential to Contribute to Cumulative Effects" table, explain why the projects/activities with dashes do not have residual effects that are expected to overlap with residual effects from the Project.

IAAC-20	IAAC	6.6.3 Cumulative effects assessment	4.3.2.1 Spatial Boundaries 7.5 Assessment of Cumulative Environmental Effects on Noise and Vibration 11.5 Assessment of Cumulative Environmental Effects on Vegetation and Wetlands 12.5 Assessment of Cumulative Environmental Effects on Wildlife and Wildlife Habitat 13.5 Assessment of Cumulative Environmental Effects on Labour and Economy 14.5 Assessment of Cumulative Environmental Effects on Community Services, Infrastructure and Wellbeing	The EIS Guidelines state that the EIS will assess the cumulative effects on each VC selected by comparing the future scenario with and without the Project for the spatial and temporal boundaries described. The EIS states that the cumulative effects are assessed within the RAA specified for that particular VC and that the RAA encompasses both the PDA and LAA. The cumulative effects assessment for some VCs discuss effects within the RAA, and do not discuss the effects within the LAA specifically. For example, Section 13.5 discusses the cumulative effects within the RAA, which is considered resilient. This section does not discuss cumulative effects specifically within the LAA, which is considered non-resilient in both residual effects related to changes in regional labour force and regional business. Similarly for community services, infrastructure and wellbeing, some effects occur within a non-resilient LAA. Information on cumulative effects in the LAA to understand effects to the LAA specifically, is required.	a. Provide a discussion of the cumulative effects in the LAA for the listed VCs below: i. Noise and Vibration; ii. Vegetation and Wetlands; iii. Wildlife and Wildlife Habitat; iv. Labour and Economy; and v. Community Services, Infrastructure and Wellbeing
IAAC-21	MCCN-15	6.6.3 Cumulative effects assessment	4.3.4.4 Assessment of Cumulative Environmental Effects	The EIS Guidelines indicate that the EIS must include an assessment of the cumulative effects on each VC selected by comparing the future scenario with the Project and without the Project. This assessment must consider each VC not only in relation to current conditions, but	a. For biological VCs (wildlife, fish and fish habitat, and vegetation/wetlands), provide the total estimate of area and percent disturbance from cumulative existing and foreseeable future development, compared to the

			10.5 Assessment of Cumulative Environmental Effects on Fish and Fish Habitat 11.5 Assessment of Cumulative Environmental Effects on Vegetation and Wetlands 12.5 Assessment of Cumulative Environmental Effects on Wildlife and Wildlife Habitat	conditions prior to historic mining (i.e., the undisturbed baseline), and identify changes/alterations in the interim, relevant to the consideration of cumulative effects. The cumulative effects analyses for each biological VC (fish and fish habitat, wildlife and vegetation/wetlands) in the EIS does not adequately assess cumulative effects both with the Project and without the Project, in consideration of direct and indirect effects from previous and future effects. Cumulative effects are largely discussed qualitatively, with little to no quantification of previous and foreseeable future effects. The EIS does not provide adequate context regarding the area and percent change from an undisturbed baseline. Furthermore, it is unclear how future projects will quantitatively contribute to the area and percent change for each land cover categories in the PDA, LAA, and RAA, relative to the undisturbed baseline. Understanding the current degree of landscape disturbance relative to an undisturbed baseline is necessary to understand the cumulative effects to the VCs over time. Both direct and indirect effects must be represented in the assessment to adequately characterize cumulative effects from the Project and foreseeable future development.	undisturbed (i.e., pre-industrial) baseline for each VC in the cumulative effects assessment. If this information cannot be provided, provide rationale and justification as to why, and justify the conclusions drawn in the cumulative effects assessment of these chapters. b. Clarify how both direct and indirect effects have been determined and accounted for in the assessment of cumulative effects.
Environmental Setting					
IAAC-22	MCCN-81	4.3 Study strategy and methodology 6.1 Project setting and baseline conditions 6.3 Predicted effects on valued components 6.6.3 Cumulative effects assessment	4.3.2.2 Temporal boundaries 18.1.4 Boundaries	The EIS Guidelines state that, based on the predicted changes to the environment, the proponent is to assess the environmental effects of the Project on VCs. All interconnections between VCs and between changes to multiple VCs are to be described. The EIS Guidelines also state that the effects assessment will include environmental conditions resulting from historical (e.g., previous mining) activities. The EIS Guidelines require the proponent to undertake and present an assessment of cumulative effects. No information is provided on baseline prior to historical mining. Environmental effects can be most accurately observed if baseline data can be sourced from a time before Project activity has taken place. Understanding the past projects, including historical mining, that have contributed to the current baseline conditions for VCs, is required to support an understanding of cumulative effects.	a. Provide a rationale for why back casting or modelling was not completed to establish baseline prior to the operation of the historic projects.

IAAC-23	IAAC	6.1.2 Geology and geochemistry 6.1.3 Topography and Soil	5.1 Introduction 5.2.5 Physiography, Geology and Soils Volume 4, Appendix E Soil and Terrain Baseline Technical Data Report, Appendix A Maps 3B and 4	The EIS Guidelines require the EIS to include baseline mapping and a description of landforms and soils (including soil chemistry), within the LAA and RAA as well as a depiction of soil for salvage and reclamation efforts, soil erosion, thaw settlement, and instability associated with ground thawing. The EIS Guidelines also require permafrost conditions to be defined within the LAA and RAA, including transport routes to be used by the Project and the description of geomorphology, topography, and geotechnical characteristics of areas proposed for construction of major Project components. EIS Volume 4, Appendix E, Appendix A, Map 3B and Map 4, indicate that the access road to the MacLellan site is not included in the LAA/PDA. The rationale for the road exclusion from baseline mapping was that "terrain mapping of the existing MacLellan access road has not been conducted, as an alternate access route was being considered at the time of baseline studies" and that the information can be formulated on the basis of available satellite imagery information, of which a brief description is provided. Details are not provided on how data will be extrapolated for the MacLellan access road. The EIS should provide the same level of detail of terrain mapping for this access road as it does for the rest of the LAA. There is a lack of clarity on how soils within the access road to the MacLellan site were rated for reclamation suitability, considering the access road to the MacLellan site has not been included in the PDA or LAA for soils and terrain baseline mapping and description. This information is required to identify implications for the assessment of soil erosion and terrain instability associated with thaw settlement and ground thawing along the access road and transmission line (power line corridor) to the MacLellan Site.	a. Provide updated spatial boundaries for the LAA/PDA for baseline mapping and description of landforms and soils with the consideration of access roads as part of the Project activities and PDA. b. Provide updates to the assessment of soil erosion and terrain instability associated with ground thawing along the access road, as well as depiction of soils to support salvage and reclamation efforts to include the access route to the MacLellan site. If data will be extrapolated for the MacLellan access road, provide details on how this will be conducted. c. Describe potential effects of the transportation activities on soil erosion and stability associated with ground thawing, and how this could result in effects to VCs.
IAAC-24	IAAC	6.1.3 Topography and Soil	5.2.5.3 Terrain, Surficial Geology, and Permafrost Maps 5-1 and 5-2 Volume 4, Appendix E Soil and Terrain Baseline	The EIS Guidelines require information on the potential for settlement and terrain instability associated with ground thawing within the PDA. The EIS presents information about the processes by which this would occur and specific areas within the PDA with terrain constraints are identified in Maps 5-1 and 5-2. EIS Chapter 5 states that "Based on the known occurrence of permafrost within the area the design of road upgrades will have to	a. Provide information on the potential for thaw settlement and terrain instability associated with ground thawing in areas of identified terrain constraints and how they overlap with major proposed Project components within the PDA. Identify how terrain constraints were used to inform about the potential for ground thaw settlement and terrain instability for major Project components within the PDA.

