Stassinu Stantec Limited Partnership
141 Kelsey Drive
St. John's, NL A1B 0L2
Tel: (709) 576-1458
Fax: (709) 576-2126

Joyce Lake Direct Shipping Iron Ore Project:

Executive Summary

File No. 121416571

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EXECUTIVE SUMMARY

Joyce Direct Iron Inc. (Joyce Direct Iron; the Proponent) is proposing to develop an open pit iron ore mine in western Labrador, approximately 20 kilometres (km) to the northeast of the Town of Schefferville, Québec. Note that Joyce Direct Iron succeeded Labec Century Iron Ore Inc. ("Labec Century") as the Project Proponent on February 18, 2021 following an internal reorganization. All references to Labec Century as the Project proponent may be interpreted as now referring to Joyce Direct Iron.

The ore deposit for the Joyce Lake Direct Shipping Iron Ore Project (the "Project") lies on a peninsula of land in Attikamagen Lake. The mine will produce up to 2.5 million tonnes (Mt) of product per year. The product will be transported by dedicated trucks to the railway owned by Tshiuetin Rail Transportation Inc. and subsequently connecting to the Québec North Shore & Labrador railway, for transportation to the Port of Sept-Îles.

This Environmental Impact Statement (EIS) is intended to fulfil requirements for an environmental assessment (EA) pursuant to the *Canadian Environmental Assessment Act*, 2012 and to the Newfoundland and Labrador *Environmental Protection Act*. The Project was registered with the Newfoundland and Labrador Department of Environment and Climate Change (NLDOECC) on October 15, 2012, but the Newfoundland and Labrador process expired November 18, 2016. A Project Description and Summary were accepted for review by the Canadian Environmental Assessment Agency (the CEA Agency, now called the Impact Assessment Agency of Canada; IAAC) on November 19, 2012. IAAC determined that a federal environmental assessment was required on January 4, 2013. This Environmental Impact Statement (EIS) has been prepared by Joyce Direct Iron in accordance with the requirements of the federal and provincial governments.

The assessment methods used in the preparation of this EIS included an evaluation of the potential environmental effects for each Valued Component (VC) that may arise during the Project as well as from accidental effects. VCs are environmental attributes with which the Project may interact, and are of value or interest to Indigenous peoples, regulatory agencies, Labec Century, scientists, and/or other stakeholders. VCs specified in the EIS Guidelines and assessed in this EIS are:

- Atmospheric Environment and Climate
- Water Resources
- Groundwater Resources
- Terrain and Acid Rock Drainage/Metal Leaching
- Wetlands
- Fish and Fish Habitat

- Birds, Wildlife, and their Habitats
- Species at Risk and Species of Conservation Concern
- Historic and Cultural Resources
- Current Use of Land and Resources for Traditional Purposes by Indigenous Persons
- Other Contemporary Land and Resource Use
- Community Services and Infrastructure
- Economy, Employment and Business

In support of the EA process, additional studies were undertaken including:

- Air Quality Modelling
- Noise Modelling
- Historic and Cultural Resources Baseline Study
- Socio-Economic Baseline Study
- Surface Water Baseline Study
- Fish and Fish Habitat Baseline Study
- Vegetation Baseline Study
- Rare Plant Survey
- Avifauna Baseline Study
- Mammal and Herpetofauna Baseline Study
- Water and Sediment Quality Baseline Study
- Geotechnical Engineering Feasibility Study – Open Pit Design
- Geotechnical Engineering Feasibility Study – Surrounding Areas
- Hydrogeological Study
- Greenhouse Gas Emissions Estimates

These studies are appended to the EIS.

Labec Century has actively engaged with a variety of stakeholders, including Indigenous groups, members of the public, and regulatory agencies throughout the Project design and EA processes. Indigenous groups consulted in preparation of the Project assessment included:

- Innu Nation of Labrador
- Naskapi Nation of Kawawachikamach
- Innu First Nation of Matimekush-Lac John
- Innu First Nation of Uashat mak Mani-Utenam
- NunatuKavut Community Council

Issues and responses have been documented and incorporated throughout the EIS, including through Project design and effects management procedures. Indigenous communities and stakeholders have expressed considerable interest in the Project throughout the engagement process.

The potential interactions of Project features and activities with the existing environment were identified and potential effects were assessed for the Construction, Operation and Maintenance, and Closure and Decommissioning phases. The activities reflect the scope of the Project as prescribed in the EIS Guidelines and form the basis of the effects assessment. Accidental events were also assessed, including train derailment, forest fire, hydrocarbon spill, settling/ sedimentation pond overflow, and premature or permanent shutdown. The probability of an accidental event is low.

Mitigation measures are proposed to reduce or avoid adverse environmental effects. With the implementation of the mitigation measures, adverse residual environmental effects resulting from Project activities are predicted to be not significant for all VCs and project phases.

The evaluation of potential cumulative effects considered whether there was a residual environmental effect of the Project that would interact cumulatively with the residual environmental effects of other past, present, or future (i.e., certain or reasonably foreseeable) physical activities in the vicinity of the Project. Cumulative effects of ten other projects or activities in combination with the Project were assessed.

There are no likely significant residual effects or cumulative environmental effects predicted for any of the VCs. Monitoring programs will be implemented where warranted to verify the effectiveness of mitigation measures and the accuracy of effects predictions. As discussed in the relevant sub-sections of each VC, although significant effects could occur to several VCs as a result of accidental events, the likelihood of occurrence is low.

The Project will result in community and social benefits through direct and indirect economic effects including wages, salaries, government revenues and capital expenditures.

A table of concordance between IAAC EIS Guidelines and this EIS is presented in Table ES1. A table of concordance between the NLDOECC EIS Guidelines and this EIS is presented in Table ES2.

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
1.0	**INTRODUCTION**	
	It is the responsibility of the proponent to provide sufficient data and analysis on any potential changes to the environment to permit a thorough evaluation of the environmental effects of the project by the Canadian Environmental Assessment Agency (the Agency).	n/a
	The EIS Guidelines set out minimum information requirements. It is the proponent's responsibility to provide any additional information required to assess the environmental effects of the project. Except where specified by the Agency, the proponent has the discretion to select the most appropriate methods to compile and present data, information and analysis in the EIS.	n/a
2.0	**GUIDING PRINCIPLES**	5.4
2.1	**Environmental assessment as a planning tool**	5.4.1
	Environmental Assessment (EA) is a planning tool used to ensure that projects are considered in a careful and precautionary manner in order to avoid or mitigate the possible adverse effects of projects on the environment and to encourage decision makers to take actions that promote sustainable development.	5.4.1,
2.2	**Public participation**	5.4.2
	One of the purposes identified in CEAA, 2012 is to ensure opportunities for meaningful public participation during an EA. The Act requires that the Agency provide the public with an opportunity to participate in the EA and an opportunity to comment on the draft EA report.	n/a
	The overall objective of meaningful public participation is best achieved when all parties have a clear understanding of the proposed project as early as possible in the review process.	3
	The proponent is required to provide current information about the project to the public and especially to the communities likely to be most affected by the project.	1.2.6, 3
2.3	**Aboriginal consultation**	3.2, 5.4.3
	One of the purposes of CEAA, 2012 is to promote communication and cooperation with Aboriginal peoples, including First Nations, Inuit and Métis. To work toward this goal, the proponent will ensure that it engages with Aboriginal people and groups that may be affected by the project or that have potential or established Aboriginal and Treaty rights and related interests in the project area, as early as possible in the project planning process. The proponent is strongly encouraged to work with Aboriginal groups in establishing an engagement approach.	1.2.5, 3.2, 5.4.3
	Aboriginal persons involved will have access to relevant information that allows them understand the proposed project and to determine its impacts on their rights and interests. The proponent will make reasonable efforts to integrate "traditional Aboriginal knowledge" that will contribute to the assessment of environmental impacts.	3.2, 3.3, 5.4.3
	All information gathered through the EA process and associated engagement by the proponent and consultation by government with Aboriginal peoples will be used to inform decisions under CEAA, 2012. This information will also inform the Crown's understanding of the potential adverse impacts of the project on potential or established Aboriginal and Treaty rights and related interests, and the effectiveness of measures proposed to avoid or minimize those impacts.	3.2, 3.3, 3.4, 23

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
3.0	**PREPARATION AND PRESENTATION OF THE EIS**	
3.1	**Agency guidance**	1.7
	The proponent is encouraged to consult relevant Agency Policy and Guidance during the planning and development of the EIS materials on topics to be addressed in the EIS. The proponent is further encouraged to consult with the Agency and federal authorities (see section 3.4.1) during the planning and development of the EIS materials.	1.7.5, 5.4
3.2	**Study strategy and methodology**	5.5, VC chapters
	The proponent is expected to respect the intent of the EIS Guidelines and to consider the effects that are likely to arise from the project (including situations not explicitly identified in these guidelines), the technically and economically feasible mitigation measures that will be applied, and the significance of any residual effects.	5.5,10 to 22
	It is possible that the EIS Guidelines may include matters that, in the judgment of the proponent, are not relevant or significant to the project. If such matters are omitted from the EIS, the proponent will clearly indicate it and the justification for their conclusion provided so that the Agency, federal authorities, Aboriginal groups, the public and any other interested party have an opportunity to comment on this decision. Where the Agency disagrees with the proponent's decision, it may require the proponent to provide the specified information.	Noted
	In describing methods, the proponent will document how it used scientific, engineering, traditional and local knowledge to reach its conclusions. Assumptions will be clearly identified and justified.	5.4.3, 5.4.4, 5.5.5, 5.4.6
	All data, models and studies will be documented such that the analyses are transparent and reproducible. All data collection methods will be specified. The uncertainty, reliability and sensitivity of models used to reach conclusions will be indicated.	5.1, 5.5
	All significant gaps in knowledge and understanding related to key conclusions presented in the EIS will be identified. The steps to be taken by the proponent to address these gaps will also be identified.	5.5.5
	Where the conclusions drawn from scientific and technical knowledge are inconsistent with the conclusions drawn from traditional knowledge, the EIS will contain a balanced presentation of the issues and a statement of the proponent's conclusions.	5.4.3
3.3	**Integration of EA, Aboriginal and public consultation information**	5.0
	The proponent is encouraged to integrate Aboriginal and public consultation outcomes into the consideration and mitigation of environmental effects at the appropriate EA analytical steps. The proponent will ensure that public and Aboriginal concerns are well documented in the EIS.	5.0, 5.3.1, 5.3.2, 5.3.5, 5.4.2, 5.4.3,
	The proponent will identify and explain all unresolved questions or concerns as part of its analysis of the impacts of the project.	Noted
	This information will help the Crown assess adequacy of consultation with Aboriginal groups, as set out in the “Updated Guidelines for Federal Officials to Fulfill the Duty to Consult” (2011).	Noted
3.4	**Use of information**	
3.4.1	**Scientific advice**	5.0
	Section 20 of CEAA, 2012 requires that every federal authority with specialist or expert information or knowledge with respect to a project subject to an EA make that information or knowledge available to the Agency. The Agency will advise the proponent of the availability of any pertinent information or knowledge so that it can	Noted

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	be incorporated into the EIS, along with, as appropriate, expert and specialist knowledge provided by other levels of government.	
3.4.2	**Community knowledge and Aboriginal traditional knowledge**	5.4.3
	Sub-section 19(3) of CEAA, 2012 states that "the environmental assessment of a designated project may take into account community knowledge and Aboriginal traditional knowledge". For the purposes of these guidelines, community knowledge and Aboriginal traditional knowledge refers to knowledge acquired and accumulated by a community or an Aboriginal community, through generations of living in close contact with nature.	Noted
	The proponent will incorporate into the EIS the community and Aboriginal traditional knowledge to which it has access or that is acquired through Aboriginal engagement activities, in keeping with appropriate ethical standards and without breaking obligations of confidentiality, if any. Agreement should be obtained from Aboriginal groups regarding the use, management and protection of their existing traditional knowledge information during and after the EA.	5.4.3, 10 to 22
3.4.3	**Existing information**	5.4, 5.5.5
	In preparing the EIS, the proponent is encouraged to make use of existing information relevant to the project. However, when relying on existing information to meet requirements of the EIS Guidelines, the proponent will either include the information directly in the EIS or clearly direct the reader to where it may obtain the information (i.e., through cross-referencing).	4, 5.4.3, 5.5.6, 10 to 22
	When relying on existing information, the proponent will also comment on how the data have been applied to the project, clearly separate factual lines of evidence from inference, and state any limitations on the inferences or conclusions that can be drawn from the existing information.	10 to 22
3.4.4	**Confidential information**	Noted
	In implementing CEAA, 2012, the Government of Canada is committed to promoting public participation in the environmental assessment of projects and providing access to the information on which environmental assessments are based.	n/a
	All documents prepared or submitted by the proponent or any other stakeholder in relation to the environmental assessment are included in the Canadian Environmental Assessment Registry (CEAR) and made available to the public on request. For this reason, the EIS will not contain:	n/a
	• Information that is sensitive or confidential (i.e., financial, commercial, scientific, technical, personal, cultural or other nature), that is treated consistently as confidential, and the person affected has not consented to the disclosure; or,	Noted
	• Information that may cause harm to a person or harm to the environment through its disclosure.	Noted
	The proponent will consult with the Agency regarding whether specific information requested by these guidelines will be treated as confidential**.**	Noted
3.5	**Presentation and organization of the EIS**	
	To facilitate the identification of the documents submitted and their placement in the Canadian Environmental Assessment Registry, the title page of the EIS and its related documents will contain the following information:	EIS title page and supporting documents (appendices)
	• project name and location;	
	• title of the document, including the term "environmental impact statement";	
	• subtitle of the document;	