			Technical Data Report 4.2.1.3 Permafrost Appendix A Maps 10 to 12C	account for the presence of permafrost to avoid the development of future terrain instabilities". However, other Project components and activities that may overlap with the identified terrain constraints are not discussed in sufficient detail to understand areas of increased potential of instability. The potential for settlement and instability are not directly linked to the proposed Project activities within the PDA. For example, it is uncertain how the characterized constraints that overlap with major Project components (i.e., TMF, open pits) may influence the potential for thaw settlement and terrain instability associated with ground thawing. Volume 4, Appendix E, Section 4.2.1.3 indicates that the majority of the terrain-related constraints are related to permafrost, flooded fens or seasonal flooding. However, this information was not linked to indicate how it relates to potential instability in areas of major proposed Project components. Additional information on the thaw settlement and terrain instability associated with ground thawing is required to understand effects to VCs.	
Surface Water and Groundwater					
IAAC-25	MCCN-24 MCCN-25 MMF-06 MMF-16	6.2.2 Changes to groundwater and surface water 8.0 Follow-Up and Monitoring Programs	8.4.2.2 Mitigation 8.9 Follow-up and Monitoring 9.9 Follow-up and Monitoring 23.5 Environmental Monitoring and Management Plans	The EIS Guidelines require the proponent to predict changes to physical environment, including changes to surface water quality and quantity due to the Project. Inflows into Gordon and Farley Lakes will be altered through all phases of construction, with increases during construction/operation and variable changes for each lake in closure and post-closure. This is concerning as both lakes are shallow with low DO profiles (winter lows of 0.05 – 6.6 mg/L). Thus, reductions in groundwater inputs (and surface water to Gordon Lake) may affect lake levels, reducing suitable habitat and negatively affecting the ability of species to tolerate the conditions. The EIS has not evaluated oxygen profiles in lakes during summer. The EIS notes the minimum water levels and oxygen levels in Gordon and Farley Lakes are expected to be encountered during late summer. During Project phases where lake levels are reduced, this could	a. Provide details of a monitoring plan for Farley and Gordon Lakes and for the intercepted groundwater, as well as other water bodies likely to have their groundwater discharge levels reduced outside of natural variation by Project activities. i. Include depth, oxygen, and temperature in monitoring for Gordon and Farley Lakes through all phases of the Project. ii. For the intercepted water, identify the parameters to be analyzed and the sampling frequency. iii. Describe adaptive management should the level of lakes go outside their range of natural variation, including additional mitigation and monitoring.

				exacerbate the low oxygen levels and decrease habitat availability. Information on the oxygen profiles in Farley and Gordon Lakes in the summer is required to understand effects to fish and fish habitat. This system presents water quantity and water quality risks to Farley and Gordon Lakes, and will require ongoing monitoring and management to ensure that water levels in these shallow lakes do not fluctuate dramatically. Fluctuating water levels could exacerbate mercury methylation in wetlands, which make up a substantial portion of the Farley and Gordon lake shorelines. Interceptor wells will be installed to capture inflow and pump it back to the lakes. The proponent has suggested that they will treat the water prior to returning it to the lakes, if necessary. If the intercepted groundwater that will be pumped back into the lakes is elevated in contaminants, even relatively low concentrations of contaminants could significantly degrade water quality in the lakes, as a large volume of water will be intercepted and pumped. Indigenous Groups fish on Swede Lake, downstream of Farley Lake, and degraded water quality therefore poses a risk to Indigenous land users. Additional information is required on the monitoring and mitigation for surface and groundwater to understand the residual effects on these VCs.	iv. Identify how the federal and provincial water quality guidelines will be met for the lakes and for the intercepted groundwater. b. Develop a Project site mercury management and monitoring plan to ensure that the Project does not increase the rate of mercury methylation in wetlands and water bodies within the zone of influence of the two open pit drawdown cones. Indicate when the sampling program will begin. c. Describe the process of engagement with Indigenous Groups to provide opportunity to review data and participate in the ongoing monitoring and management of all water quality and quantity.
IAAC-26	MMF-20	6.2.2 Changes to groundwater and surface water	9.4.2.3 Mitigation 9.4.2.4 Project Residual Effect 10.4.2 Change in Fish Health, Growth, or Survival	The EIS Guidelines require that changes to groundwater and surface water as a result of the Project be predicted, including changes to groundwater and surface water quality. The EIS indicates that arsenic is anticipated to exceed the long term CEQG from the CCME of 0.005 mg/L as much as 74% of the time during post-closure in the small Keewatin Tributary, reaching as high as 0.023 mg/L. The proponent has drawn on research to underscore the uncertainty in arsenic toxicity in aquatic environments to argue that the CEQG for arsenic is overly protective and that other, higher guideline concentrations should be used. Indigenous Groups have significant concern regarding the exceedances of arsenic guidelines due to the toxicity of arsenic and potential for bioaccumulation. Additional information is required on mitigation measures that address minimization of arsenic concentrations to understand the residual effects to surface water and fish and fish habitat.	a. Describe mitigation measures to ensure that arsenic concentrations in all receiving water bodies are below the CEQG or baseline concentrations during all Project phases.

IAAC-27	MMF-08	2.4 Application of the precautionary approach 6.1.5 Groundwater and Surface Water 6.6.1 Effects of potential accidents or malfunctions 8.0 Follow-up and Monitoring Programs	8.9 Follow-up and Monitoring 9.9 Follow-up and Monitoring 22.5.1 Tailings Management Facility Malfunction 22.5.2.3 Environmental Effects Assessment 23.5 Environmental Monitoring and Management Plans Volume 4, Appendix F Geochemistry Baseline Technical Data Report, Appendix B Tables 4.3-1 and 4.3-5	The EIS Guidelines indicate that the proponent must determine effects to water quality attributed to ARD/ML associated with mine material, and must prepare environmental management and monitoring programs to verify the accuracy of the effects assessment and, where necessary, identify adaptive management measures that will be applied. In EIS Volume 4, Appendix F, Tables 4.3-1 and 4.3-5, the proponent reports the Acid Base Accounting (ABA) statistics for waste rock, ore, overburden, and tailings from the Gordon and MacLellan sites. A relatively high proportion of tailings material has a Neutralization Potential Ratio (NPR) below 1, with the average NPR for Gordon tailings reported as 0.74 and the average NPR for MacLellan tailings reported as 1.7. Shake Flask Extraction (SFE) testing for ore, tailings, and waste rock also indicate high leaching potential for arsenic, with the average arsenic concentration in MacLellan tailings samples from SFE testing of 0.22 mg/L. Tailings ageing tests also indicated a high likelihood of total cyanide, copper, and nickel above MDMER limits, as well as exceedances in un-ionized ammonia, selenium, silver, and cadmium. Carbonate depleted tailings humidity cells also show the potential for very high levels of metal leaching once neutralization potential is used up. Additionally, the ETMA in Lynn Lake, which processed the ore from the historical Gordon and MacLellan operations, has substantial issues with ARD/ML to this day. Information is required on mitigation measures and monitoring that will be undertaken to understand the residual effects of ARD/ML on the environment.	a. Within the context of ARD/ML, describe how the proponent will ensure that water quality discharged from the Project to receiving water bodies (Keewatin River at the MacLellan site; Farley Lake at the Gordon Site) in perpetuity will achieve federal and provincial water quality criteria. b. Provide a plan to manage PAG materials so that ARD on-site is controlled and any seepage/effluents are conservatively managed to protect the receiving environment. c. Provide an Acid Rock Drainage and Metal Leaching Management and Monitoring Plan. Include thresholds for initiating adaptive management and the potential strategies to mitigate acid generation and ML on site.
IAAC-28	ECCC-24 MCCN-32	6.2.2 Changes to groundwater and surface water 6.4 Mitigation Measures	9.2.2.1 Surface Water Quantity 9.11.1 Surface Water Quantity Volume 4, Appendix G Hydrology Baseline Technical Data Report 4.2.2.2.1 Station	The EIS Guidelines indicate that the proponent must describe changes to the hydrological and hydrometric conditions as a result of the Project. In the EIS, the Proponent commits to keeping freshwater intakes from the Keewatin River at 10% of instantaneous flows as a way to mitigate effects on water quantity in the river. This requires continuous flow estimates just upstream of the MacLellan site. The proponent established a hydrometric station (QM01) during the baseline field program. However, all the measurements made to establish the stage-discharge relationship (rating curve) were made in open-water conditions. Using this rating curve to estimate flows in ice conditions, which happen to be the lowest flow season in this region, will	a. Provide additional streamflow measurements to build a sufficient hydrologic record throughout the PDAs, LAAs, and RAAs that covers a sufficient time period, including under ice conditions. i. Include a rationale for the selected time period that references the best available applicable knowledge and literature. ii. Provide streamflow measurements under ice conditions, including from hydrometric station QM01. iii. Include rough timeframes for when the data will be collected.

			QM01	systematically overestimate flows, as the frictional effect of ice cover slows flow. There was a 5 month data gap during baseline data collection at this location (just upstream of the MacLellan site). The Hydrology Baseline Technical Report in the EIS notes that six of the eighteen hydrometric monitoring stations had sufficient data to enable development of rating curves. Due to issues such as beaver activity, insufficient data was collected to develop rating curves for the other stations. Furthermore, the Hydrology Baseline Technical Report states that "analysis of flow and level for streams and lakes within the Gordon and MacLellan LSAs were limited by having less than two years of data collection at each location". There is uncertainty in streamflow estimates, including under ice conditions. Additional information on streamflow estimates is required to understand Project effects on VCs, including surface water and fish habitat.	iv. If additional streamflow measurements cannot be obtained in sufficient time for assessment, describe the reason(s) why and provide a description of the resultant uncertainty associated with the conclusions drawn in the surface water effects assessment considering the limitations of the hydrologic data. Describe the potential for variability of the hydrologic data to affect the determination of significance.
IAAC-29	MCCN-30 MCCN-39	6.1.5 Groundwater and Surface Water 6.3.1 Fish and fish habitat	9.4.1 Surface Water Quantity	The EIS Guidelines state that the EIS will identify any potential adverse effects to fish and fish habitat, including consideration of the assessment of modifications of hydrological and hydrometric conditions. The EIS includes the Keewatin River in the LAA as a likely source of freshwater for the mill and a watercourse into which mine effluent or contact water would eventually drain. The EIS states that "Freshwater demands from the Keewatin River are estimated to be 350,400 m^3 or 40 m^3/hour after the first year". In addition, the EIS indicates that the Project will reuse process water to the extent feasible between the TMF and the ore processing facility. The reuse of water is vital to reduce water intake from Keewatin River. Additional information is required on the minimization of water withdrawals from Keewatin River to understand effects to fish and fish habitat.	a. Identify how water withdrawals from the Keewatin River will be minimized and the implications for the estimated withdrawal amounts. b. Identify, with rationale for selection, the best available technology that will be applied to reduce water quantity required, and maximize reuse.

IAAC-30	MCCN-40	4.3 Study strategy and methodology 6.2.2 Changes to groundwater and surface water	9.4.1.4 Project Residual Effects	The EIS Guidelines indicate that, in undertaking the environmental effects assessment, all conclusions will be substantiated and predictions will be based on clearly stated assumptions, and that the proponent will describe how each assumption has been tested. The EIS states that the node for Keewatin River south of the proposed open pit was not carried forward in the assessment because "average monthly or annual results at this node experience project-related effects **less than 10%** and are not discussed in the sections below" (emphasis added). The rationale for the use of "less than 10%" change in baseline flow as a threshold for including this node in the assessment is unclear, and impairs ability to sufficiently evaluate the surface water effects of the Project.	a. Provide further rationale for the choice of a 10% threshold change in baseline flow for incorporating nodes into the assessment. Reference best available applicable knowledge and literature.
IAAC-31	MMF-07	8.2 Monitoring	9.4.2.2 Project Pathways 9.4.2.4 Project Residual Effect 9.8.2 Surface Water Quality	The EIS Guidelines indicate that the EIS must provide an environmental monitoring program for all phases of the Project and will outline the description of the characteristics of the monitoring program, intervention mechanisms in the event of non-compliance and plans to engage Indigenous Groups. During the construction phase of the Project, the proponent plans to discharge construction dewatering water from the MacLellan site to the Keewatin River. This will increase flow volumes over baseline which could pose risks of excess erosion and sedimentation downstream as well as contaminant loading to downstream waterbodies. Degraded water quality could have a direct impact on the health and wellbeing of land users through the consumption of fish from Cockeram Lake if Project activities affect the Keewatin River which feeds into the lake. Additional information is required on monitoring and mitigation measures in place to address effects to surface water from dewatering activities during construction to understand the residual effects to VCs.	a. Describe how the Keewatin River downstream of the Project will be affected by Project-induced erosion and sedimentation. b. Provide an erosion and sedimentation monitoring plan for the Keewatin River. Describe how the plan will incorporate Indigenous input.

IAAC-32	ECCC-15 ECCC-17 MCCN-41	4.3 Study strategy and methodology 6.2 Predicted changes to the physical environment 6.2.2 Changes to groundwater and surface water 6.3 Predicted effects on valued components 6.3.1 Fish and fish habitat	9.4.2 Surface Water Quality Volume 5, Appendix D Lynn Lake Gold Project Hydrology Water Balance and Water Quality Impact Assessment: Gordon Site Technical Modelling Report 2.0 Modelling Approach Appendix E Lynn Lake Gold Project Hydrology Water Balance and Water Quality Impact Assessment: MacLellan Site Technical Modelling Report 2.0 Modelling Approach	The EIS Guidelines set out requirements regarding predicting changes to the physical environment and assessing effects on VCs, respectively. The EIS Guidelines require that changes to groundwater and surface water as a result of the Project be predicted, including changes to groundwater and surface water quality. The interconnections between groundwater, surface water, and fish and fish habitat are reflected in the EIS Guidelines. The proponent has the discretion to select the most appropriate methods to compile and present data, information and analysis in the EIS as long as they are justifiable and replicable, and that in undertaking the environmental effects assessment, the proponent will use best available information and methods. The EIS states that results from the Expected Case scenario were used to evaluate where and when water quality parameters may exceed applicable guidelines during construction, operation, and decommissioning/closure, and to identify if additional mitigation measures beyond those included in the Project design are necessary. EIS Volume 5, Appendix E, Table 4-7 identifies receiving environment exceedances for the Expected Case. The conclusions section for this report (Appendix E) does not specify the prediction scenario and prediction metric(s) (for example, mean or maximum monthly concentrations) upon which the conclusions are based and which formed the basis for the effects assessment of surface and groundwater quality, and informed the effects assessment of fish/fish habitat. Similarly, it is unclear which Expected Case prediction metric(s) formed the basis for the identification of exceedances and mitigation measures. The EIS states that the results from the Upper Case scenario were used to show potential extreme changes in water quality parameters. Per Volume 5, Appendix E: “Due to the high level of conservatism in the inputs and assumptions applied to the Upper Case scenario, it is recommended that these predictions are used for contingency planning only”. The EIS does not appear to summarize the findings of the Upper Case scenario predictions or provide the receiving environment exceedances for this scenario. It does not summarize the contingency plans/measures that would be informed by the findings of the Upper Case scenario predictions. Provision of this information would facilitate a better understanding of the water quality	a. Clarify which Expected Case prediction metric(s) (e.g., mean or maximum monthly concentrations) were used, and why it is most appropriate, for the: i. effects assessment of surface water, groundwater, and fish/fish habitat; ii. identification of exceedances and mitigation measures for surface water, groundwater, and fish/fish habitat; and iii. significant findings for the water quality model, provided in Section 5.0 of Volume 5, Appendix E. Identify the prediction scenario used for these significant findings in Appendix E. b. Provide a summary of the findings of the Upper Case scenario predictions with respect to surface water quality, groundwater quality, and fish and fish habitat. c. Provide a table similar to Table 4-7 (Volume 5, Appendix E), that presents parameter exceedances (long-term guidelines) in the receiving environment for the Upper Case. d. Revise the surface water quality assessment to incorporate a fulsome quantitative analysis of Project effects to DO, pH and TSS for both the Expected and Upper case scenarios. i. If this cannot be completed, discuss implications of data gaps for conclusions drawn, uncertainty, and additional follow up and monitoring that would be implemented to address uncertainty in a precautionary manner.