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• name of the proponent; and	
	• the date.	
	The EIS will be written in clear, precise language. A glossary defining technical words, acronyms and abbreviations will be included. The proponent will provide charts, diagrams, tables, maps and photographs, where appropriate, to clarify the text.	Glossary and Acronyms, throughout EIS
	Perspective drawings that clearly convey the various components of the project will also be provided. Wherever possible, maps will be presented in common scales and datum to allow for comparison and overlay of mapped features.	Throughout EIS
	For purposes of brevity and to avoid repetition, cross-referencing is preferred. The EIS may make reference to the information that has already been presented in other sections of the document, rather than repeating it. The exception to this preference is the cumulative effects assessment, which should be provided in a stand-alone section as described in section 12.1.2 of the federal guidelines.	24, and throughout EIS
	Detailed studies (including all relevant and supporting data and methodologies) will be provided in separate appendices and will be referenced by appendix, section and page in the text of the main document of the EIS.	Appendices
	The EIS will explain how information is organized in the document. This will include a list of all tables, figures, and photographs referenced in the text of the EIS. A complete list of supporting literature and references will also be provided. A Table of Concordance, which cross references the information presented in the EIS with the information requirements identified in the EIS Guidelines, will be provided. The proponent will provide copies of the EIS and its summary for distribution, including paper and electronic version in an unlocked, searchable PDF format, as directed by the Agency.	Tables of Content, Concordance tables, references
4.0	**SUMMARY OF ENVIRONMENTAL IMPACT STATEMENT**	
	The proponent will prepare a summary of the EIS in both of Canada's official languages (French and English) to be provided to the Agency at the same time as the EIS and which will include the following:	Summary Document (Summ Doc)
	• A concise description of all key components of the project and related activities;	Summ Doc Ch 2
	• A summary of the consultation conducted with Aboriginal groups, the public, and government agencies, including a summary of the issues raised and the proponent's responses;	Summ Doc Ch 5
	• An overview of the key environmental effects of the project and proposed technically and economically feasible mitigation measures; and	Summ Doc Ch 7
	• The proponent's conclusions on the residual environmental effects of the project and the significance of adverse environmental effects after taking mitigation measures into account.	Summ Doc Ch 10
	The summary is to be provided as a separate document and should follow the outline provided below:	
	1. Introduction and environmental assessment context	Summ Doc Ch 1
	2. Project overview	Summ Doc Ch 2
	3. Scope of project and assessment	Summ Doc Ch 3
	4. Alternative means of carrying out the project	Summ Doc Ch 4, Appendix A
	5. Public and Aboriginal engagement	Summ Doc Ch 5
	6. Summary of environmental effects assessment	Summ Doc Ch 7
	7. Mitigation measures	Summ Doc Ch 7

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	8. Proposed significance determination	Summ Doc Ch 10
	The summary will have a sufficient level of detail for the reader to learn and understand the entire project, potential impacts, mitigation measures proposed by the proponent, the residual effects and the conclusions regarding significance.	Noted
	It is strongly recommended that the proponent translates the summary into the appropriate Aboriginal language(s) in order to facilitate consultation activities during the environmental assessment.	Noted
5.0	**INTRODUCTION AND PROJECT OVERVIEW**	1.0
5.1	**Geographical Setting**	1.8.1
	The EIS will contain a concise description of the geographical setting in which the project will take place. This description will focus on those aspects of the project and its setting that are important in order to understand the potential environmental effects of the project.	1.6.3, 4
	The description will address the natural and human elements of the environment as well as explain the interrelationships between the biophysical environment and people and communities.	1.6.3, 1.6.6, 1.6.7, 1.6.8, 4
	The following information will be included:	
	• the UTM coordinates of the main project site	1.6, Table 1.1, Table 2.1
	• current land use in the area and the relationship of the project facilities and components with any federal lands	1.6.2, 1.6.4, 1.6.5, 19, 20
	• the environmental significance and value of the geographical setting in which the project will take place and the surrounding area	1.6.3, 1.6.6
	• environmentally sensitive areas, such as national, provincial and regional parks, ecological reserves, wetlands, estuaries, and habitats of federally or provincially listed species at risk and other sensitive areas	1.6.6, 2.4
	• local and Aboriginal communities (including locations/proximity to the project-site and populations)	1.6.7
	• traditional Aboriginal territories, treaty lands, Indian reserve lands.	1.6.8
	The EIS will provide expanded description and mapping of the project location, including each of the project components as outlined in section 5.6 of the federal guidelines.	1.6, Figure 1.1
	Maps of the project's location at an appropriate scale will accompany the text. The location map should include the boundaries of the proposed site including UTM coordinates, the major existing infrastructure, adjacent land uses and any important environmental features.	1.6, Figure 1.1, Table 1.1
	Site plans/sketches and photographs showing project location, site features and the intended location of project components will be included.	Figure 1.1
5.2	**Regulatory framework and the role of government**	
	This section will identify, for each jurisdiction, the government bodies involved in the EA as well as the EA processes. More specifically identify:	
	• any federal power, duty or function to be exercised that may permit the carrying out (in whole or in part) of the project or associated activities	1.7.1
	• the environmental and other specific regulatory approvals and legislation that are applicable to the project at the federal, provincial, regional and municipal levels	1.7.2, Table 1.5
	• government policies, resource management, planning or study initiatives pertinent to the project and/or EA and discuss their implications	1.7.3

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• any treaty or self-government agreements with Aboriginal groups that are pertinent to the project and/or EA	1.6.8, 1.9
	• any relevant Land Use Plans, Land Zoning, or Community Plans	1.6.5
	• major components of the project and identify those being applied for and constructed within the duration of approvals under provincial and federal legislation	1.5.2, 1.7.1.1
	• in a summary form - the regional, provincial and/or national objectives, standards or guidelines that have been used by the proponent to assist in the evaluation of any predicted environmental effects	1.7.5, Table 1.6
	In planning for a mine proposal and in developing the EIS and technical support documentation, the proponent is advised to consider the "Environmental Code of Practice for Metal Mines", published by Environment Canada in 2009.	Table 1.6
	The parameters and approach of the Environmental Effects Monitoring program under the Metal Mining Effluent Regulations (MMER) should be considered when developing a baseline monitoring program for the aquatic environment.	Table 1.6
	The recommended practices in the Code include the development and implementation of environmental management tools, the management of wastewater and mining wastes, and the prevention and control of environmental releases to air, water and land.	7, 10, 11
	Submission of regulatory and technical information necessary for federal authorities to make their regulatory decisions during the conduct of the environmental assessment is at the discretion of the proponent. Although that information is not necessary for the EA decision, the proponent is strongly encouraged to submit it concurrent with the EIS.	Appendices A to AF
5.3	**Participants in the environmental assessment**	
	Include jurisdictions other than the federal government, Aboriginal groups, community groups, and environmental organizations.	1.8
5.4	**The proponent**	
	• contact information (e.g., name, address, phone, fax, email)	1.1.1
	• identify itself and the name of the legal entity that would develop, manage and operate the project	1.1
	• corporate and management structures, as well as insurance and liability management related to the project;	1.1, 1.2.2
	• mechanism used to ensure that corporate policies will be implemented and respected for the project;	1.2
	• key elements of its environment, health and safety management system and discuss how the system will be integrated into the project	1.2.3, 1.2.6
	• key personnel, contractors, and/or sub-contractors responsible for preparing the EIS	1.3
5.5	**Purpose of the project**	1.4
	Describe the purpose of the project by providing the rationale for the project, explaining the background, the problems or opportunities that project is intended to satisfy and the stated objectives from the perspective of the proponent.	1.4, 1.5.1
	If the objectives of the project are related to or contribute to broader private or public sector policies, plans or programs, this information will also be included.	n/a
5.6	**Project components**	1.5.2, 2.5
	Describe the project, by presenting the project components, associated and ancillary works, activities, scheduling details, the timing of each phase of the project and other characteristics that will assist in understanding the environmental effects. This will include:	

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• A characterization of geochemical properties of pit mine materials, waste rock, foundation materials and tailings pond foundation materials;	13.5
	• A description of the geology, based on results from drilling, test pits and sampling programs;	13.5
	• A description of the tailings management facility (geotechnical properties and foundation conditions for tailings management facility/dams, hazard classification, location, preliminary designs, tailings properties, and tailings water seepage);	2.5
	• A description of the waste rock, overburden and low grade ore storage and stock piles (locations, volumes and development plans; geotechnical conditions, seismicity and design criteria and a description of waste water management components of the project);	2.5.1, 2.5.2, 2.5.6, 2.5.7, 2.5.8, 2.6.2
	• A description of open pit and underground mine (development plans including pit phases, phase designs, pit design including slopes, design standards, geotechnical and hydrogeologcial considerations (e.g., pit wall management);	2.5.1, 2.6.2
	• A description of water management (pit water and/or underground mine); and;	2.5.7, 2.6.1, 2.6.2, 11.5.3
	• Permanent and temporary access infrastructure, identifying the route of each access road and the location and types of structure used for stream crossings.	2.5.4, 2.6.1
	In cases where the geotechnical design is based on the observational method, the general nature and geotechnical properties of the geological materials will be provided.	13
	If the project is part of a larger sequence of projects, the proponent will outline the larger context and present the relevant references, if available.	n/a
5.7	**Project activities**	2.6
	The EIS will include expanded descriptions of the construction, operation, maintenance, foreseeable modifications, and where relevant, closure, decommissioning and restoration of sites and facilities associated with the proposed project.	2.6
	Include detailed descriptions of the activities to be carried out during each phase, the location of each activity, expected outputs and an indication of the activity's magnitude and scale.	2.6
	Sufficient information will be included to predict environmental effects and address public concerns identified.	Chapter 2
	Highlight activities that involve periods of increased environmental disturbance or the release of materials into the environment.	2.6.4
	The EIS will include a detailed schedule including time of year, frequency, and duration for all project activities.	Table 2.7
	The EIS will provide the preliminary outline of a decommissioning and reclamation plan for any components associated with the project.	7.2.6
	Include ownership, transfer and control of the different project components as well as the responsibility for monitoring and maintaining the integrity of some of the structures.	2.6.5, 7.2.6
	The plan would serve to provide guidance on specific actions and activities to be implemented to decrease the potential for environmental degradation in the long-term during decommissioning and abandonment activities for temporary facilities, and to clearly define the proponent’s ongoing environmental commitments.	2.6.5, 7.2.6
	A conceptual discussion on how decommissioning could occur will be provided for permanent facilities.	2.6.5, 7.2.6

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
6.0	**SCOPE OF PROJECT**	
	The scope of project for the purposes of the EA includes the components (section 5.6); physical activities (section 5.7) and federal decisions (section 5.2).	1.7.1.1, 1.7.2, 1.7.5, 2, 5.2
	The proponent will consider all the components, activities and decisions identified in these sections as part of the effects assessment.	1.7.1.1, 1.7.2, 1.7.5, 2, 5.2
	Based on information received in the project description from the proponent, the Agency defines the scope of project to be assessed as the construction, operation and decommissioning of the following project components:	Noted
	• open pit;	2.5.1
	• dewatering of Joyce Lake and any associated infrastructure;	2.6.2
	• all stockpiles and waste storage areas including waste rock, overburden and low grade ore;	2.5.8
	• modular beneficiation plant including a crushing and washing process for Phase I and additional processing elements for Phase II;	2.5.2
	• tailings management facility;	n/a
	• ancillary infrastructure to support the mine and beneficiation plant, including a workshop, explosives magazine storage, office buildings, warehouse area and employee facilities (including accommodation camp), conveyors, stockpiles, pipeline, water supply systems, sewage and water treatment units, power generator, fuel storage, mobile equipment, settling ponds and drainage infrastructure;	2.5.8
	• all access roads and haulage roads including water crossings;	2.5.4
	• ice bridge corridors;	n/a
	• barge for the open water season and associated infrastructure;	n/a
	• potential conveyor;	n/a
	• optional floating conveyor; and	n/a
	• rail track, yard and loop and associated infrastructure including water crossings.	2.5.5
7.0	**SCOPE OF ASSESSMENT**	5.3
7.1	**Factors to be considered**	5.3.1
7.1.1	**Valued components**	5.3.2
	The proponent will identify the VCs deemed appropriate to ensure the full consideration of the factors listed in subsection 19(1) of CEAA, 2012 as well as the 2012 amendment to section 79 of the *Species at Risk Act*. As a minimum, the proponent must consider the list of environmental components provided in section 9.1 of the federal guidelines.	5.3.2, 5.5.1
	The final list of VCs will be completed according to the evolution and design of the project and reflect the knowledge acquired on the environment through public and Aboriginal consultations.	5.3.2
	The proponent will describe how the VCs were selected and what methods were used to predict and assess the adverse environmental effects of the project on these components.	5.3.2, 10 to 22
	The VCs will be described in sufficient detail to allow the reviewer to understand their importance and assess the potential for environmental effects arising from the project activities. The rationale for selecting these components as VCs and for excluding others will be stated. Challenges may arise regarding particular exclusions, so it is important to document the information and the criteria used to make each determination.	10 to 22

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	Examples of justification include primary data collection, computer modelling, literature references, public consultation, expert input or professional judgment. If comments are received on a component that has not been included as a VC, these comments will be summarized and addressed in this section.	10 to 22
	For consultations associated with the identification of VCs, the proponent will identify those VCs, processes, and interactions that either were identified to be of concern during any workshops or meetings held by the proponent or that the proponent considers likely to be affected by the project. In doing so, the proponent will indicate to whom these concerns are important and the reasons why, including Aboriginal, social, economic, recreational, and aesthetic considerations.	5.3.2, 10 to 22
	The proponent will describe any issues raised or comments noted regarding the nature and sensitivity of the area within and surrounding the project and any planned or existing land and water use in the area.	3
	The proponent will also indicate the specific geographical areas or ecosystems that are of particular concern to interested parties, and their relation to the broader regional environment and economy.	1.6.6, 2.4
7.1.2	**Effects of potential accidents or malfunctions**	2.6.3, 5.3.3, 5.5.10
	Identify the probability of potential accidents and malfunctions related to the project, including an explanation of how those events were identified, potential consequences (including the environmental effects), the plausible worst case scenarios and the effects of these scenarios.	2.6.3, 5.3.3, 5.5.10, 10 to 22
	The geographical and temporal boundaries for the assessment of malfunctions and accidents may be different than those in the scope of factors for each VC.	5.3.3, 10 to 22
	Include an identification of the magnitude of an accident and/or malfunction, including the quantity, mechanism, rate, form and characteristics of the contaminants and other materials likely to be released into the environment during the accident and malfunction events.	5.5.10, 10 to 22
	The EIS will also describe the safeguards that have been established to protect against such occurrences and the contingency/emergency response procedures in place if accidents and/or malfunctions do occur. Detailed contingency and response plans will be presented.	2.6.3, 7 and 10 to 22
7.1.3	**Effects of the environment on the project**	5.3.4, 6
	The EIS will take into account how local conditions and natural hazards, such as severe and/or extreme weather conditions and external events (e.g., drought, flooding, ice jams, landslides avalanches, fire, erosion, subsidence, outflow conditions and seismic events) could adversely affect the project and how this in turn could result in impacts to the environment (e.g., extreme environmental conditions result in malfunctions and accidental events). These events will be considered in different probability patterns (i.e., 5-year flood vs. 100-year flood).	5.3.4, 6.2, 6.3, 11.6
	Longer-term effects of climate change will also be discussed up to the projected post-closure phase of the project. This discussion will include a description of climate data used.	6.3.2
	The EIS will provide details of a number of planning, design and construction strategies intended to minimize the potential environmental effects of the environment on the project.	6.3
7.2	**Scope of the factors**	5.3.5
	Scoping establishes the boundaries of the EA and focuses the assessment on relevant issues and concerns. The spatial and temporal boundaries used in the EA may vary depending on the VC.	5.3.5, 10 to 22