				predictions, and therefore a better understanding of the potential effects of the Project on surface water quality, in addition it would support understanding of potential extreme changes and assessment of contingency plans. The EIS states that "due to modelling limitations for some parameters, Project-related changes in DO, pH, and turbidity (as TSS) were not assessed quantitatively". It is not clear whether TSS concentrations were accounted for in the surface water quality predictions. As TSS levels can potentially affect the concentration of some water quality parameters, such as metals, water quality predictions incorporating TSS should be provided. The information gap for these key water quality parameters impairs the ability to sufficiently evaluate the effects of the Project on water quality and associated environmental effects.	
IAAC-33	ECCC-16	6.2 Predicted changes to the physical environment 6.2.2 Changes to groundwater and surface water	Volume 5, Appendix D Lynn Lake Gold Project Hydrology Water Balance and Water Quality Impact Assessment: Gordon Site Technical Modelling Report Tables 5-1 to 5-8 Appendix J Summary of Predicted Seepage Water Quality Appendix E Lynn Lake Gold Project Hydrology Water Balance and Water Quality Impact Assessment:	The EIS Guidelines require that changes to groundwater and surface water as a result of the Project be predicted, including changes to groundwater and surface water quality. The tables presenting water quality concentrations in Appendix D and Appendix E of Volume 5 do not consistently identify the following: • water quality metric(s), for example monthly minimum/mean/maximum concentration; and • guideline type, for example short-term/acute or long-term/chronic exposure. Provision of this information is important to support interpretation of these tables, and to understand the potential effects of the Project on surface water quality.	a. Provide the following information regarding Appendix D (Hydrology Water Balance and Water Quality Impact Assessment: Gordon Site): i. Tables 5-1 to 5-6: Indicate the discharge concentration units, and define 'mean' and 'max' to identify the prediction metrics representing discharge concentrations. ii. Table 5-7 and Table 5-8: Indicate concentration units, refer to guidelines used (short-term/acute or long-term/chronic guidelines), and identify the prediction metric (for example, minimum/mean/maximum monthly concentration) used to represent exceedances in the receiving environment. iii. Table Appendix J-1 and Table Appendix J-2: Define 'average' to clearly identify the prediction metrics representing MRSA seepage concentrations, and refer to guidelines used (short-term/acute or long-term/chronic). b. Provide the following information regarding Appendix E (Hydrology Water Balance and Water Quality Impact Assessment: MacLellan Site):

			MacLellan Site Technical Modelling Report Tables 4-5 to 4-7 Appendix H Predicted Seepage Water Quality		i. Tables 4-5 and 4-6: Indicate the effluent concentration units, and define 'mean' and 'max' to identify the prediction metrics representing effluent concentrations. ii. Table 4-7: Indicate concentration units, refer to guidelines used (short-term/acute or long-term/chronic), and identify the prediction metric (for example, mean/median/maximum monthly concentration) used to represent exceedances in the receiving environment. iii. Table Appendix H-1 and Table Appendix H-2: Define 'average' to clearly identify the prediction metrics representing MRSA and TMF seepage concentrations, and refer to guidelines used (short-term/acute or long-term/chronic).
IAAC-34	ECCC-18	6.2 Predicted changes to the physical environment 6.2.2 Changes to groundwater and surface water	Appendix 9E Characterization of Mine Discharges	The EIS Guidelines require that changes to groundwater and surface water as a result of the Project be predicted, including changes to groundwater and surface water quality. The figures in Appendix 9E compare predicted mine discharges from the MacLellan open pit and MacLellan collection pond against the MDMER only, and do not include comparisons against short-term aquatic life guidelines. As the MDMER sets standards for a limited number of parameters, comparisons to other guidelines provides important information on potential Project effects for parameters that are not regulated by the MDMER. The indicated MDMER guidance levels denoted do not appear to correspond to the Schedule 4 maximum authorized monthly limits, as indicated in the EIS. Provision of this and information on key model details for the MacLellan open pit predictions would support the interpretation of these figures and an understanding of Project effects to surface water.	a. Provide the following information for the figures in Appendix 9E: i. add comparison(s) against recognized short-term/acute aquatic life guidelines; ii. indicate which water quality prediction concentration metrics are depicted for the Expected and Upper cases (e.g., monthly mean concentration, maximum); and iii. include MDMER maximum authorized monthly mean concentrations. b. Provide key model details for the MacLellan open pit predictions, including modelled depth and model assumptions regarding mixing/stratification of pit waters.
IAAC-35	MCCN-42 MMF-12	6.1.5 Goundwater and Surface Water	9.4.2.3 Mitigation	The EIS Guidelines require that mitigation measures are specific, achievable, measurable, and verifiable, and described, in a manner	a. Develop a detailed pit lake model for the pit lakes at both the MacLellan site and Gordon site. Include best and worst-case scenarios in the modelling. Develop a

		6.4. Mitigation measures		that avoids ambiguity, in intent or commitment, interpretation, and implementation. The EIS indicates that proponent plans to operate the TMF as a zero-discharge facility during operations and plans to direct seepage from the TMF and MRSAs to the pit lake during the post-closure phase. The proponent indicated the possibility of fertilizing the open pit to encourage precipitation of metals out of solution, to allow for settling to the deep, anoxic waters of the pit lake. The EIS notes that water quality modelling indicates a high likelihood of a number of metals being elevated above water quality guidelines in the TMF and MRSA seepage to the pit lake and any other potential receiving environment at the MacLellan site, as well as the pit lake, for the entire post-closure period (over 100 years). The post-closure pit lake chemistry has not been modelled, and the chemistry of the TMF and MRSA water, which will flow to the MacLellan pit lake is poorly understood; the chemistry of the TMF and MRSA seepage would add additional complexity and uncertainty to the pit lake chemistry modelling. TMF and MRSA seepage combined with the pit lake water will discharge effluent elevated in metals to the Keewatin River for at least 100 years post-closure. The cumulative uncertainty between the various geochemical models presents a substantial risk for Indigenous land users in the region who utilize the downstream environment. Post-closure water quality that is worse than predicted and harder to treat through fertilization methods than anticipated, may negatively impact generations of Indigenous traditional land use. Information on the chemistry of the TMF and MRSA seepage is required to understand all potential effects to surface and groundwater quality.	mixing model for TMF and MRSA seepage water that will enter the open pit. b. Indicate the proposed water quality criteria required to be met to reconnect the pit lakes with the watershed and identify options for in-situ and ex-situ treatment if the water quality of the pit lakes does not achieve the water quality criteria for reconnection with passive drainage/no treatment. c. Describe how and when bench and lab scale studies will be undertaken to test the effectiveness of potential pit lake fertilization prior to application. Describe other potential passive treatment techniques that could be applied if the technique is not as effective as anticipated. d. Describe the process of engagement with Indigenous Groups to provide opportunity to review and provide comment and input into the above items.
IAAC-36	MCCN-33	6.5 Significance of residual effects	9.1.5 Residual Effects Characterization 9.7 Determination of Significance	The OPS titled *Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects under CEAA 2012* is referenced in the EIS Guidelines as guidance in assessing the significance of residual effects. The OPS states that “the rationale for identifying an environmental effect as being a low, moderate or high magnitude should be clearly documented”.	a. Provide an evidence-based rationale for the thresholds used to define the Magnitude (e.g., Negligible – High) for Change in Surface Water Quantity. Include references to the best available applicable knowledge and literature.

				The EIS defines a “High” magnitude change for surface water quantity as “a Project-caused change in hydrology (flow or levels) that is greater than 30% relative change from existing conditions”. The EIS concludes that the Project will result in substantial effects to surface water quantity that exceed baseline variability of conditions as well as applicable environmental standards. The EIS concludes that “Project-related changes in surface water quantity are predicted to be not significant. This is because, although there are likely to be measurable changes in lake levels and streamflows with the LAAs, the predicted changes are not expected to exceed a 30% relative change from existing conditions.” The rationale for this choice of threshold value for relative change is unclear. Clarity is needed to understand the significance determination.	
IAAC-37	ECCC-12 MCCN-34 MCCN-43 MCCN-44	6.5 Significance of residual effects	9.1.5 Residual Effects Characterization 9.1.6.2 Change in Surface Water Quality 9.4.3.2 Surface Water Quality 9.7 Determination of Significance	The EIS Guidelines indicate that the EIS must provide a detailed analysis of the significance of the residual environmental effects that are considered adverse following the implementation of mitigation measures. The OPS titled *Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects under CEAA 2012* is referenced in the EIS Guidelines as guidance in assessing the significance of residual effects. The OPS states that “the rationale for identifying an environmental effect as being a low, moderate or high magnitude should be clearly documented”. The EIS defines a “High” magnitude change for Change in Surface Water Quality as “measurable change that is not within the variability of existing conditions and not within applicable guidelines, legislated requirements and/or federal and provincial management objectives **and is likely to have an adverse effect on aquatic biota** in the LAA or RAA” (emphasis added). In the EIS, a significant residual adverse effect to surface water quality is defined as one that results in a measurable change in water quality parameters that exceed water quality guidelines to an extent that adverse toxicological effects to aquatic life are expected to occur at the community or population level.	a. Revise the following such that effects to aquatic biota are not used to supersede consideration of effects to natural variability and environmental and regulator surface water quality standards, guidance and objectives for characterizing residual effects: i. residual effects characterization; ii. analysis of Project effects; and iii. significance determination related to surface water quality.

				This definition is narrow, focusing only on toxicological effects. Adverse effects can also occur through ecosystem or food web alterations. For example, nutrient loading can lead to a significant effect on productivity, followed by reduced DO concentrations in winter. The EIS downgrades the severity of Project effects to surface water quality by concluding that the Project will not have adverse effects on aquatic biota. The EIS assesses effects to fish and fish habitat separately in EIS Chapter 10. It is unclear why the Proponent elected to use effects to aquatic biota as the ultimate threshold for characterizing residual effects to surface water quality given that the Project is expected to result in measurable changes that exceed applicable environmental standards (e.g., see Section 9.4.2 Surface Water Quality). The EIS further concludes that "Project-related changes in surface water quality for the Expected Case are predicted to be not significant. This is because, although there are concentrations of some water quality parameters that are predicted to exceed federal and/or provincial water quality guidelines for the protection of aquatic life and baseline concentrations by more than 20% (i.e., POPCs), the predicted concentrations are below the toxicological thresholds at which adverse effects are expected to occur in fish and other aquatic biota". The proponent's use of selected thresholds to interpret Project effects on surface water quality is ambiguous and inhibit ability to sufficiently evaluate the proponent's significance determination. A broadened definition of 'significant residual adverse effect to surface water quality' which includes food web or ecosystem effects related to nutrient loading or changes in DO, may lead to a different conclusion by the proponent concerning residual Project effects.	
IAAC-38	ECCC-13 ECCC-22 MCCN-06 MCCN-31 MCCN-82	3.2.3 Decommissioning and abandonment 3.2.3 Spatial and temporal boundaries	2.7.4 Decommissioning/ Closure 9.1.4.2 Temporal Boundaries	The EIS Guidelines set out the requirements for defining the spatial and temporal boundaries used in the EIS. The EIS Guidelines require the EIS to include a description of any progressive reclamation and monitoring planned for the decommissioning and abandonment phase. The timing of monitoring of the decommissioning/closure phase, as described in the surface water assessment is unclear. The EIS states	a. Clarify the temporal boundary with respect to decommissioning/closure. b. Provide a clear timeline for water management and monitoring over the lifespan of the Project, including post-closure water quality monitoring. i. Include the duration estimated for the site to become stable following pit filling.

		6.1.5 Groundwater and Surface Water		that the expected duration for post-closure monitoring is approximately 10 years. However, the Gordon site open pit is anticipated to be filled 11 years from the end of active closure (by year 17) and the MacLellan Site open pit filled 21 years from the end of active closure (by year 35). Monitoring must be undertaken long enough to account for changes in water quality associated with pit filling. This information is required to understand the extent of changes from the Project to surface water and associated environmental effects.	ii. Clarify that pit water quality will be monitored for the duration of filling and as long as necessary to demonstrate that water quality has stabilized and will not adversely affect the aquatic receiving environment in the short, medium and long term.
IAAC-39	ECCC-23 MCCN-102 MCCN-103 MMF-09	8.0 Follow-Up and Monitoring Programs	23.5 Environmental Monitoring and Management Plans	The EIS Guidelines indicate that the EIS must provide follow-up programs designed to verify the accuracy of the effects assessment and to determine the effectiveness of the measures implemented to mitigate the adverse effects of the Project. Aside from the Conceptual Closure Plan, the environmental management and monitoring plans have not been provided for this Project. Several of these outstanding plans, described in Section 23.5, are expected to contain information that is relevant to the review of surface water quality and details on environmental effects monitoring and management. Consequently, it is not possible to assess the adequacy of mitigation measures, monitoring, or management practices, to assess the Project's ability to verify the effectiveness of mitigation measures, or detect change in the receiving environment. IAAC-55 indicates details needed in the plans, as appropriate, that relate to fish and fish habitat.	a. Provide details for the Environmental Management Plan as well as the following management and monitoring plans described in Section 23.5, so that reviewers can understand whether the plans are designed to verify the accuracy of the effects assessment and to determine the effectiveness of the mitigation measures: i. Emergency Response and Spill Prevention and Contingency Plan; ii. Mine Rock Management Plan; iii. Groundwater Monitoring Plan; iv. Surface Water Monitoring and Management Plan; v. Waste Management Plan; vi. Erosion and Sediment Control Plan; and vii. Environmental Effects Monitoring Plan b. Describe how Indigenous Groups will be involved in the development and implementation of follow-up and monitoring programs, including whether time and resources will be provided to support participation in the co-development of appropriate follow-up and monitoring programs that will address community concerns.
IAAC-40	IAAC	6.6.3 Cumulative effects assessment	9.5 Assessment of Cumulative Environmental Effects on Surface Water	The EIS Guidelines indicate that the EIS will identify and assess the Project's cumulative effects on VCs. The EIS indicates that a number of community sewage treatment plants or on-site sewage treatment systems at cottages or	a. Provide justification as to why there are no adverse cumulative effects between the Project and existing/future sewage treatment plants/systems. Include details such as distance of sewage treatment plants from the LAA and RAA, and the area around

				subdivisions outside of the LAA could produce effluents containing nutrients. The EIS indicates that the facilities are not close enough to have physical overlap with the areas where Project residual effects to water quality have been identified. Information to support this assertion should be provided, such as the distance of the Project from the sewage treatment plants, and the distance from the sewage plants where effects to surface water could be expected. Additional information on cumulative effects to surface water are required to understand the adverse effects to fish and fish habitat.	sewage treatment plants where effects to water quality are likely.
IAAC-41	MMF-11	6.6.1 Effects of potential accidents or malfunctions 6.6.3 Cumulative effects assessment	9.5.1 Project Residual Effects Likely to Interact Cumulatively 22.0 Assessment of Potential Accidents or Malfunctions	The EIS Guidelines require the proponent to identify and assess the Project's cumulative effects on VCs such as fish and fish habitat and Indigenous peoples. The EIS Guidelines require the analysis of risks of accidents and malfunctions across all phases of the Project and determine their effects. The Lynn River is the receiver of historical contamination from the ETMA near the Town of Lynn Lake (associated with three closed mines: copper, gold, and nickel). The Lynn River flows into the Keewatin River, which flows through the MacLellan site. The Keewatin River then flows into Cockeram Lake, which is fished by members of Indigenous Groups. The assertion in the EIS that there is no potential for cumulative effects at the confluence of the Lynn and Keewatin Rivers is a presumption based on best case scenario under which there are no operational malfunctions that result in discharge from the MacLellan site to the Keewatin River. The water quality modelling presented in the EIS indicates that TMF supernatant and seepage, MRSA seepage, and other contact water is likely to have highly elevated levels of metals such as arsenic, cadmium, cyanide, and others. An unintentional release of contact water to the Keewatin River could result in cumulative effects with effluent from the ETMA. While the probability of operational malfunctions that result in discharge from the MacLellan site may be low, the potential cumulative effect of such discharge could be significant to water quality downstream of the Project.	a. Provide an assessment of effects, including best-case and worst-case scenarios, and interim cases, from the ETMA and the Project in the event of an unintentional release of contact water to Keewatin River to determine what quantity and quality of water discharged from the mine would result in cumulative effects for all phases of the Project. b. Assess the potential cumulative effects on Keewatin River including consideration of effects to water quality from Lynn River. c. Describe how Indigenous Groups will be engaged and how their input will be incorporated into the above assessments.