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
7.2.1	**Spatial boundaries**	5.3.5, 5.5.2
	The EIS will clearly indicate the spatial boundaries to be used in assessing the potential adverse environmental effects of the proposed project and provide a rationale for each boundary. It is recognized that the spatial boundaries for each VC may not be the same.	5.3.5, 5.5.2, 10 to 22
	Spatial boundaries will be defined taking into account as applicable the appropriate scale and spatial extent of potential environmental effects, community and Aboriginal traditional knowledge, current land and resource use by Aboriginal groups, ecological, technical and social and cultural considerations.	5.3.5, 5.5.2, 10 to 22
	The description of the project setting will be presented in sufficient detail to address the relevant environmental effects of the project.	1.6.3, 4, 10 to 22
	The proponent is advised to consult with the Agency, federal and provincial government departments and agencies, local government and Aboriginal groups, and take into account public comment when defining the spatial boundaries used in the EIS.	3
7.2.2	**Temporal boundaries**	5.3.5,
	Span all phases of the project: construction, operation, maintenance, foreseeable modifications, and where relevant, closure, decommissioning and restoration of the sites affected by the project.	5.3.5, 5.5.2
	Consider variations related to VCs for all phases of the project, as appropriate. Community and Aboriginal traditional knowledge should factor into decisions around appropriate temporal boundaries.	5.5.2, 10 to 22
	If the temporal boundaries do not span all phases of the project, the EIS will identify the boundaries used and provide a rationale.	n/a
8.0	**ALTERNATIVE MEANS OF CARRYING OUT THE PROJECT**	2.3, 2.8
	The EIS will identify and consider the effects of alternative means of carrying out the project that are technically and economically feasible. The proponent will complete the following procedural steps for addressing alternative means:	2.8
	Identify the alternative means to carry out the project	2.8
	• Develop criteria to determine the technical and economic feasibility of the alternative means.	2.8
	• Identify those alternative means that are technically and economically feasible, describing each alternative means in sufficient detail.	2.3, 2.8
	Identify the effects of each alternative means	2.8, Table 2.9
	• Identify those elements of each alternative means that could produce effects in sufficient detail to allow a comparison with the effects of the project.	2.8, Table 2.9
	• The effects referred to above include both environmental effects and potential adverse impacts on potential or established Aboriginal and Treaty rights and related interests.	2.8, Table 2.9
	Identify the preferred means	2.8, Table 2.9
	• Identify the preferred means based on the relative consideration of effects; and of technical and economic feasibility.	2.8, Table 2.9
	• Determine criteria to examine the effects of each remaining alternative means to identify the preferred means.	2.8
	In its alternative means analysis, the proponent will address, as a minimum, the following project components:	
	• Ore production technologies including open-pit extraction method, ore processing methods, waste rock and tailings disposal, contaminated water treatment etc.;	2.8, 11.6

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Guideline Number	Guideline Information Requirement	Section of EIS
	• Contracting or lengthening of the operations;	2.8
	• Energy sources for the mine complex operations;	2.8
	• Location of infrastructure related to the mine and the operation of the mine, including the location of the final effluent discharge point;	2.8, 11.6
	• Transportation routes for the ore, oil and gas, and any other goods needed to operate the mine; and	2.8
	• Worker accommodations and transportation.	2.8
8.1	**Assessment of alternatives for mine waste disposal**	
	Before any fish frequented natural water bodies could be used for mine waste disposal, the MMER would need to be amended to add the affected water bodies to Schedule 2 to designate them as Tailings Impoundment Areas (TIAs). This regulatory process will not be initiated until a detailed assessment of alternatives for mine waste disposal has been undertaken by the proponent.	11.6
	Should an MMER Schedule 2 amendment be required for the project, the proponent is strongly encouraged to include MMER requirements for an assessment of alternatives for mine waste disposal in the EIS.	n/a, 11.6
	The proponent needs to undertake a robust and thorough assessment of mine waste disposal alternatives, which applies methodology that is provided in Environment Canada's "Guidelines for the Assessment of Alternatives for Mine Waste Disposal" (2011)	2.8.1.4, Table 2.9, 11.6
	Pursuant to the MMER requirements, the assessment of alternatives for mine waste disposal will objectively consider all available options for mine waste disposal, including at least one that does not impact a natural water body frequented by fish. It will qualitatively and quantitatively assess the environmental, technical and socio-economic aspects of each alternative.	2.8.1.4, Table 2.9
	Both the short term impacts of each alternative and the long term risks through the closure and post closure phases will be assessed.	2.8, Table 2.9
	The assessment of alternatives for mine waste disposal needs to include all aspects of the project that may contribute to the predicted impacts associated with the proposed TIA.	2.8, Table 2.9
	The economic component of the assessment will consider the full costs of each alternative throughout the mine life cycle, from construction through post-closure, including long term maintenance and monitoring requirements, as well as costs associated with the legislated requirement for a compensation plan to offset fish habitat loss.	2.8, Table 2.9
	Conducting this robust and thorough assessment of alternatives during the EA stage will streamline the overall regulatory review process and minimize the time required to proceed with the MMER amendment process. It also facilitates a thorough and transparent review of the assessment of alternatives as part of the EA process. For further guidance, the proponent should consult Environment Canada's "Guidelines for the Assessment of Alternatives for Mine Waste Disposal" (2011).	2.8, Table 2.9
	In the event that the proponent chooses not to conduct an assessment of alternatives for mine waste during the EA stage pursuant to the MMER requirements, the EA under CEAA 2012 will continue. In these circumstances, the proponent should discuss with Environment Canada how the information requirements and public consultation associated with the MMER amendment process can be addressed through other means.	2.8, Table 2.9

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Guideline Number	Guideline Information Requirement	Section of EIS
9.0	**BASELINE CONDITIONS**	4.0, 5.5.5, 10 to 22
9.1	**Existing environment**	4.0, 5.5.5, 10 to 22
9.1.1	**Methodology**	5.5.5
	The EIS will include a description of the environment, including the components of the existing environment and environmental processes, their interrelations and interactions as well as the variability in these components, processes and interactions over time scales appropriate to the project.	4, 10 to 22
	The description will be sufficiently detailed to characterize the environment before any disturbance to the environment due to the project and to identify, assess and determine the significance of the potential adverse environmental effects of the project. This data should include results from studies done prior to any physical disruption of the environment due to initial site clearing activities.	4, 5.5.5, 10 to 22
	The information describing the existing environment may be provided in a stand-alone chapter of the EIS or may be integrated into clearly defined sections within the effects assessment of each VC. This analysis will include environmental conditions resulting from historical and present activities in the local and regional study area.	4, 10 to 22
	In describing the physical and biological environment, the proponent will take an ecosystem approach that considers both scientific and traditional knowledge and perspectives regarding ecosystem health and integrity. The proponent will identify and justify the indicators and measures of ecosystem health and integrity used for analysis and relate these to the identified VCs and proposed monitoring and follow-up measures.	5.1, 5.5.5, 10 to 22
	For the biophysical environment, baseline data in the form of inventories alone are not sufficient to assess effects. The proponent will consider the resilience of relevant species populations, communities and their habitats.	10 to 18
	The proponent will summarize all pertinent historical information on the size and geographic extent of relevant animal populations as well as density, based on best available information. Where little or no information is available, specific studies will be designed to gather further information on species populations, densities and the interrelations of these species to the ecosystem.	15 to 17
	Habitat at regional and local scales should be defined in ecological mapping of aquatic and terrestrial vegetation types and species (e.g., ecological land classification mapping).	14 to 17
	Habitat use will be characterized by type of use (e.g., spawning, breeding, migration, feeding, nursery, rearing, wintering), frequency and duration.	15 to 17
	Consider all relevant seasonal variations in for all VCs as appropriate. Emphasis will be on those species, communities and processes identified as VCs. However, the interrelations of these components and their relation to the entire ecosystem and communities of which they are a part will be indicated (e.g., population-level risk assessment).	10 to 22
	Address issues such as habitat, nutrient and chemical cycles, food chains, productivity, to the extent that they are appropriate to understanding the effect of the project on ecosystem health and integrity. Range and probability of natural variation over time will also be considered.	14 to 17
	Examine changes in the distribution, populations, behaviour, and availability of wildlife, fish, and flora in the important context of implications to current use of lands and resources by Aboriginal peoples.	15 to 17, 19
	If the baseline data have been extrapolated or otherwise manipulated to depict environmental conditions in the study areas, modelling methods and equations will be described and will include calculations of margins of error and other relevant statistical information, such as confidence intervals and possible sources of error.	5.1, 10 to 22

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Guideline Number	Guideline Information Requirement	Section of EIS
9.1.2	**Biophysical environment**	
	Based on the scope of project described in section 6 of the federal guidelines, the proponent will present the following baseline information to facilitate the identification of VCs for the purposes of the environmental assessment. Should other VCs be identified during the conduct of the EA, these will also be described in the EIS.	4, 5.3.2
	Atmospheric Environment and Climate	
	• Ambient air quality in the project areas and, for the mine site, the results of a baseline survey of ambient air quality, including the contaminants: Total Suspended Particulates, PM2.5, PM10, SOx, VOCs and NOx;	10.5.3
	• Current ambient noise levels at both sites and within the local area, including the results of a baseline ambient noise survey. Information on typical sound sources, geographic extent and temporal variations will be included;	10.5.3
	• Existing ambient light levels at the project site and at any other areas where project activities could have an effect on light levels. The EIS will describe night-time illumination levels during different weather conditions and seasons; and	10.5.3
	• Historical records of total precipitation (rain and snow), mean, max and min temperatures.	10.5.3, 11.5.3
	Terrestrial Environment-Geology and Geochemistry	13.0
	The EIS will describe the following:	
	A discussion of the bedrock and host rock geology of the deposit which includes a table of geologic descriptions, geological maps and cross-sections of appropriate scale. Where appropriate, the following geologic parameters will be included:	
	• Maps of surficial and bedrock geology showing the distribution of geologic units;	13.5.3, Figure 13.2, Figure 13.3
	• Representative lithologic and sediment descriptions including: age, colour, grain size, porosity, moisture conditions, permeability, mineralogy, physical strength, hardness, weathering characteristics, depositional setting and correlations of surficial and bedrock units;	13.5.3
	• A geological stratigraphic framework for the surficial sediments and bedrock as appropriate in support of hydrogeological assessments. In particular, delineation of key stratigraphic and hydrogeologic boundaries, the spatial distribution and thickness of lithologic units shown in plan and cross-section;	13.5.3
	• Alteration styles, mineralogy, bulk chemistry, trace metal chemistry, occurrence and intensity of bedrock units;	13.5.3
	• Structural fabric (e.g., joints and fractures, faults, foliation and lineation) and structural relationships, structural characterization of the rock formations impacted by the project;	13.5.3
	• Ore mineralogy, including sulphide types, abundance, mode of occurrence, extent of previous oxidation and an estimate of relative sulphide reactivity;	13.5.3
	• Type and grade of metamorphism; and	13.5.3
	• Regional geologic framework including tectonic belt, terrane, regional metamorphism and structure.	13.5.3
	A delineation of the regional and local geological structures in the project area that may affect the proposed infrastructure. This includes major structural features as well as lesser local structures, their ecological functions and distribution in the local study area;	13.5.3
	Geomorphology and topography of areas proposed for construction of major project components;	13.5.3

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Guideline Number	Guideline Information Requirement	Section of EIS
	Bedrock lithology, morphology, geomorphology and soils where earthworks are proposed;	13.5.3
	A description of geological hazards that exist in the areas planned for the project facilities and infrastructure, including:	
	• History of seismic activity in the area;	13.5.3.6
	• Isostatic rise or subsidence;	6.3.3.2
	• Landslides, slope erosion and the potential for ground and rock instability, and subsidence following project activities; and	13.5.3.6
	• History of landslide-generated tsunamis if near a shoreline.	13.5.3.6
	Sites of paleontological or palaeobotanical significance; and	13.4.1
	A characterization of the geochemical composition of expected mine materials such as waste rock, ore, low grade ore, tailings, overburden and potential construction material, which will include:	
	• Mineralogy;	13.5.3
	• Elemental composition of host lithologies and ore in study area (major and trace elements); and	13.5.3
	• Potential for acid generation, neutralization and contaminated neutral drainage.	13.5.3.9
	Acid Rock Drainage/Metal Leaching	13.5.3.9
	The manual produced by the Mine Environment Neutral Drainage (MEND) Program, entitled, “MEND Report 1.20.1, “Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials”, Version 0 - December 2009” is a recommended reference for use in Acid Rock Drainage/Metal Leaching (ARD/ML) prediction.	References
	The ARD/ML prediction information will be used to predict water quality for effects assessment and to determine mitigation requirements for the Project. Additional information will be provided on the following:	
	• the type and method used for the ARD/ML prediction and possible mitigation measures;	13.5.2
	• waste rock, tailings and low grade ore characterization, volumes, segregation/disposal method mitigation/management plans, contingency plans, operational and post-closure monitoring and maintenance plans;	13.5.3
	• assessment of short term metal leaching properties;	13.5.3, 13.6.4
	• longer term kinetic testing to evaluate rates of acid generation (if any) and metal leaching;	13.5.3, 13.6.4
	• assessment of the feasibility to successfully segregate potentially-acid generating (PAG) and non-potentially acid generating (NPAG) waste materials during operations, proposed geochemical segregation criteria and identification of operational methods that will be required to achieve geochemical characterization during operations (i.e., geochemical surrogates, on site lab, procedures needed, etc);	13.5.2
	• sensitivity analysis to assess the effects of imperfect segregation of waste rock;	13.11
	• estimates of the potential for mined materials (including waste rock, tailings and low grade ore) to be sources of ARD or ML; estimates of potential time to the onset of ARD or ML; and the ability to prevent or control ARD and ML during operation and post-closure;	13.4.4, 13.5.3.9, 13.6.4
	• estimates of the potential for mined materials (including waste rock, tailings and low grade ore) to be sources of ARD or ML; estimates of potential time to the onset of ARD or ML; and the ability to prevent or control ARD and ML during operation and post-closure;	13.4.4, 13.5.3.9, 13.6.4