				Indigenous Groups use Cockeram Lake to fish and for traditional purposes. Information on direct and cumulative effects of the Project on this waterbody is required to understand the potential adverse impacts of the Project on Indigenous health and socioeconomic conditions and the current use of lands and resources for traditional purposes by Indigenous Groups.	
Fish and Fish Habitat					
IAAC-42	ECCC-20 IAAC Conformity Review ECCC-5	6.1.6 Fish and fish habitat 6.3.1 Fish and fish Habitat	10.2.1.7 Lower Trophic Communities 10.2.2.9 Lower Trophic Communities	The EIS Guidelines require a description of primary and secondary productivity of aquatic resources, and a description of effects on the primary and secondary productivity of water bodies and how mine-related effects may affect fish food sources. The EIS indicates that dominant taxa reported at the erosional sites in streams at the Gordon and MacLellan sites were EPT taxa (*Ephemeroptera*, *Plecoptera* and *Trichoptera*). However, the presence/absence of each EPT order was not provided. The presence of each EPT taxa is an important indicator of water quality, as the composition of benthic macroinvertebrate communities demonstrates systematic shifts in community composition due to pollution. Reporting the dominant taxa alone does not indicate whether the benthic community is diverse, and therefore this information is required to understand the quality of existing habitat. The EIS and associated baseline studies indicate that lower trophic communities were surveyed in 2015 and 2016, however there is only one year of data available for many metrics and locations as different sites and sampling were done in each year. This provides a snapshot of the communities and does not characterize the range of natural variability. Ideally, there should be several year-over-year measurements to start to define variability in the population metrics. These metrics are inherently variable, and future comparisons to the existing data may result in mistaken identification of effects in instances of natural variability. This information is required to determine how the Project will affect fish and fish habitat.	a. Provide details on the presence/absence of each individual EPT order. b. Identify how a more robust dataset to characterize plankton, periphyton and benthic invertebrate communities will be developed. Indicate when the proponent intends to collect this data, and how it will be used in developing monitoring and follow-up plans.
IAAC-43	MCCN-46	6.1.6 Fish and fish habitat 6.3.1 Fish and fish habitat	10.1.3 Potential Effects, Pathways and Measurable Parameters	The EIS Guidelines require a characterization of fish populations on the basis of species and life stage, abundance, distribution, and movements, as well as a description and assessment of the predicted effects on fish and their habitat, including anticipated changes in the composition and characteristics of the populations of various fish	a. Describe the applicability of the effects assessment to fish and fish habitat to all fish species present in the LAA and RAA, including Lake Sturgeon and other culturally important fish species. Demonstrate that the three species (Northern Pike, Lake Whitefish and

				species. Under the new *Fisheries Act*, protections are afforded to all fish species. The proponent has based their assessment of potential Project effects on three focal species (Northern Pike, Lake Whitefish, and Walleye) and one fish guild (forage species). These focal species may not be sufficient to represent the unique life history, ecology, and habitat requirements for fish in potentially affected surface waters. Of particular concern, these focal species fail to capture the unique life history and habitat requirements of culturally important species that have been and/or continue to be harvested in the vicinity of the Project, including a declining Lake Sturgeon population, which has been assessed as Endangered by Committee on the Status of Endangered Wildlife in Canada. Consideration of all potentially affected species is necessary for a full understanding of potential effects to fish and fish habitat. It is important that this assessment reflects the unique ecology and life history requirements of Lake Sturgeon and other culturally important fish species that are not currently represented by the four focal species, contributing to substantial gaps in the assessment of potential Project effects to VCs.	Walleye) and one fish guild (forage species) used in the assessment are adequately representative of the unique life history and habitat requirements of all fish species in the LAA and RAA. i. If it is determined that the four species used in the assessment do not cover the unique life history and habitat requirements of all fish species in the LAA, complete a characterization of fish populations (including abundance, distribution and movements) and assessment of the potential for the Project to affect all fish species, including Lake Sturgeon and other culturally important species. Describe mitigation measures and assess the significance of residual effects. Describe associated monitoring and follow-up.
IAAC-44	MCCN-48	6.3.1 Fish and fish habitat	10.4.2.4 Residual Effects	The EIS Guidelines require the identification of any modifications in fish migration or local movements (upstream and downstream migration, and lateral movements) following the construction and operation of works (physical and hydraulic barriers). The EIS lacks an adequate description of potential modifications in fish migration or local movements as a result of the Project, particularly for culturally important species, such as Lake Sturgeon, that have not been included as focal species in this assessment. Understanding changes in migration and movement corridors is needed to assess potential Project effects to fish communities and the maintenance of Indigenous fishing practices in preferred harvesting areas.	a. Provide a description of any potential modifications in fish migrations or local movements for culturally important fish species, including Lake Sturgeon, as a result of Project construction, operation, and post-closure.

IAAC-45	MCCN-49	6.3.1 Fish and fish habitat	10.4.2.4 Residual Effects	The EIS Guidelines require a discussion of how vibration caused by blasting may affect fish behaviour, such as spawning or migrations. While the proponent includes a brief discussion in the EIS of how blasting activities can cause direct injury or mortality to fish, there is no discussion of how vibrations caused by blasting may affect fish behaviour, including spawning or migrations. Vibrations can have a variety of effects on fish behaviour, movement, and condition. Understanding the implications of vibrations caused by blasting for fish health, behaviour, movement, and reproductive success is crucial to understanding potential Project effects on these fish communities.	a. Provide a detailed description of how vibration caused by blasting may affect fish behaviour, such as spawning or migrations. Describe the area potentially affected by vibrations as a result of blasting, as well as the timing and duration during which vibrations may be experienced.
IAAC-46	ECCC-21	6.3.1 Fish and fish habitat	10.3 Project Interactions with Fish and Fish Habitat Table 10-14	The EIS Guidelines require the effects assessment on fish and fish habitat to include the effects of changes to the aquatic environment, including those identified under changes to groundwater and surface water. Project-related transportation within the LAA will occur at both sites during construction, operation, and decommissioning/closure phases; the EIS states that these activities will occur on land, away from lakes and streams and are not considered to affect fish or fish habitat. Dust generated from transportation can be deposited to surface waters in the LAA/RAA and increase turbidity and TSS, which can affect surface water quality and the aquatic ecosystem.	a. Provide details on how dust generation from Project-related transportation within the LAA at both sites during all phases will be monitored in surface waters. b. Describe how potential adverse effects due to increased turbidity/TSS will be mitigated.
IAAC-47	DFO-4	6.3.1 Fish and fish habitat	10.4.1.4 Project Residual Effects Table 10-22 Framework for Assessing the Ecological Flow Requirements to Support Fisheries in Canada; DFO (2013)	The EIS Guidelines require the EIS to assess the modifications of hydrological and hydrometric conditions on fish habitat. The text below Table 10-22 in the EIS states that “None of the predicted flow reductions during closure, post-closure phases will result in flows <30% of mean annual discharge (MAD) that weren’t already <30% of MAD for baseline conditions, the second of the two criteria that heightens the risk of impacts to commercial, recreational, or Aboriginal fisheries (DFO 2013)”. DFO notes that there is insufficient flow analysis presented to support this statement. Additional information is required to understand the effects to fish and fish habitat.	a. Provide the detailed instantaneous as well as mean annual flow analysis, as recommended by DFO (2013). Present the results as instantaneous flow volumes and compare against the proper DFO (2013) recommendations of <10% change in instantaneous flow and <30% of MAD for baseline conditions.

IAAC-48	CCN-63 DFO-5 DFO-6 MMF-17 SDFN-71	6.3.1 Fish and fish habitat 6.4 Mitigation measures	10.4.1.4 Project Residual Effects The impact of exceptional events on erosion, bedload transport and channel stability in a step-pool channel; Turowski, Yager, Badoux, Rickenmann, and Molnar (2009)	The EIS Guidelines require the EIS to identify and assess adverse effects to fish and fish habitat, including modifications of hydrological and hydrometric conditions, and to describe mitigation measures to avoid or lessen potential adverse effects. An assessment of the effectiveness of the proposed technically and economically feasible mitigation measures are also required. The EIS states that "While current model predictions are conservative, Alamos understands that the predicted flow changes in Farley Creek during construction and operation are well above those considered likely to have a low probability of causing detectable effects to aquatic ecosystems (i.e., <10% change in instantaneous flow; DFO 2013)." The largest increases are expected to occur during May and June. Discharge during this period would coincide with high baseline discharge, potentially causing long-term changes to channel morphology including bank erosion, substrate mobility, and channel widening. It is well known that extreme or exceptional events associated with peak discharge are a significant driver of change in channel morphology in streams (Turowski, Yager, Badoux, Rickenmann, & Molnar, 2009). These changes would potentially affect Farley Creek for the long term and may reduce habitat variability, cause over widened low flow channels and sedimentation of locally scarce spawning habitat downstream. These changes may also negatively affect Slimy Sculpin habitat, which is limited to the boulder cascade on Farley Creek. The proponent applied an in-house modeling exercise, prepared for Gordon site, that included the application of a 3-dimensional ground water model as well as a water balance model to analyze the surface water part (namely, Farley Creek), and predict anticipated changes in its flow regime as well as water levels. Whereas the application of the water balance or water budget is still acceptable, the application of a hydrodynamic and habitat model would have been more effective and accurate to analyze such data and depict how water depths and water velocities in Farley Creek will be affected by the predicted changes in flow volumes. The EIS stated that no such analysis would be possible owing to safety and complexity of the flow pattern concern at Farley Creek. Instead, limited qualitative assessments to the potential changes to fish and fish habitat were provided. These kinds of physical habitat variables or	a. Apply a hydrodynamic, geomorphological and habitat model to accurately analyze the data and depict how water depths, creek morphology, water velocities and habitat characteristics in the Farley Creek will be affected by the predicted changes in flow volumes. Ensure the models factor in winter flows, ice conditions and the presence or absence of any flow altering structures (beaver dams, etc.). b. Describe in detail the methodologies and analyses used in determining these flow regime changes. c. Provide a full assessment of the predicted alterations to flow and their effects on fish and fish habitat. d. Provide details of a comprehensive monitoring regime to validate the model predictions and an adaptive management plan to adjust for discrepancies that may be identified. e. Provide the final plan of the mitigation measures for the Project that address effects to fish and fish habitat in Farley Creek so that a full assessment, including validation of modelling predictions and effectiveness of mitigation, can be conducted. i. Evaluate additional mitigation measures and/or alternative water management strategies to reduce the peak discharges and effects on channel morphology of Farley Creek.

				hydraulic conditions (e.g., velocities, water depths, etc.) are important to fully assess the potential changes to fish and fish habitat. In addition, the EIS states that "Alamos commits to explore options to mitigate potential effects to fish and fish habitat in Farley Creek during construction and operation phases" and lists mitigation options that will be investigated. Additional information is required on the mitigation options to undertake a proper assessment and validation of the modelling predictions and predicted effectiveness of mitigation. This will allow a complete analysis of anticipated effects to fish and fish habitat in Farley Creek.	
IAAC-49	DFO-1	6.1.6 Fish and fish habitat 6.3.1 Fish and fish habitat	10.2.2.3 Fish Community Composition, Distribution, and Relative Abundance 10.4.1.4 Project Residual Effects	The EIS Guidelines require the EIS to characterize fish populations on the basis of species and life stage, abundance, distribution and movements and for the EIS to provide a description of the habitat, including habitat types and functions. The EIS states that only Brook Stickleback were captured in the diversion channel between Gordon and Farley Lakes in the summer of 2016 and that no large-bodied fish were captured in the gillnets, however, one Northern pike was observed. The observation of one Northern Pike suggests the potential for the existing diversion channel to provide habitat for multiple species of varying year classes. The EIS suggests that Yellow Perch and White Sucker may utilize the channel at various stages of their life cycle. Further characterization of the diversion channel and its utilization by fish is required. This information is essential to ensure that the value of the habitat is adequately characterized, that the loss of this habitat is adequately offset, and that appropriate monitoring targets for the offsetting are applied.	a. Characterize the diversion channel using more conclusive information on the utilization of the habitat by these three species (Northern Pike, Yellow Perch and White Sucker) including any potential spawning and/or rearing activities. i. If further sampling cannot be achieved, provide justification to describe why, and provide an alternative approach.
IAAC-50	DFO-2	6.1.6 fish and fish habitat 6.3.1 Fish and fish habitat	10.2.2.3 Fish Community Composition, Distribution, and Relative Abundance	The EIS Guidelines require the EIS to characterize fish populations on the basis of species and life stage, abundance, distribution and movements and for the EIS to provide a description of the habitat, including habitat types and functions. The EIS states that no fish were captured electrofishing in Farley Creek upstream of the boulder cascade likely due to sampling inefficiencies. It is understood that the boulder cascade located in the	a. Confirm species presence and relative abundance of each species in the upper-most reach above the boulder cascade will be achieved. Identify any flaws in the sampling methods and note any modifications or alternatives adopted to address these flaws. b. Describe how Lower Farley Creek is being specifically utilized by these species (Burbot, Northern Pike and

				mid-section of Farley Creek and the beaver dam located at its head act as partial fish barriers; however, variations in flow may provide opportunities for fish to gain access to the upper-most reach. Furthermore, it has been suggested that Burbot, Northern Pike and White sucker all may utilize the lower portion of Farley Creek for one or more of their life processes including spawning. Confirmation of species presence and relative abundance of each species in the upper-most reach above the boulder cascade is required. This information is essential to ensure that the value of the habitat is adequately characterized, that the loss of this habitat is adequately offset, and that appropriate monitoring targets for the offsetting are applied.	White sucker) with a focus on identifying spawning and rearing habitat as well as determining the relative abundance of each species present will be obtained. c. If further sampling cannot be achieved, provide justification to describe why, and provide an alternative approach.
IAAC-51	MMF-18	6.1.6 Fish and fish habitat	10.2.2.3 Fish Community Composition, Distribution, and Relative Abundance	The EIS Guidelines require the EIS to provide a description of fish habitat baseline and to characterize fish populations on the basis of species and life stage, abundance, distribution, and movements. The EIS states that there is only a self-sustaining population of Brook Stickleback in Gordon Lake because of low winter oxygen levels. The EIS states that White Suckers have also been identified. While overwintering of White Suckers is unlikely (as evidenced by lack of upstream movement observed during spring surveys), the lake may provide important nursery for them. This information needs to be reflected accurately in the assessment to be able to understand the effects to fish and fish habitat.	a. Update the habitat mapping and assessment of effects of changes (e.g., temperature and lake level) to Gordon Lake to reflect all fish habitat value.
IAAC-52	DFO-3 MCCN-47 MMF-19	6.3.1 Fish and fish habitat	10.4.1.4 Project Residual Effects	The EIS Guidelines require the identification of any potential adverse effects to fish and fish habitat including the calculations of any potential habitat loss or alterations (temporary or permanent) in terms of surface areas (e.g., spawning grounds, fry-rearing areas, feeding), and in relation to watershed availability. The EIS does not provide an adequate summary of fish habitat loss or alterations in terms of surface area, nor watershed availability. For many components, a surface area calculation has not been provided (e.g., loss of East Pond, or effects to fish habitat as a result of changes in water levels and stream flows). For all components, the EIS did not present these areas in relation to watershed availability (e.g., a calculation of the proportion of habitat affected within the watershed). Furthermore, the proponent has not summarized this	a. Provide a calculation and summary of the area of fish habitat potentially affected by the Project, including any potential fish habitat loss or alterations (temporary or permanent) for Project components (e.g., diversion channels, road crossings, intakes, dewatering, and as a result of changes in water levels and stream flows). i. Provide a qualitative and quantitative analysis of the proposed habitat to be destroyed in the East and Wendy pits and a summary report of the anticipated habitat losses. Describe how the proponent will validate population estimates when fish are removed from both pits.