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Guideline Number	Guideline Information Requirement	Section of EIS
	• surface and seepage water quality from the waste rock dumps, tailings/waste rock impoundment facility, stockpiles and other infrastructure during operation and post-closure;	13.4.4, 13.5.3.9, 13.6.4
	• ARD/ML prevention/management strategies under a temporary or early closure scenario, including low grade ore;	13.4.4, 13.6.4
	• quantity and quality of leachate from samples of tailings, waste rock, and ore;	13.6.4
	• quantity and quality of effluent to be released from the site into the receiving waters; and	13.6.4
	• quality of humidity cell or column test liquid from acid rock testing.	13.6.4
	Surficial Geology (i.e., Terrain and Soil)	13.5.3
	The EIS will describe the following:	
	• Baseline mapping and description of landforms and landform processes and soils within the local and regional project area;	13.5.3
	• A description of surface sediments at proposed borrow and quarry sites, and other areas where earthworks are proposed. If the sedimentary deposits are identified as a potential source of granular material a description should be included;	13.5.3
	• Maps depicting soil depth by horizon and soil order within the mine site area to support soil salvage and reclamation efforts, and to outline potential for soil erosion;	Figure 13.9, 13.5.3.5, 13.6.2.1
	• Sedimentological and geochemical characteristics of surficial sedimentary units and soils;	13.5.3.5
	• A description/details of soil sample analysis completed and the quality assurance/quality control program followed;	Appendix D, Appendix U
	• Suitability of topsoil and overburden for use in the re-vegetation of surface-disturbed areas; and	13.6.2
	• A summary of the baseline data on the concentration of trace elements in site soils prior to project development.	13.5.3.5
	If there is permafrost in the study area the EIS will including the following information:	
	• Discussion of the geomorphologic and topographic features at areas proposed for construction of major project components, including the type, thickness, and distribution of soils as applicable;	13.5.3.2, 13.5.3.4
	• Discussion of permafrost conditions including distribution of frozen and unfrozen ground, thermal conditions (ground temperatures), ground ice, thaw sensitivity and active layer thickness;	13.5.3.4
	• Discussion of the potential for thaw settlement and terrain instability associated with ground thawing;	13.5.3.4, 13.6.1
	• Description of the morphology, geomorphology and soils (including sediments and the thermal and ground ice conditions) at proposed borrow and quarry sites, and other areas where earthworks are proposed. If the sedimentary deposits are identified as a potential source of granular material then a description of granular material properties, including thermal condition and ice content, will also be described;	13.5.3, 13.5.3.4
	• Discussion of the relationship between permafrost conditions and associated processes and active layer, topography, drainage conditions and surface hydrology;	13.5.3.4, 13.5.3.5
	• Details regarding the suitability of topsoil and overburden for use in the re-vegetation of surface-disturbed areas;	13.5.3.5, 13.6.2

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Guideline Number	Guideline Information Requirement	Section of EIS
	• Description of permafrost distribution (i.e., distribution of frozen and unfrozen ground) in the local project area, high ice-content soils, ice lenses, thaw-sensitive slopes, and talik zones; and	13.5.3.4
	• Description of permafrost temperatures at areas planned for project facilities and infrastructure, including discussion of sensitivity to warming induced by project activities (construction and operation of facilities) or climate change, and implications for integrity, performance and safety of infrastructures	13.5.3.4, 13.5.3.7
	Lacustrine Environment	
	The EIS will include the following:	
	• Description of lacustrine physical processes in the shipping area, including the proposed shipping routes across Iron Arm, Attikamagen Lake;	4, 13.5.3.8
	• Description of baseline information regarding climatic conditions at the proposed loading and unloading sites for barge transportation on the shore of Attikamagen Lake;	4, 10.5.3, 11.5.3.1
	• Description of the lake bottom sediment quality and thickness at the loading and unloading sites, including grain size, mobility, and the presence of permafrost on the lake bottom;	4, 14.5.3, 11.5.3.5
	• Description of available bathymetric information for the proposed loading and unloading sites and along the proposed shipping route if applicable;	4, 14.5.3 11.5,3.2
	• Description of available bathymetric information for all lakes impacted by project footprint; and	4, 14,5.3, 11.5,3.2
	• Description of lacustrine ice climate in the regional study area, including ice formation, thickness, ridging, breakup, and movement.	13.5.3.8, 11.5,3.2
	Water Resources	11. 12, 14
	The EIS will describe the following:	
	• The hydrogeologic conditions at the site. It will examine all available existing hydrogeology information required to assess the effects of the project.	12.5.3
	• An appropriate hydrogeologic model will be presented for the project area, which discusses the hydrostratigraphy and groundwater flow systems. Include the rationale for the selected model.	12.5, Appendix O
	• A detailed conceptual model will be provided. Model input parameters and boundary conditions will be clearly defined. Model inputs will be based on a sufficiently large data set and be conservative in nature. The model will be calibrated against baseline conditions and should be tested using site groundwater monitoring data to confirm the generated model.	12.5
	• A sensitivity analysis will be performed to test model sensitivity to climatic variations (e.g., recharge) and hydrogeologic parameters (e.g., hydraulic conductivity).	Appendix 0
	• A description of the hydrogeology at the site and at local and regional study areas. The description will:	
	◦ Characterize the hydrogeological context (e.g., hydrostratigraphy with aquifers and aquitards, major faults etc.) including the delineation of key stratigraphic and hydrogeologic boundaries;	12.5.3
	◦ Characterize the physical properties of the hydrogeological units (e.g., hydraulic conductivity, transmissivity, saturated thickness, storativity, porosity, specific yield);	12.5.3
	◦ Delineate regional and local and site groundwater flow patterns and rates; discuss the hydrogeologic, hydrologic, geomorphic, climatic and anthropogenic controls on groundwater flow;	12.5.3
	◦ Include a detailed groundwater budget;	12.5.3

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	◦ Discuss temporal changes in groundwater flow (e.g., seasonal and long term changes in water levels);	12.5.3
	◦ Identify recharge and discharge areas;	12.5.3
	◦ Delineate and characterize groundwater / surface water interactions including the locations of groundwater discharge to surface water and surface water recharge to groundwater, and characterize perennial surface water flow (e.g., spatial extent and magnitude of baseflow);	12.5.3, 11.5.3.2, 11.6.2
	◦ Describe baseline groundwater and baseflow quality; and the water type with their spatial distribution (zones);	12.5.3
	◦ Describe and locate the groundwater sources used as drinking water in the study area, their current use and potential for future use; and	12.5.3
	◦ In permafrost regions, describe configuration of frozen ground and taliks and the influence on groundwater flow.	12.5.3
	• Hydrogeologic maps and cross-sections for the mine area to outline the extent of aquifers and aquitards, including bedrock fracture and fault zones, locations of wells, springs, surface waters, and project facilities. Groundwater levels, potentiometric contours and flow directions should be included.	12.5.3
	• An inventory and analysis of existing information on the hydrogeological conditions/groundwater resources in the project area, including published reports, geological maps, well record data (from water wells, monitoring wells and production wells) and Quality Assurance/Quality Control (QA/QC) procedures followed.	12.5.1, References
	• Hydrogeologic maps and cross-sections for the mine area to outline the extent of aquifers and aquitards, including bedrock fracture and fault zones, locations and depths of wells, groundwater types springs, surface waters, and project facilities. Groundwater levels, potentiometric contours and flow directions should be included.	12.5.3
	• A review of the physical geography (e.g., topography and physiographic units) and the geology of the area as it pertains to local and regional groundwater flow systems and aquifer/aquitard systems.	12.5.3
	• Maps showing groundwater divides and areas of recharge and discharge, with project components overlain.	12.5.3
	• Location and description of all groundwater monitoring wells in respect to the project area, including geologic, hydrostratigraphic, piezometric and construction data (e.g., depths of surficial and bedrock units, water level, hydraulic conductivity, diameter and screen depth, and intercepted aquifer unit).	12.10, Appendix O
	• A description of baseline groundwater level data for regional and local flows in all aquifer units (overburden and bedrock units).	12.5.3
	• A description of monitoring protocol for collection of existing groundwater data.	12.10
	• Measurements of hydraulic conductivity (or transmissivity) for all hydrogeological units in the project area.	12.5.3
	• Results of the modelling of baseline hydrogeological conditions (refer to hydrogeological modelling section).	12.5.3
	• Graphs or tables indicating the seasonal variations in groundwater levels, flow regime, and quality.	12.5.3.1, Figure 12.4, Tables 12.5 to 12.7
	• Tables of baseflow measurements or estimates.	11.5.3.2
	• A description of local and regional potable groundwater supplies, including their current use and potential for future use, as appropriate.	12.5.3, 12.5.3

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS

	• Baseline analysis of groundwater and baseflow quality at the site and within the regional and local study area, including methods of sampling and analysis and details of QA/QC.
	  ◦ This includes determining natural groundwater types and measuring concentrations of major constituents as well as minor and trace components. Ensure that particular attention is given to the components that would be, from an environmental point of view, potentially of interest in the course of mining operations.
	  ◦ This analysis should be performed on sediment and bedrock aquifers.
		12.5.3

	• Bedrock fracture sizes and orientations in relation to groundwater flow.	12.5.3
	• Evaluation of discharge rates.	12.5.3, 11.6.2
	The EIS will describe surface water quality, hydrology and sediment quality within the area of influence of the project.	11.5.3, 12.5.3
	The baseline will provide the basis for the assessment of potential effects to surface water, presenting the range of water and sediment quality and surface water hydrology.	11.5.3, 12.5.3
	Furthermore, the EIS will describe:	
	• The delineation of drainage basins, at appropriate scales.	11.5.3.2
	• The assessment of hydrological regimes.	11.5.3.2
	• Flows or design peak flows for selected periods for the project area.	11.5.3.2, 12.5.3
	• Any local and regional potable surface water resource.	11.5.3.4, 12.5.3
	• Seasonal water quality field and lab analytical results and interpretation at several representative local stream and lake monitoring stations established at the project site	11.5.3.5
	Wetlands	14
	Wetlands that may be affected by project activities will be characterized according to their location, size, type (wetland class and form), species composition and ecological function (Canadian Wetland Classification System, National Wetlands Working Group [NWWG] 1997).	4, 14.5.3
	Efforts should focus on describing the wetlands with the greatest potential to be affected (i.e., within the project footprint). An overview of the key plant communities and animals that rely on wetlands will be presented.	5.2.3, 14.5.3
	Fish and Fish Habitat	15
	The EIS will describe the limnology, hydrology, freshwater biota, presence of fish and other freshwater species, associated habitats and habitat distribution and fisheries in potentially affected surface waters, based on available published information, information resulting from community consultation, and/or results of on-site baseline surveys.	4, 12.5.3, 14.5.3, 15.5.3
	Furthermore, the EIS will describe:	
	• Characterize fish populations on the basis of species and life stage for affected water bodies (i.e., project footprint, upstream and downstream);	4, 14.1.3
	• List any rare fish or invertebrate species that are known to be present.	17.5.3.3
	• Identify any potential waterbodies and fish habitat sites that could be rehabilitated, restored, or created for possible habitat gains to offset losses from the project.	15.6.1.1

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Guideline Number	Guideline Information Requirement	Section of EIS
	In order to allow analysis of the project's effects, the EIS will document the physical and biological characteristics of the fish habitat likely to be directly or indirectly affected by the project. Note that certain intermittent streams or wetlands may constitute fish habitat or contribute indirectly to fish habitat. The absence of fish at the time of the survey does not irrefutably indicate an absence of fish habitat.	15.5.3
	The EIS will illustrate, on a topographic scale map, the hydrographic network (water bodies and watercourses), including intermittent streams, flood risk areas and wetlands. It will also indicate the boundaries of the watershed and subwatersheds of the study area.	Figures 15.4 to 15.7
	Emphasis will be placed on the watercourses and water bodies likely to be affected by the project and their physical characteristics, water quality and hydrological regime.	15.5.3
	For all the watercourses and water bodies on which effects are anticipated, the EIS will describe the biophysical characteristics, including:	
	• For each watercourse, indicate the name of the watercourse and provide a description of the habitat by homogeneous section. The parameters that must be determined are length of the section, width of the channel from the high water mark (bankful width), water depths, type of substrate (sediments), aquatic and riparian vegetation, including bank slopes. It is recommended that photos be attached to the description;	15.5.3
	• For each lake or water body affected, indicate the name of the water body and provide a description. The parameters that must be determined are total surface area, bathymetry, maximum and mean depths, water level fluctuations, type of substrate (sediments), and location of submerged, floating and emergent aquatic vegetation, and water quality parameters (e.g., water temperature, turbidity, pH, dissolved oxygen profiles);	15.5.3
	• Monthly/seasonal/annual water flow (discharge) data, including minimum and maximum flows;	11.5.3.2
	• Natural obstacles (e.g., falls, beaver dams) or existing structures (e.g., water crossings) that hinder the free passage of fish.	15.5.3
	• Preparation of habitat maps at a suitable scale indicating the surface area of habitat for spawning, nursery, feeding, migration routes etc. This information should be linked to water depths (bathymetry) to identify the extent of a lake's littoral zone.	Figure 15.4, Figure 15.5
	• Fish sampling survey methods used will be described in order to allow experts to ensure the quality of the information provided. If studies on fish and fish habitat were carried out previously, they are to be submitted with the EIS.	15.5.2
	• For all watercourses or water bodies on which the project is likely to have effects, including any water crossings, the EIS will:	
	• Describe the fish species present on the basis of the surveys carried out and the data available (e.g., electric and experimental fishing, government and historical databases, sport fishing data). Identify the sources of the data and provide the information concerning the fishing carried out (e.g., location of sampling stations, catch methods, date of catches, species);	15.5.3
	• Specify the location and surface area of potential or confirmed fish habitats and describe how they are used by fish (spawning, rearing, growth, feeding, migration, overwintering)	15.5.3
	• Locate and describe suitable habitats for species at risk that appear on federal and provincial lists and that are found or are likely to be found in the study area.	17.5.3.3
	• Document any blasting activity near water where vibrations may affect fish behaviour, such as spawning or migrations.	15.4.2.2

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• For sites where stream crossings are to be installed, constructed or modified, indicate how fish passage will be maintained.	15.16.1.2, 15.6.1.3
	Birds, Wildlife and their Habitat	16
	The EIS will describe migratory and non-migratory birds (including waterfowl, raptors, shorebirds, marsh birds and other land birds), ungulates (including the George River Caribou), furbearers, amphibians, small mammals, and their habitat at the project site and within the local and regional areas. The results of any baseline surveys and a description of the methodology will be included.	16.5.3.2
	Migratory birds are protected under the *Migratory Birds Convention Act* (MBCA) and associated regulations. Preliminary data from existing sources will be gathered on year-round migratory bird use of the area (e.g., winter, spring migration, breeding season, fall migration). In addition to information obtained from the Atlantic Canada Conservation Data Centre (ACCDC) and naturalists, other relevant datasets should be consulted, such as those available from:	
	• Bird Studies Canada's "Nature Counts" web portal: (http://www.birdscanada.org/birdmon/default/datasets.jsp);	16.5.1
	• the Quebec Breeding Bird Atlas 1984-89 (Les oiseaux nicheurs du Québec: atlas des oiseaux nicheurs du Québec méridional). A copy of this atlas is available at: http://www.atlas-oiseaux.qc.ca/1eratlas_en.jsp; and	16.5.1
	• other data and projects, based on consultation with government and other agencies.	16.5.1
	Existing data will be supplemented by surveys, where necessary. Surveys should be designed with reference to the Canadian Wildlife Service's guidance such as Technical Report No. 508, A Framework for the Scientific Assessment of Potential Project Impacts on Birds (Hanson *et al*. 2009). Appendix 3 of the Framework provides examples of project types and recommended techniques for assessing impacts on migratory birds.	16.5.2.1, 16.5.3.2
	Other wildlife and their habitat that could be impacted by project activities will be characterized using existing data, supplemented by surveys as appropriate.	16.5.2.2, 16.5.3.3
	The EIS will give particular consideration to areas of concentration of migratory animals, such as breeding, denning and/or wintering areas, as well as breeding areas of species low in number and high in the food chain (e.g., furbearers such as black bear and wolf).	16.5.2.2, 16.5.3.3
	The description of the existing environment will include consideration of existing or proposed protected areas, special management areas, and conservation areas in the regional study area.	16.5.3.3 - Moose
	Species at Risk and Species of Conservation Concern	17
	As background for the analysis of the project's effects on Species at Risk (SAR), the EIS will:	
	• Identify all SARs that may be affected by the project, using existing data and literature as well as surveys to provide current field data, as appropriate;	17.5.3
	• Incorporate any published studies that describe the regional importance, abundance and distribution of SARs; and	17.5.1
	• Identify residences, seasonal movements, movement corridors, habitat requirements, key habitat areas, identified critical habitat and/or recovery habitat (where applicable) and general life history of SARs that may occur in the project area, or be affected by the project.	Chapter 4 section 16.1.2.2, 16.1.3
	The following information sources on species at risk and species of conservation concern should be consulted:	
	• *Species At Risk Act* (www.sararegistry.gc.ca);	16.1.1, 17.1.1, 17.2.1

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• Committee on the Status of Endangered Wildlife in Canada;	17.2.1
	• Atlantic Canada Conservation Data Center;	17.2.1
	• Newfoundland and Labrador *Endangered Species Act*;	17.2.1
	• Newfoundland and Labrador Species Status Advisory Committee;	17.2.1
	• Newfoundland and Labrador Department of Environment and Conservation	17.1.1
	• Wildlife Division General Status of Wildlife Ranks;	17.1.1
	• Québec Loi sur les espèces menacées ou vulnérables;	17.2.1
	• Relevant Government agencies;	17.2.1, 17.2.2
	• Local naturalist and interest groups; and	17.2.2
	• Aboriginal groups and First Nations	17.2.2
	Ecosystems (grassland, temperate forest etc.)	
	The EIS will describe the various ecosystems found within the project area which are likely to be affected by the project.	14.5.3.1, 17.5.3.1
	Flora	
	The EIS will describe potential or known plant species in the project area, which are listed under the *Species at Risk Act* or other provincial or territorial endangered species legislation, and critical habitat that are likely to be affected by the project.	17.5.3.1, Table 17.8
	This is a minimum list that is not meant to be exhaustive. The proponent may consider the inclusion of other biophysical VCs in the EIS.	17.6, Table 17.7, Table 7.10, Table 7.12
	The species selected within each biotic VC should include those of importance to health and socio-economic conditions, cultural heritage and the current use of land and resources for traditional purposes by Aboriginal persons.	Table 17.9
9.1.3	**Human environment**	
	The definition of the human environment will be interpreted broadly. Based on the scope of project described in section 6 of the federal guidelines, the following VCs will be identified and described in the relevant sections of the EIS:	
	• Land use context (e.g., hunting, fishing, outdoor recreation, use of seasonal cabins, existing land development);	19, 20
	• Health and socio-economic conditions;	19, 20, 21, 22
	• Physical and cultural heritage, including structures, sites or things of historical, archaeological, paleontological or architectural significance;	18
	• Current use of land and resources for traditional purposes by Aboriginal persons; and	19
	• In describing how the project may impede navigation, the EIS will:	
	◦ identify any Project components and a description of any activities (e.g., dredging, alteration of water bed and/or water banks) that may affect waterways and water bodies;	2.5.4.3, 19, 20
	◦ describe any recreational uses of natural waters (e.g., swimming, canoeing, fishing); and	19.5.3, 20.5.2
	◦ provide information on current and/or historic usage of all waterways and water bodies that will be directly affected by the project, including current Aboriginal uses, where available This is a minimum list that is not meant to be exhaustive. The proponent may consider the inclusion of other human environment VCs in the EIS	19.5.3, 20.5.2

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	The proponent will include all baseline information relevant to human health in one section of the EIS. The proponent will refer to Health Canada's "Useful Information for Environmental Assessments" document in order to include the appropriate baseline information relevant to human health.	21
	In describing the socio-economic environment, the proponent will provide information on the functioning and health of the socio-economic environment, encompassing a broad range of matters that affect communities and Aboriginal peoples in the study area in a way that recognizes interrelationships, system functions and vulnerabilities.	21, 22, 23
	A description of the rural and urban settings likely to be affected by the project will be provided.	21
	In describing physical and cultural heritage, the proponent will provide information on heritage resources, including structures, sites or things of historical, archaeological, paleontological or architectural significance.	18.5.3
	In describing current uses of land and resources by Aboriginal groups for traditional purposes, the proponent will include activities related, but not limited, to hunting, fishing, trapping, cultural, navigational use and other traditional uses of the land (e.g., collection of medicinal plants, use of sacred sites). Potential effects on current uses include access to areas that are of importance or concern to Aboriginal groups.	19.5.3
9.2	**Potential or Established Aboriginal and Treaty Rights and Related Interests**	23
	For the purposes of developing the EIS, the proponent will engage with Aboriginal groups whose potential or established Aboriginal rights and Treaty rights and related interests may be affected by the project which include, at a minimum, the following groups:	1.9, 23
	• • Innu Nation of Labrador	1.9.1, 23
	• • NunatuKavut Community Council	1.9.2, 23
	• • Naskapi Nation of Kawawachikamach	1.9.3, 23
	• • Innu First Nation of Matimekush-Lac John	1.9.4, 23
	• • Innu First Nation of Uashat mak Mani-Utenam	1.9.4, 23
	In preparing the EIS, the proponent will ensure that Aboriginal groups, especially those most likely to be affected by the project, have access to timely and relevant information that they require in respect of the project and how the project may adversely impact them.	5.3,5.4.2, 5.4.3,
	For the Aboriginal groups previously identified by the Agency, the proponent will hold meetings and facilitate these by making key EA summary documents (baseline studies, EIS and key findings) accessible and making plain language summaries of these documents.	3.2, 3.3., 3.4, 3.5
	At a minimum, the EIS will summarize available information on the potential or established Aboriginal and Treaty rights and related interests of the named Aboriginal groups that have the potential to be adversely impacted by the project.	1.9, 23
	As part of this summary, the EIS will include for each Aboriginal group:	
	• Background information and a map of the group's traditional territory;	Figures 19.1 to 19.4
	• A summary of engagement activities conducted prior to the submission of the EIS, including the date and means of engagement (e.g., meeting, mail, telephone);	3.2, 3.3., 3.4
	• Information on each group's potential or established rights (including geographical extent, nature, frequency, timing), including maps and data sets (e.g., fish catch numbers) when this information is provided by a group to the proponent;	1.9, 23

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• An overview of key comments and concerns provided by each group to the proponent;	3.4
	• Responses provided by government and/or the proponent, as appropriate;	3.4
	• Future planned engagement activities; and	3.5
	• Efforts undertaken to engage with Aboriginal groups as part of developing the information identified above.	3.2, 3.3., 3.4
	The proponent will describe all efforts, successful or not, taken to solicit the information required to prepare the EIS.	3
	The Agency will provide additional instructions to the proponent in cases where further research and/or engagement effort by the proponent is required to support Canada's ability to fulfill the duty to consult with one or more Aboriginal groups that may be adversely affected by the project.	n/a
	Should the proponent have knowledge of potential adverse impacts to an Aboriginal group not appearing on the above list, the proponent will bring this to the attention of the Agency at the earliest opportunity.	n/a
10.0	**EFFECTS ASSESSMENT**	
10.1	**Environmental effects**	5.5, 10 to 22
10.1.1	**Methodology**	5.5
	Indicate the project's effects during construction, operation, maintenance, foreseeable modifications, and where relevant, closure, decommissioning and restoration of sites and facilities associated with the project, and describe these effects using appropriate criteria.	5.5, 10 to 22
	This documentation will include, for each potential project-related environmental effect, an indication of the nature of the effect, mechanism, magnitude, duration, frequency, geographic extent, and the degree to which it may be reversible.	5.5.3, 10 to 22
	Consider both the direct and indirect, reversible and irreversible, short- and long-term environmental effects of the project. In predicting and assessing the project's effects, the proponent will indicate important details and clearly state the elements and functions of the environment that may be affected, specifying the location, extent and duration of these effects and their overall impact.	5.5.3, 10 to 22
	The assessment of the effects of each of the project components and physical activities, in all phases, will be based on a comparison of the biophysical and human environments between the predicted future conditions with the project and the predicted future conditions without the project. In undertaking the environmental effects assessment, the proponent will use best available information and methods. All conclusions will be substantiated. Predictions will be based on clearly stated assumptions.	5.5
	The proponent will describe how it has tested each assumption.	5.4.4
	With respect to quantitative models and predictions, the proponent will discuss the assumptions that underlie the model, the quality of the data and the degree of certainty of the predictions obtained.	5.4.4
	Risk assessment framework	
	The proponent is expected to employ, where appropriate, standard ecological risk assessment frameworks that categorize the levels of detail and quality of the data required for the assessment. These tiers are as follows:	5.5.4
	• Tier 1: Qualitative (expert opinion, including traditional and local knowledge, literature review, and existing site information);	5.5.4
	• Tier 2: Semi-quantitative (measured site-specific data and existing site information); and	5.5.4

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• Tier 3: Quantitative (recent field surveys and detailed quantitative methods).	5.5.4
	Thus, if the Tier 2 assessment still indicates a potential for effects to VCs, a Tier 3 assessment may need to be conducted to reduce the level of uncertainty. If the risk characterization component is uncertain this may necessitate the probabilistic modelling of the population-level consequences of the proposed project.	5.5.54
	Biophysical changes to the environment that may impact human health include changes to: air quality, water quality, noise levels, contaminants in country food sources, and radiation levels. Such changes in the biophysical environment, as described in Section 9 (Baseline Environment), can impact human health. When risks to human health due to changes in one or more of these components are predicted, a complete Human Health Risk Assessment (HHRA) examining all exposure pathways for pollutants of concern may be necessary to adequately characterize potential risks the human health.	2, 5.5.4
	Impact matrix	
	An impact matrix methodology in combination with identification of VCs should be used to evaluate environmental effects of the proposed project, including those related to Aboriginal peoples. The assessment will include the following general steps:	
	• identification of the activities and components of the project;	2, 5.5.4, Table 5.2, Tables 10.10, 11.3, 12.2, 13.3, 14.3, 15.5, 16.3, 17.6, 18.3, 19.4, 20.2, 21.3, 22.3
	• predicting/evaluating the likely effects on identified valued components;	5.5.6, 10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.2, 22.6
	• identification of technically and economically feasible mitigation measures for any significant adverse environmental effects;	5.5.6, 10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.2, 22.6
	• determination of any residual environmental effects;	5.5.7, 10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.2, 22.6
	• ranking of each residual adverse environmental effect based on various criteria; and	5.5.7, 10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.2, 22.6
	• determination of the potential significance of any residual environmental effect following the implementation of mitigation.	5.5.8, 10.9, 11.9, 12.9, 13.9, 14.9, 15.9, 16.9, 17.9, 18.9, 19.9, 20.9, 21.9, 22.9
	Application of precautionary approach	5.4.4
	In documenting the analyses included in the EIS, the proponent will:	
	• Demonstrate that all aspects of the project have been examined and planned in a careful and precautionary manner in order to ensure that they would not cause serious or irreversible damage to the environment, especially with respect to environmental functions and integrity, system tolerance and resilience, and/or the human health of current or future generations;	5.4.4