				information across Project components to provide an overall assessment of the total area or proportion of fish habitat that will be lost or altered within the PDA, LAA or RAA as a result of the Project. As fish are present year-round, DFO has concluded that the Wendy and East pits do qualify as fish habitat and therefore the draining of these features will be considered a harmful alteration, disruption or destruction under Section 35(1) of the *Fisheries Act.* DFO is satisfied with the fisheries assessment that has been carried out on these waterbodies, however additional information is required to understand the loss of habitat from these pits. In order to make an informed evaluation of the changes and cumulative effects that will be incurred as a result of the Project, the above information is required.	b. Provide a summary of any potential fish habitat loss or alterations in relation to watershed availability (i.e., area and percent change in habitat availability within the PDA, LAA, and RAA as a result of the Project, under existing conditions, construction and operation, and post-closure). c. Present the above requested information in a table or tables, including a summary of surface area by fish habitat type (e.g., spawning, rearing, feeding, migration, etc.).
IAAC-53	CCN-61 IAAC MCCN-50 MMF-19 MMF-25 SDFN-69	6.3.1 Fish and fish habitat	10.4 Assessment of Residual Effects on Fish and Fish Habitat 10.8.1 Change in Fish Habitat 23.5.15 Fish Habitat Offsetting Plan	The EIS Guidelines request that the proponent calculate potential habitat offset/compensation works, in terms of the amount as well as the spatial location. The EIS does not include a calculation of habitat offset/compensation works in terms of the amount of habitat being offset. While the proponent provides three examples of potential offsetting measures, including the new channel between Gordon and Farley Lakes, the EIS does not include details about which measures will be selected, the area that they will offset/compensate, or in some cases the spatial location in which they will occur. Additional details provided in EIS Chapter 23 are inadequate to determine its potential efficacy in addressing adverse residual effects to fish and fish habitat. Additional information regarding how the proposed offsetting will counterbalance residual effects to specific fish habitat types is required to understand the potential effects of the Project on fish and fish habitat In addition, it is unclear how impacts to Indigenous Groups and the exercise of their rights is considered in the habitat offset/compensation works. Habitat offsetting, while important and crucial for continuation of species, can interact with Indigenous rights. The conditions of the new locale may be suitable for fish, however, there is no consideration of whether the conditions are suitable for	a. Provide the proposed fish habitat offsetting relative to the different habitat types affected by the Project. Describe the extent the proposed offsetting would counterbalance the residual effects of the Project to fish and fish habitat. Include: i. a description and associated map of the location of proposed habitat offsets; ii. conceptual design details and drawings; iii. information on the proposed new channel between Gordon and Farley Lakes indicating where principles of natural channel design have been incorporated (e.g., adequate sized flood plains for flood energy dissipation during flood events to reduce risks of channel blowouts and improve stability, and to allow natural channel evolution during closure and post-closure); iv. completed flow modelling for the new channel, accounting for the effects of groundwater drawdown. Describe how adequate flows will be maintained during operations; v. the anticipated time-lag between initial construction of the fish habitat offsets and

				the exercise of rights. Further, the loss of cultural connection to the original locale can result in disruptions to teaching and transmission activities to the next generation. This information is required to understand impacts to Indigenous Groups and their ability to exercise their rights, including land access and fishing.	the offsets gaining full ecological function; and vi. the habitat offsetting ratio for all proposed fish habitat offset/compensation works related to fish and fish habitat, including the full volume of suitable habitat in the Wendy and East pits in the calculations of lost habitat for which offsetting is required. b. Describe how impacts to land users exercising Section 35 Rights of the *Constitution Act*, 1982 were considered in any proposed fish habitat offsetting, including in the design. Describe how Indigenous Groups were or will be engaged in the development and implementation of the fish habitat offsetting plan.
IAAC-54	ECCC-19 MMF-22	6.1.5 Groundwater and Surface Water 8.0 Follow-up and Monitoring Programs	10.2.2.8 Sediment Quality 23.0 Environmental Management and Monitoring	The EIS Guidelines sets out a requirement for sediment quality analysis for key sites likely to receive mine effluents. The EIS presents the chromium concentration values for sediment in Eldon Lake (54.4 mg/kg), the Keewatin River downstream of the Lynn River (85.5 mg/kg), and in the north basin of Cockeram Lake (39.3 mg/kg), which are reported to exceed the CCME/Manitoba Probable Effect Level (PEL) concentration of 90.0 mg/kg, however, the values reported are all below the guideline value. Clarification is required to understand whether values reported indeed exceed the guidelines. In addition, several contaminants were observed in sediments throughout both sites. Of note are exceedances of the CCME/Manitoba PEL for chromium, copper, and zinc, likely demonstrating legacy effects of mining. Despite these exceedances the proponent has not outlined a clear plan for monitoring sediments during operations or closure to evaluate the potential cumulative effects of the Project. This is particularly problematic at the MacLellan site, where the potential cumulative effects of contamination due to the Project are greater due to seepage from the TMF. The existing sediment contamination, coupled with any additional contamination from mine operations, could negatively affect benthic invertebrates, bottom-dwelling (e.g., Slimy Sculpin) or benthic feeding (e.g., White Sucker)	a. Clarify if the chromium sediment values reported exceed the guidelines. b. Describe sediment quality monitoring to be completed as part of the Project monitoring. Specify the sampling locations that will be used including reference sites, and sites downstream of discharge, the mine rock storage areas, and the TMF. c. Describe monitoring as part of the Environmental Management and Monitoring Plan that will be undertaken should exceedances of PEL occur. For example, these exceedances could trigger monitoring of fish health and fish tissues.

				fishes, and higher trophic level fish (e.g., Walleye, Northern Pike) which are fished by Indigenous Groups. Additional information is required to understand the sediment quality monitoring that will verify predicted environmental effects on fish and fish habitat.	
IAAC-55	MMF-16 MMF-26	6.3.1 fish and fish habitat 8.0 Follow-up and Monitoring Programs	10.2.2.3 Fish Community Composition, Distribution, and Relative Abundance Table 10-1 23.0 Environmental Management and Monitoring	The EIS Guidelines require the EIS to assess the effects of changes to the aquatic environment on fish and fish habitat, including identified changes to groundwater and surface water. The EIS Guidelines require the EIS to design a follow-up and monitoring program to verify the accuracy of the effects assessment and to determine the effectiveness of the measures implemented to mitigate the adverse effects of the Project. IAAC-51 discusses how groundwater flows will affect lake levels and the oxygen profiles in Gordon and Farley Lakes. No information is provided on how this may affect fish and fish habitat. Information on the oxygen profiles in Farley and Gordon Lakes in the summer is required to understand effects to fish and fish habitat. Fluctuating water levels in wetlands may also contribute to mercury methylation which could affect the fish populations in Gordon Lake, Farley Lake, and downstream. However, no information is provided on mercury methylation and effects to fish and fish habitat. In addition, IAAC-26 notes concerns about bioaccumulation of arsenic which is not discussed in the EIS. More information, such as information on the monitoring program, is required to understand the residual effects on fish and fish habitat and if the predictions and assumptions in the assessment are valid. No detail is provided on how monitoring of parameters in Table 10-1 will be conducted. This is needed to understand whether the Project's environmental effects can be adaptively managed.	a. Provide a description of how the summer oxygen profiles in Farley and Gordon Lakes may affect fish and fish habitat. b. Evaluate the potential effects of water level changes in Gordon Lake (Brook Stickleback) and Farley Lake (Northern Pike, White Sucker, Brook Stickleback) on spawning and overwintering habitats. Include any habitat losses as part of the fish habitat offset/compensation plan as per IAAC-53. c. Describe the fish tissue monitoring during all Project phases that will be conducted to identify potential increases of mercury and arsenic in fish tissue. i. Describe how Indigenous Groups will be engaged in the monitoring and indicate if and how training of Indigenous Groups, including Métis citizens, will be conducted. d. Provide the following information for monitoring and management plans related to fish and fish habitat: i. parameters being monitored, along with relevant guidelines, benchmarks, thresholds etc.; ii. methodology and equipment; iii. timing, frequency, and duration; iv. location (accompanied by maps); and v. how the proponent will incorporate comments from Indigenous Groups into the monitoring and management plans.