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• Outline and justify the assumptions made about the effects of all aspects of the project and the approaches to minimize these effects;	5.4.4
	• Ensure that in designing and operating the project, priority has been and would be given to strategies that avoid the creation of adverse effects;	5.4.4
	• Develop contingency plans that explicitly address accidents and malfunctions; and	5.4.4, 7
	• Identify any proposed follow-up and monitoring activities, particularly in areas where scientific uncertainty exists in the prediction of effects.	5.4.4, 10 to 22
10.1.2	**Changes to the environment**	
	The EIS will describe any change that may be caused by the project (as scoped in section 6 of this document) on the environment, which is defined as the components of the Earth, including:	10 to 22
	• Land, water and air, including all layers of the atmosphere;	10 to 22
	• All organic and inorganic matter and living organisms; and	10 to 22
	• The interacting natural systems that include the components described above.	10 to 22
	Changes to components of the environment within federal jurisdiction	
	The EIS will include a stand-alone section that summarizes those changes that may be caused by the project on the components of the environment listed in paragraph 5(1)(a) of CEAA, 2012, namely fish and fish habitat, aquatic species and migratory birds.	Table 26.8
	Changes to the environment that would occur on federal or transboundary lands	
	The EIS will include a stand-alone section that summarizes any change the project may cause to the environment that may occur on federal lands or lands outside the province in which the project is to be located (including outside of Canada).	Table 26.8
	Changes to the environment that are directly linked or necessarily incidental to federal decisions	
	In situations where the project requires one or more federal decisions identified in section 5.2 of the federal guidelines, the EIS will also include a stand-alone section that describes any change that may be caused by the project on the environment that is directly linked or necessarily incidental to these decisions.	Table 26.8
10.2	**Adverse Impacts on Aboriginal and Treaty Rights and Related Interests**	
	The EIS will describe, from the perspective of the proponent, the potential adverse impacts of the project on the ability of Aboriginal peoples to exercise the potential or established Aboriginal and Treaty rights and related interests identified in section 9.2 of the federal guidelines. As part of this description, this section will summarize:	23
	• Potential adverse impacts (on potential or established Aboriginal and Treaty rights and related interests) that were identified through the environmental effects described in sections 10.1.2 and 10.1.3;	23.4
	• Specific issues and concerns raised by Aboriginal groups in relation to the potential adverse impacts of the project on potential or established Aboriginal and Treaty rights and related interests;	23.3
	• VCs suggested for inclusion in the EIS, whether or not those factors were included, and the rationale for any exclusions;	
	• Where and how Aboriginal traditional knowledge or other Aboriginal views were incorporated into the consideration of environmental effects and potential adverse impacts on potential or established Aboriginal and Treaty rights and related interests; and	Figure 3.1, Table 3.3, Figure 19.5, 23.2

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• Efforts undertaken to engage with Aboriginal groups as part of collecting the information identified above.	3.2, 3.3
	The assessment of the potential adverse impacts of each of the project components and physical activities, in all phases, will be based on a comparison of the exercise of the identified rights between the predicted future conditions with the project and the predicted future conditions without the project.	23.4
	It is recommended that the impact matrix methodology described in section 10.1.1 of the federal guidelines be adapted for this purpose.	Table 23.1
10.3	**Public concerns**	
	This section will detail public concerns raised in relation to the project, including through public consultation conducted prior to the preparation of the EIS, and/or community knowledge that may have been provided.	3
11.0	**MITIGATION**	
11.1	**Environmental mitigation**	
11.1.1	**Methodology**	
	Every EA conducted under CEAA, 2012 will consider clear, enforceable measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project. As a first step, the proponent is encouraged to use an approach based on the avoidance and reduction of the effects at the source. Such an approach may include the modification of the design of the project or relocation of project components.	5.5.6
	The EIS will describe the standard mitigation practices, policies and commitments that constitute technically and economically feasible mitigation measures and that will be applied as part of standard practice regardless of location.	5.5.6, 10 to 22
	The proponent will then describe its environmental protection plan and its environmental management system, through which it will deliver this plan. The plan will provide an overall perspective on how potentially adverse effects would be minimized and managed over time.	7
	The EIS will then describe mitigation measures that are specific to each environmental effect identified in section 10.1. Measures will be written as specific commitments that clearly describe how the proponent intends to implement them. Where mitigation measures have been identified in relation to species and/or critical habitat listed under the *Species at Risk Act*, the mitigation measures will be consistent with any applicable recovery strategy and action plans.	10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.6, 22.6
	The EIS will describe proponent commitments, policies and arrangements directed at promoting beneficial or mitigating adverse socio-economic effects. The EIS will further discuss the mechanisms the proponent would use to require its contractors and sub-contractors to comply with these commitments and policies and with auditing and enforcement programs.	1.2, 10 to 22, 25
	The EIS will specify the actions, works, minimal disturbance footprint techniques, best available technology, corrective measures or additions planned during the project's various phases (construction, operation, modification, decommissioning, abandonment or other undertaking related to the project) to eliminate or reduce the significance of adverse effects.	10 to 22, 25
	The impact statement will also present an assessment of the effectiveness of the proposed technically and economically feasible mitigation measures. The reasons for determining if the mitigation measure reduces the significance of an adverse effect will be made explicit.	25

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	The EIS will indicate what other technically and economically feasible mitigation measures were considered, including the various components of mitigation, and explain why they were rejected. Trade-offs between cost savings and effectiveness of the various forms of mitigation will be justified. The EIS will identify who is responsible for the implementation of these measures and the system of accountability.	5.5.6
	Where mitigation measures are proposed to be implemented for which there is little experience or for which there is some question as to their effectiveness, the potential risks and effects to the environment should those measures not be effective will be clearly and concisely described.	5.5.6
	The EIS will identify the extent to which technology innovations will help mitigate environmental effects. Where possible, it will provide detailed information on the nature of these measures, their implementation, management and the development of the Follow-up Program as described in section 11.4 of the federal guidelines.	10 to 22
	Adaptive management is not considered a valid mitigation measure, but if the Follow-up Program indicates that corrective action is required, the proposed approach for managing the response should be identified.	7
11.1.2	**Summary of environmental mitigation**	10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.6, 22.6, 25
	The EIS will summarize the mitigation measures, follow-up and related commitments identified to address the categories of environmental effects specified in section 10:	
	• Changes to components of the environment within federal jurisdiction;	Table 26.8
	• Changes to the environment that would occur on federal or transboundary lands;	Table 26.8
	• Changes to the environment that are directly linked or necessarily incidental to federal decisions;	Table 26.8
	• Effects of changes to the environment on Aboriginal peoples; and	23
	• Effects of changes to the environment that are directly linked or necessarily incidental to federal decisions.	Table 26.8
11.2	**Measures to address impacts on Aboriginal rights**	
	This section will describe, from the perspective of the proponent, the measures identified to mitigate the potential adverse impacts of the project described in section 10.2 on the potential or established Aboriginal and Treaty rights and related interests identified in section 9.2 of the federal guidelines.	23.4
	These measures will be written as specific commitments that clearly describe how the proponent intends to implement them. This description will include a summary of:	23.4
	• Specific suggestions raised by Aboriginal groups for mitigating the potential adverse impacts of the project on potential or established Aboriginal and Treaty rights and related interests in relation to environmental effects specified in sections 10.1.2 and 10.1.3 of the federal guidelines;	23.3, 23.4
	• Environmental mitigation measures identified in section 11.1 of the federal guidelines that also serve to address potential adverse impacts on potential or established Aboriginal and Treaty rights and related interests;	23.4
	• Any potential cultural, social and/or economic impacts or benefits to Aboriginal groups that may arise as a result of the project;	19, 23

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• Where and how Aboriginal traditional knowledge or other Aboriginal views were incorporated into the mitigation of environmental effects of potential adverse impacts on potential or established Aboriginal and Treaty rights and related interests; and	5.4.3, 10.2, 11.2, 12.2, 13.2, 14.2, 15.2, 16.2, 17.2, 18.2, 19.2, 20.2, 21.2, 22.2
	• Efforts undertaken to engage with Aboriginal groups as part of developing the information identified above.	3.2, 3.3, 3.4
	In preparing the EIS, the proponent will ensure that Aboriginal people and groups have access to the information that they require in respect of the project and of how it may impact them.	3.5
	The proponent will describe all efforts, successful or not, taken to solicit the information required to prepare the EIS.	3.2, 3.3, 3.4
	The proponent will structure its Aboriginal engagement activities to provide adequate time for Aboriginal groups to have reviewed the relevant information in advance and to ensure there are sufficient opportunities for individuals and groups to provide oral input in the language of their choosing. Consultation activities must be appropriate to the groups' needs and should be arranged through discussions with the groups.	19.2.2, 19.2.4
11.3	**Measures to address public concerns**	
	Describe measures identified for addressing public concerns in relation to the project identified in section 10.3 of the federal guidelines. Measures will be written as specific commitments that clearly describe how the proponent intends to implement them.	10.2, 11.2, 12.2, 13.2, 14.2, 15.2, 16.2, 17.2, 18.2, 19.2, 20.2, 21.2, 22.2
	For any consultations undertaken with the general public, the EIS will describe the ongoing and proposed consultations and information sessions with respect to the project at the local, regional and provincial levels, where applicable.	3.5
	The EIS will provide a summary of discussions, indicate the methods used and their relevance, locations, the persons and organizations consulted, the concerns raised, the extent to which this information was incorporated in the design of the project as well as in the EIS, and the resultant changes.	3.1, 3.2
	Provide a description of efforts made to distribute project information and provide a description of information and materials that were distributed during the consultation process.	3.1, 3.2
11.4	**Follow-Up Program**	
	A Follow-up Program is 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.	5.5.9, 7.3,
	The EIS will describe the proposed Follow-up Program in sufficient detail to allow independent judgment as to the likelihood that it will deliver the type, quantity and quality of information required to reliably verify predicted effects (or absence of them), and to confirm both the assumptions and the effectiveness of mitigation. The Follow-up Program will include specific commitments that clearly describe how the proponent intends to implement them.	10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
	The Follow-up Program will be designed to incorporate baseline data, compliance data (such as established benchmarks, regulatory documents, standards or guidelines) and real time data (such as observed data gathered in the field). The proponent will describe the reporting methods to be used, including frequency, methods and format.	10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	The effects predictions, assumptions and mitigation actions that are to be tested in the follow-up program must be converted into field-testable monitoring objectives. The monitoring design must include a statistical evaluation of the adequacy of existing baseline data to provide a benchmark against which to test for project effects, and the need for any additional pre-construction or pre-operational monitoring to establish a firmer project baseline.	10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
	The Follow-up Program will include a schedule indicating the frequency and duration of effects monitoring. This schedule is to be developed after an evaluation of the length of time needed to detect effects given estimated baseline variability, likely magnitude of environmental effect and desired level of statistical confidence in the results (Type 1 and Type 2 errors).	10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
	The description of the Follow-up Program will include any contingency procedures/plans or other adaptive management provisions as a means of addressing unforeseen effects or for correcting exceedances as required to comply or to conform to benchmarks, regulatory standards or guidelines.	10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
	The Follow up Program will also be designed to monitor the implementation of mitigation measures resulting from Aboriginal consultation, including:	
	• Verifying predictions of environmental effects with respect to Aboriginal peoples, as well as residual impacts that could not be addressed within the context of the EA;	7.3
	• Determining the effectiveness of mitigation measures as they relate to environmental effects with respect to Aboriginal peoples in order to modify or implement new measures where required;	7.3
	• Supporting the implementation of adaptive management measures to address previously unanticipated adverse environmental effects with respect to Aboriginal peoples or unanticipated adverse impacts to Aboriginal rights;	7.3
	• Verifying measures identified to prevent and mitigate potential adverse effects of the project on potential or established Aboriginal and Treaty rights; and	7.3
	• Providing information that can be used to improve and/or support future EAs and Aboriginal consultation processes.	7.3
	Where appropriate, the Follow-up Program can also encompass measures identified to address public concerns identified in section 11.3 of the federal guidelines.	7.3
11.5	**Proponent commitments**	
	Proponent commitments identified in the EIS, including environmental mitigation measures to address public and Aboriginal peoples concern, and Follow-up Program elements, may be considered for inclusion as conditions in the EA decision statement and/or as part of other compliance and enforcement mechanisms.	25
	Each commitment will be specific, achievable, measurable and verifiable, and described in a manner that avoids ambiguity in intent, interpretation and implementation.	25
12.0	**RESIDUAL EFFECTS**	
12.1	**Residual and cumulative environmental effects**	
12.1.1	**Residual environmental effects**	
	After having established the technically and economically feasible mitigation measures, the EIS will present any residual environmental effects of the project on the biophysical and human environments after these mitigation measures have been taken into account. The residual effects, even if very small or deemed insignificant will be described.	10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.6, 22.6

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
12.1.2	**Cumulative environmental effects**	24
	The proponent will identify and assess the project's cumulative effects using the approach described in the Agency's "Operational Policy Statement: Addressing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act*".	5.6.1, 24
	Cumulative effects are defined as changes to the environment due to the project combined with the existence of other works or other past, present and reasonably foreseeable physical activities. Cumulative effects may result if:	Noted
	• implementation of the project being studied caused direct residual negative effects on the environmental components, taking into account the application of technically and economically feasible mitigation measures; and/or,	5.6.1
	• The same environmental components are affected by other past, present or reasonably foreseeable physical activities.	5.6.1
	The EIS will describe the analysis of the total cumulative effect on a VC over the life of the project, including the incremental contribution of all current and proposed physical activities, in addition to that of the project.	10.7, 11.7, 12.7, 13.7, 14.7, 15.7, 16.7, 17.7, 18.7, 19.7, 20.7, 21.7, 22.7, 24
	The EIS will include different forms of effects (e.g., synergistic, additive, induced, spatial or temporal) and identify impact pathways and trends.	5.6.1, 10.7, 11.7, 12.7, 13.7, 14.7, 15.7, 16.7, 17.7, 18.7, 19.7, 20.7, 21.7, 22.7
	The EIS will include a narrative discussion of existing projects in the vicinity of the proposed project. The narrative will include the description of any existing studies of changes to the environment resulting from those projects that are similar to potential changes resulting from the project, including any mitigation measures that were implemented, and any long term monitoring or follow up program that was conducted.	5.6.2, 24
	The effectiveness of those mitigation measures and key results of monitoring or follow-up programs will be described. This narrative discussion should include historical data, where available and applicable, to assist interested parties to understand the potential effects of the project and how they may be addressed.	24
	The cumulative effects assessment may consider the results of any relevant study conducted by a committee established under section 73 or 74 of CEAA, 2012.	Noted
12.1.3	**Summary of residual environmental effects**	
	Summarizes the residual environmental effects (including cumulative environmental effects) identified in relation to the categories of environmental effects specified in sections 10.1.2 and 10.1.3 of the federal guidelines:	26.2.2
	• Changes to components of the environment within federal jurisdiction	Table 26.8
	• Changes to the environment that would occur on federal or transboundary lands	Table 26.8
	• Changes to the environment that are directly linked or necessarily incidental to federal decisions	Table 26.8
	• Effects of changes to the environment on Aboriginal peoples	19, 23, Table 26.8
	• Effects of changes to the environment that are directly linked or necessarily incidental to federal decisions	Table 26.8

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
12.2	**Outstanding Aboriginal issues**	
	Describe from the perspective of the proponent, the potential adverse impacts on potential or established Aboriginal and Treaty rights and related interests that have not been fully mitigated as part of the environmental assessment and associated consultations with Aboriginal groups. This includes potential adverse impacts (on potential or established Aboriginal and Treaty rights and related interests) that may result from the residual and cumulative environmental effects described in section 10.2 of the federal guidelines.	23
	The information in this section will assist the Crown in assessing the adequacy of consultation and accommodation as set out in the "Updated Guidelines for Federal Officials to Fulfill the Duty to Consult" (2011).	n/a
12.3	**Outstanding public concerns**	
	Describe the outstanding public concerns in relation to the project that have not been resolved as a result of changes to the project, mitigation measures, or public consultation.	Need statement in Section 26.3 indicating there are no outstanding public concerns
13.0	**SIGNIFICANCE DETERMINATION**	
13.1	**Significance of adverse environmental effects**	5.5.8
13.1.1	**Methodology**	
	Provide a detailed analysis of the significance of the residual environmental effects (including cumulative environmental effects) that are considered adverse, using the approach described in the Agency's "Reference Guide: Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects"	5.5.8
	The EIS will identify the criteria used to assign significance ratings to any predicted adverse effects. It will contain clear and sufficient information to enable the Agency, technical and regulatory agencies, Aboriginal groups and the public to review the proponent's analysis of the significance of effects.	5.5.3, 5.5.7, 5.5.8, 10.3, 11.3, 12.3, 13.3, 14.3, 15.3, 16.3, 17.3, 18.3, 19.3, 20.3, 21.3, 22.3
	The proponent will define the terms used to describe the level of significance.	5.5.8, 10.3, 11.3, 12.3, 13.3, 14.3, 15.3, 16.3, 17.3, 18.3, 19.3, 20.3, 21.3, 22.3
	The following elements should be used in determining the significance of residual effects:	
	• Magnitude;	5.5.3, 5.5.7, 10.3, 11.3, 12.3, 13.3, 14.3, 15.3, 16.3, 17.3, 18.3, 19.3, 20.3, 21.3, 22.3
	• Geographic extent;	5.5.3, 5.5.7, 10.3, 11.3, 12.3, 13.3, 14.3, 15.3, 16.3, 17.3, 18.3, 19.3, 20.3, 21.3, 22.3
	• Duration and frequency;	5.5.3, 5.5.7, 5.5.8, 10.3, 11.3, 12.3, 13.3, 14.3, 15.3, 16.3, 17.3, 18.3, 19.3, 20.3, 21.3, 22.3

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• Reversibility;	5.5.3, 5.5.7, 10.3, 11.3, 12.3, 13.3, 14.3, 15.3, 16.3, 17.3, 18.3, 19.3, 20.3, 21.3, 22.3
	• Ecological and social context; and	5.5.3, 5.5.7, 10.3, 11.3, 12.3, 13.3, 14.3, 15.3, 16.3, 17.3, 18.3, 19.3, 20.3, 21.3, 22.3
	• Existence of environmental standards, guidelines or objectives for assessing the impact.	5.5.3, 5.5.7, 10.3, 11.3, 12.3, 13.3, 14.3, 15.3, 16.3, 17.3, 18.3, 19.3, 20.3, 21.3, 22.3
	In assessing significance against these criteria the EIS will, where possible, employ relevant existing regulatory documents, environmental standards, guidelines, or objectives such as prescribed maximum levels of emissions or discharges of specific hazardous agents into the environment.	5.1, 5.5.3, 10.3, 11.3, 12.3, 13.3, 14.3, 15.3, 16.3, 17.3, 18.3, 19.3, 20.3, 21.3, 22.3
	The EIS will contain a section which explains the assumptions, definitions and limits to the criteria mentioned above in order to maintain consistency between the effects on each VC.	10.3, 11.3, 12.3, 13.3, 14.3, 15.3, 16.3, 17.3, 18.3, 19.3, 20.3, 21.3, 22.3
	Where significant adverse effects are identified, the EIS will set out the probability (likelihood) that they will occur, and describe the degree of scientific uncertainty related to the data and methods used within the framework of its environmental analysis.	5.5.8, 10.9, 11.9, 12.9, 13.9, 14.9, 15.9, 16.9, 17.9, 18.9, 19.9, 20.9, 21.9, 22.9
13.1.2	**Summary of significant adverse environmental effects**	
	The EIS will summarize the significant adverse environmental effects identified in relation to the categories of environmental effects specified in sections 10.1.2 and 10.1.3 of the federal guidelines:	
	• Changes to components of the environment within federal jurisdiction;	Table 26.8
	• Changes to the environment that would occur on federal or transboundary lands;	Table 26.8
	• Changes to the environment that are directly linked or necessarily incidental to federal decisions;	Table 26.8
	• Effects of changes to the environment on Aboriginal peoples; and	19.9, 23.4, Table 26.8
	• Effects of changes to the environment that are directly linked or necessarily incidental to federal decisions.	Table 26.8
14.0	**SUMMARY TABLES**	
	The EIS will contain a series of tables summarizing the following key information:	
	• Potential environmental effects (section 10.1), adverse impacts on potential or established Aboriginal and Treaty rights and related interests (section 10.2) and public concerns (section 10.3);	10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.6, 22.6, 23
	• Proposed mitigation measures and commitments (section 11.5) by proponent to address potential impacts on environment, (section 11.1), Aboriginal rights (section 11.2) and public concerns (section 11.3), and Follow-up Program (section 11.4);	10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.6, 22.6
	• Potential residual and cumulative environmental effects (section 12.1) and the significance of the residual environmental effects (section 13.1) ; outstanding Aboriginal issues (section 12.2) and outstanding public concerns (section 12.3);	10.9, 11.9, 12.9, 13.9, 14.9, 15.9, 16.9, 17.9, 18.9, 19.9, 20.9, 21.9, 22.9

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• Comments from the public and responses;	3.1, 3.2, 10.2, 11.2, 12.2, 13.2, 14.2, 15.2, 16.2, 17.2, 18.2, 19.2, 20.2, 21.2, 22.2
	• Comments from Aboriginal groups and individuals and responses; and	3.2, 10.2, 11.2, 12.2, 13.2, 14.2, 15.2, 16.2, 17.2, 18.2, 19.2, 20.2, 21.2, 22.2
	• Relationship of the identified Valued Components (section 7.1.1) to Aboriginal groups' potential or established Aboriginal and Treaty rights and related interests (section 9.2).	10.2, 11.2, 12.2, 13.2, 14.2, 15.2, 16.2, 17.2, 18.2, 19.2, 20.2, 21.2, 22.2, 23
	The summary tables will be used in the EA Report prepared by the Agency. Proponent commitments may be considered for inclusion as conditions in the EA decision statement and/or as part of other compliance and enforcement mechanisms.	25
15.0	**BENEFITS TO CANADIANS**	
15.1	**Changes to the project since initially proposed**	
	Summary of the changes that have been made to the project since originally proposed, including the benefits of these changes to the environment, Aboriginal peoples, and the public.	2.3
15.2	**Benefits of the project**	
	The EIS will include a section describing the predicted environmental, economic and social benefits of the project. This information will be considered in assessing the justifiability of the significant adverse environmental effects, if necessary.	9
16.0	**MONITORING PROGRAM AND ENVIRONMENTAL MANAGEMENT PLANS**	
	The goal of a monitoring program is to ensure that proper measures and controls are in place in order to decrease the potential for environmental degradation during all phases of project development, and to provide clearly defined action plans and emergency response procedures to account for human and environmental health and safety.	7.3
	In the EIS, the proponent will describe the monitoring activities at all stages of the project, the proponent's proposed commitment to implementing these activities and the resources provided for this purpose.	7.3, 10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10, 25
	The program will need to provide the key information such as contacts, protocols, measured parameters, deadlines, intervention in case of non-compliance of legal requirements and production of monitoring reports.	7.3
	The finalization of a detailed monitoring program will occur through consultation with federal and provincial government agencies, Aboriginal groups, the public and other stakeholders. This may occur after the environmental assessment but will be consistent with the information presented in the EIS. Pertinent legislation, regulations, industry standards, documents and legislative guides will be used in the development of the monitoring program.	7.3

Table ES 1 Table of Concordance Between the IAAC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	Environmental management plans (EMPs) are an example of a tool that can be used to ensure that proper measures and controls are in place in order to decrease the potential for environmental degradation during all phases of project development, and to provide clearly defined action plans and emergency response procedures to account for human and environmental health and safety. The EMPs will serve to provide guidance on specific actions and activities that will be implemented to decrease the potential for environmental degradation during construction and operation, and to clearly define the proponent's ongoing environmental commitment.	7.2

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
1.0	**INTRODUCTION**	
	The Project requires Environmental Assessment (EA) under both the *Newfoundland and Labrador Environmental Protection Act* (*NLEPA*) and *Canadian Environmental Assessment Act* (*CEAA*), specifically, the preparation of an Environmental Impact Statement (EIS).	Noted
1.1	**Purpose of the Environmental Impact Statement Guidelines**	
	These guidelines have been prepared by the Government of Newfoundland and Labrador to identify for the proponent the nature, scope and minimum information and analysis required in preparing its EIS. The EIS is intended to address the legislative requirements of the province.	Noted
	These guidelines shall not be regarded as either restrictive or exhaustive. Concerns other than those identified herein may arise during the investigations associated with the EIS. The provincial government is prepared to provide advice and assistance throughout the preparation of the EIS with regard to the identification of environmental concerns and appropriate assessment methodology.	Noted
	"Environment" includes: a) air, land and water; b) plant and animal life, including human life; c) the social, economic, recreational, cultural and aesthetic conditions and factors that influence the life of humans or a community; d) a building, structure, machine or other device or thing made by humans; e) a solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from the activities of humans; or f) a part or a combination of those things referred to in subparagraphs (a) to (e) and the interrelationships between 2 or more of them.	Noted
	“Environmental effect” means: a change in the present or future environment that would result from an undertaking.	Noted
	“Minister” means: the provincial Minister of Environment and Conservation.	now Minister of Environment
1.2	**Guiding Principles**	
1.2.1	***Environmental Assessment as a Planning Tool***	
	Environmental assessment is a planning tool used to ensure that projects are considered in a careful and precautionary manner in order to avoid or mitigate the possible adverse effects of development on the environment. EA also encourages decision makers to take actions that promote sustainable development and thereby achieve or maintain a healthy environment and a healthy economy.	1.2, 5.4.1, 5.4.4, 9.4.3
	The EA of this project shall, in a manner consistent with the purposes above:	
	• consider and evaluate alternatives to the Project and alternative means of carrying out the Project that are technically and economically feasible;	2.3, 2.8, 5.4.1
	• document public and Indigenous consultation activities in a manner that is transparent and accessible;	1.2.6, 3, 5.1, 5.4.2
	• propose measures to avoid or mitigate adverse environmental effects;	5.5.6, 10 to 22
	• propose measures to enhance or prolong beneficial environmental effects;	2.3, 5.5.6, 10 to 22
	• describe residual environmental effects that are beneficial or harmful that are likely to be caused by the undertaking regardless of the proper application of all control, mitigation, enhancement and remedial measures to be proposed in the EIS;	5.5.7, 10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.6, 22.6

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• • assess the cumulative environmental effects of the Project in combination with other projects and activities that have been or will be carried out;	5.6, 10.7, 11.7, 12.7, 13.7, 14.7, 15.7, 16.7, 17.7, 18.7, 19.7, 20.7, 21.7, 22.7, 24
	• predict whether or not the project, in combination with other projects or activities that have been or will be carried out, is likely to cause significant adverse environmental effects after mitigation measures are implemented;	5.6, 10.7, 11.7, 12.7, 13.7, 14.7, 15.7, 16.7, 17.7, 18.7, 19.7, 20.7, 21.7, 22.7, 24
	• specifically list and cite all sources of information in the EIS;	Provide at the end of individual chapters
	• outline the design of studies necessary to provide additional information for the preparation of the EIS;	10.5, 11.5, 12.5, 13.5, 14.5, 15.5, 16.5, 17.5, 18.5, 19.5, 20.5, 21.5, 22.5
	• address concerns identified during the public information sessions or through discussions with Indigenous organizations by including within the EIS specific responses to those concerns and, where appropriate, specific proposals for measures to deal with them; and	3, 10.2, 11.2, 12.2, 13.2, 14.2, 15.2, 16.2, 17.2, 18.2, 19.2, 20.2, 21.2, 22.2
	• as soon as they have been completed, provide copies of all reports or studies undertaken in order to satisfy these guidelines.	Noted
1.2.2	***Local Knowledge and Indigenous Traditional Knowledge***	5.4.3
	Local knowledge and Indigenous traditional knowledge refers to the broad base of knowledge held by individuals and collectively by communities that may be based on spiritual teachings, personal observation and experience or passed on from one generation to another through oral and/or written traditions.	Noted
	Local knowledge and Indigenous traditional knowledge, in combination with other information sources, can help in achieving a better understanding of potential effects of projects. Local knowledge and Indigenous traditional knowledge may, for example, contribute to the description of the existing physical, biological and human environments, natural cycles, resource distribution and abundance, long and short-term trends and the use of lands and water resources. It may also contribute to project site selection and design, identification of issues, the evaluation of potential effects and their significance, the effectiveness of proposed mitigation, cumulative effects assessment and the consideration of follow-up and monitoring programs.	Noted
	Indigenous traditional knowledge, which is rooted in the traditional life of Indigenous people, has an important contribution to make to an EA. Certain issues relevant to the review process are firmly grounded in Indigenous traditional knowledge such as harvesting, use of lands and resources for traditional purposes, cultural well-being, land use and heritage resources. Although the basis for Indigenous traditional knowledge and science-based knowledge can differ, they may on their own or together, contribute to the understanding of these issues.	Noted
	The EA will promote and facilitate the contribution of local knowledge and Indigenous traditional knowledge to the review process and recognize that approaches to local knowledge or Indigenous traditional knowledge, customs and protocols may differ among communities and persons with respect to the use, management and protection of this knowledge.	5.4.2, 5.4.3

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	The proponent shall incorporate into the EIS the local knowledge and Indigenous traditional knowledge to which it has access or that it may reasonably be expected to acquire through appropriate due diligence, in keeping with appropriate ethical standards and without breaching obligations of confidentiality.	Figure 3.1, Table 3.3, Figure 19.5, 5.4.2 5.4.3, 5.5, 10 to 22, 23.2
1.2.3	***Sustainable Development***	
	Sustainable development, as defined in the *Newfoundland and Labrador Sustainable Development Act*, means development that meets the needs of the present, without compromising the ability of future generations to meet their own needs. The EIS shall consider the extent to which the Project would meet this objective.	5.4.4, 9.4.3
	EA provides a systematic approach for identifying, predicting and evaluating the potential environmental effects of projects before decisions are made. In addition, EA provides the means to identify mitigation measures for adverse effects. EA enables the integration of environmental factors into the planning and decision-making process in a manner that promotes sustainable development and contributes to decision making that can ultimately provide net ecological, economic and social benefits to society. Moreover, a project that is supportive of sustainable development strives to incorporate citizen participation into decision-making.	Noted
	The EA of the Project, including its alternative means, shall take into account the relationships and interactions among the various components of the ecosystems, including the extent to which biological diversity may be affected by the Project and how the Project meets the needs of the present as well as future populations.	5.0,
1.2.4	***Precautionary Approach***	
	One of the purposes of EA is to ensure that proponents consider the Precautionary Principle. If a project has the potential to cause a threat of serious or irreversible damage to the environment, the proponent must take all reasonable environmental protection measures to protect the environment, even if full scientific knowledge is lacking.	5.4.4
	The proponent shall indicate how the precautionary principle was considered in the design of the Project in at least the following ways:	5.4.4
	• demonstrate that all aspects of the Project have been examined and planned in a careful and precautionary manner in order to ensure that they would not cause serious or irreversible damage to the environment, especially with respect to environmental functions and integrity, considering system tolerance and resilience and/or the human health of current or future generations;	Throughout EIS
	• outline and justify the assumptions made about the effects of all aspects of the Project and the approaches to minimize these effects;	5.4, 10 to 22
	• evaluate alternative means of carrying out the Project and compare them in light of risk avoidance and adaptive management capacity;	2.8, EIS Summary Table A.1
	• in designing and operating the Project, demonstrate that priority has been given to strategies that avoid the creation of adverse effects;	1.2
	• develop contingency plans that explicitly address accidents and malfunctions;	7.1
	• identify any proposed follow-up and monitoring activities, particularly in areas where scientific uncertainty exists in the prediction of effects or effectiveness of proposed mitigation measures; and	7.3
	• present public views on the acceptability of all of the above.	3

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
2.0	**THE ENVIRONMENTAL ASSESSMENT PROCESS**	
2.1	**Contacts for the Environmental Assessment**	
	Newfoundland and Labrador contacts for the EA are: Brenda Rowe (Chair) and John Pennell (Co- Chair) Environmental Scientist Environmental Assessment Division Department of Environment and Conservation PO Box 8700 St. John's NL A1B 4J6 (709)729-2553 (709)729-4295 browe@gov.nl.ca johnpennell@gov.nl.ca	Noted
2.2	**Environmental Assessment Requirements**	
2.2.1	***Newfoundland and Labrador Environmental Protection Act***	
	Any mining of a mineral as defined in the *Mineral Act* in Newfoundland and Labrador is subject to EA under the *NLEPA* and *Environmental Assessment Regulations.*	1.7.1.2
	The Environmental Assessment Division of the Newfoundland and Labrador Department of Environment and Conservation (NLDOEC) administers the process including:	1.7.1.2
	• consulting at every stage with interested government departments, the public and Indigenous organizations;	1.7.1.2
	• evaluating submissions by proponents and reviewers including Indigenous organizations;	1.7.1.2
	• advising the Minister on potential environmental effects prior to decisions; and	1.7.1.2
	• monitoring released projects to ensure compliance and effectiveness of mitigation.	1.7.1.2
	An undertaking that is subject to the NLEPA is required to be registered for examination by the NLDOEC. The registration outlines the proposed project and describes how it will affect the bio-physical and socio-economic environments. The Registration is referred to provincial and federal government departments and to appropriate Indigenous governments and organizations for review and comment. The Registration is also publicly available for comment.	1.7.1.2
	At the conclusion of the review period, the Minister advises the Proponent whether the undertaking has been released from further assessment or will require an Environmental Preview Report (EPR), an EIS, or if it has been rejected. On December 13, 2012, the Minister advised Labec Century Iron that an EIS is required.	1.7.1.2
2.2.2	***Delegated EIS Preparation***	
	Pursuant to the requirements of Section 51(1) (b) of the NLEPA, the proponent has been delegated the task of preparing the EIS. The EIS should be prepared according to these guidelines. Once completed, the proponent shall submit printed and electronic copies of the EIS to the involved provincial agencies (number of copies to be determined). In addition, the Proponent shall make printed copies of the EIS and the Plain language Summary (PLS) of the EIS available at public viewing centers (to be designated) in the project vicinity.	1.0

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

<table>
<tr><th>Guideline Number</th><th>Guideline Information Requirement</th><th>Section of EIS</th></tr>
<tr><td></td><td>In accordance with the requirements of NLDOEC, baseline studies will be conducted to define baseline conditions and to support the evaluation of environmental effects and/or the development of mitigation measures as well as monitoring and follow-up programs.</td><td>Appendices A to AF</td></tr>
<tr><td>2.3</td><td>Provincial - Federal Cooperation</td><td></td></tr>
<tr><td></td><td>The Governments of Newfoundland and Labrador and Canada intend to conduct respective EA reviews in a cooperative manner, but retain separate decision making.</td><td>Noted</td></tr>
<tr><td></td><td>The process will feature separate EIS guidelines, separate Indigenous consultation processes and practices, and separate public comment periods. However, the Proponent shall submit a singular EIS that is intended to fulfill the requirements of both jurisdictions.</td><td>Noted</td></tr>
<tr><td>2.4</td><td>Consultation</td><td></td></tr>
<tr><td></td><td>The public will have several opportunities to participate in the EA and provide their views on the environmental effects of the Project. These are outlined in Table 1.
Table 1 Public Participation Opportunities
<table>
<tr><th>Opportunity</th><th>Duration</th><th>Newfoundland and Labrador</th></tr>
<tr><td>Comment on Draft EIS guidelines and the Project</td><td>40 days</td><td>Yes (draft EIS Guidelines only)</td></tr>
<tr><td>Comment on Component Studies</td><td>35 days</td><td>Yes</td></tr>
<tr><td>Comment on Proponent’s EIS</td><td>50 days</td><td>Yes</td></tr>
</table></td><td>3, 5.4.3, 5.4.2</td></tr>
<tr><td></td><td>Electronic and hard copy versions of documents will be provided by the Proponent and made available for Indigenous and public review by NLDOEC. Key documents will be available on the NLDOEC Environmental Assessment webpage.</td><td>Noted</td></tr>
<tr><td></td><td>Public comment periods will be announced in newspapers and on the NLDOEC Environmental Assessment webpage mentioned above. Interested parties may contact the Newfoundland and Labrador EA contacts identified in Section 2.1 for further information regarding comment periods.</td><td>Noted</td></tr>
<tr><td></td><td>The Proponent is required to provide current information about the project to the public and especially to the communities likely to be most affected by the project as early as possible in the review process. This will ensure that all parties have an opportunity to gain an understanding of the proposed Project and may facilitate their continued involvement in the EA process.</td><td>1.8</td></tr>
<tr><td></td><td>During the preparation of the EIS, the proponent must hold public information sessions to provide information concerning the Project to the people whose environment may be affected by the undertaking.</td><td>1.8, 3</td></tr>
<tr><td></td><td>The Proponent must record and respond to the concerns of the local communities regarding the environmental effects of the Project.</td><td>1.8, 3</td></tr>
<tr><td>2.4.1</td><td>Indigenous Consultation</td><td></td></tr>
<tr><td></td><td>The Government of Newfoundland and Labrador (NL) is committed to consulting Indigenous organizations when NL contemplates making land and resource development decisions that have the potential to adversely impact asserted or proven Indigenous rights.</td><td>Noted</td></tr>
<tr><td></td><td>NL strives for a practical consultation process that helps to ensure that land and resource development decisions minimize or, where reasonably practicable, eliminate potentially adverse impacts on asserted or proven Indigenous rights.</td><td>Noted</td></tr>
</table>

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	NL also aims to maintain, foster and improve effective working relationships among Indigenous organizations, the Proponent and NL.	Noted
	In particular, NL's consultation process is intended to produce better communication, stronger relationships and easier resolution of issues among Indigenous organizations, the Proponent and NL.	Noted
	Consultation should be conducted with the objective of helping ensure that land and resource development decisions minimize or, where reasonably practicable, eliminate adverse impacts on asserted rights.	1.2.5, 1.6.7, 1.9, 1.10, 3.2, 3.3, 3.4
	For clarity, the Province will consult only those Indigenous organizations which have asserted or proven Indigenous rights in the Project area.	Noted
	To assist the consultation processes, the EIS must describe the concerns raised by Indigenous organizations in respect of the Project and where applicable, how they have been or will be considered and, where appropriate, addressed. This should include a summary of discussions, as well as issues or concerns raised and any asserted or proven Indigenous rights, as conveyed to the Proponent by Indigenous representative organizations or NL.	1.9, 3.4, 23
	The Proponent must ensure that it engages with Indigenous organizations whose asserted Indigenous rights or any rights established pursuant to a final land claim agreement to which NL is a party may be adversely impacted by the Project.	1.9, 3.2, 3.3, 3.4
	In preparing the EIS, the Proponent must ensure that it provides sufficient, early notification; and timely, updated information to Indigenous organizations to ensure they are reasonably informed about the Project.	3.2
	The Proponent shall also discuss with Indigenous organizations the most practical and appropriate method of consultation. This will require the Proponent to provide up-to-date information describing the Project to the relevant Indigenous organizations, and especially to the communities likely to be most affected by the Project.	3.2, 3.3, 3.4, 5.4.3
	The Proponent shall also involve Indigenous organizations in determining how best to deliver that information (e.g. the types of information required, formats, and the number of community meetings required).	3.2
	The EIS must document any potentially adverse environmental effects on asserted Indigenous rights or on any rights established pursuant to a final land claim agreement to which NL is a party that would be caused by a Project-induced change in the environment, as well as any measures taken or recommended that would prevent, mitigate, or otherwise address these effects.	1.9, 23
	NL will use this information towards fulfilling its duty to consult Indigenous organizations about the Project.	Noted
	In addition to Proponent-involved Indigenous engagement, NL may undertake additional engagement activities directly with Indigenous representative organizations.	Noted
2.4.2	Record of Indigenous and Public Consultation	
	The EIS must describe all Indigenous and public consultation activities undertaken by the Proponent prior to, during, or planned after the EA. It should describe key stakeholder groups, summarize comments heard, identify key issues of concern raised by Indigenous organizations and the public and the Proponent's responses.	3.2, 3.3, 3.4, 10.2, 11.2, 12.2, 13.2, 14.2, 15.2, 16.2, 17.2, 18.2, 19.2, 20.2, 21.2, 22.2

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
3.0	**SCOPE OF PROJECT, FACTORS TO BE CONSIDERED AND SCOPE OF THE FACTORS**	
3.1	**Scope of Project**	
	The EIS will examine all activities and physical works associated with the construction, operation, rehabilitation and closure of the proposed Project, as described in the proponent's project description dated October 2012, amended November 2012 and February 2013 including, but not limited to, the activities listed in Section 3.1.1.	5.2
3.1.1	***Labrador***	
	The mine and associated facilities and infrastructure will be located wholly within Labrador. The Labrador component of the project will include construction, operation, rehabilitation and closure of the following components:	1.5.2, 2.5
	• an open pit including dewatering infrastructure to dewater Joyce Lake and to manage groundwater levels;	1.5.2, 2.5
	• waste rock disposal areas and overburden stockpiles;	1.5.2, 2.5
	• low grade ore stockpiles, run of mine ore stockpiles and final product stockpiles;	1.5.2, 2.5
	• dry processing infrastructure (crushing and screening system);	1.5.2, 2.5
	• wet processing infrastructure (to be determined);	n/a
	• tailings management facility (TMF);	n/a
	• ancillary infrastructure to support the mine and process plant (gate and guardhouse, reclaim water pumphouse, truck wash bay and shop, fuel and used oil storage, fuel distribution system, power generation, transmission lines, explosives magazine storage, administration/office buildings, maintenance offices, warehouse area and employee facilities, sewage and water treatment units);	1.5.2, 2.5
	• mobile mining and support equipment;	1.6, 2.5
	• floating and overland conveyer system option (to be determined);	n/a
	• access and haulage roads, including ice bridges; and	1.5.2, 2.5
	• rail transportation component including rail loop construction to connect the haulage road to the Tshiuetin Rail Transportation Inc. rail system.	1.5.2, 2.5
3.2	**Factors to be Considered**	
	The EIS shall consider:	
	• cumulative environmental effects that are likely to result from the Project in combination with other projects or activities that have been or will be carried out;	5.6, 10.7, 11.7, 12.7, 13.7, 14.7, 15.7, 16.7, 17.7, 18.7, 19.7, 20.7, 21.7, 22.7, 24
	• the significance of the environmental effects;	5.5.8, 10.9, 11.9, 12.9, 13.9, 14.9, 15.9, 16.9, 17.9, 18.9, 19.9, 20.9, 21.9, 22.9
	• comments from Indigenous organizations and from the public, that are received in accordance with NLEPA regulations or practice;	3.2, 10.2, 11.2, 12.2, 13.2, 14.2, 15.2, 16.2, 17.2, 18.2, 19.2, 20.2, 21.2, 22.2

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• local knowledge and Indigenous traditional knowledge;	Figure 3.1, Table 3.3, Figure 19.5, 5.4.3
	• the requirements of a follow-up program for the Project; and	5.5.9, 7.4, 10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
	• the capacity of renewable resources that are likely to be significantly affected by the Project to meet the needs of the present and those of the future.	9.4.3, 26
3.3	**Scope of the Factors to be Considered**	
	In addition to the factors listed above, the EIS shall document any additional issues or concerns that may be identified through regulatory, stakeholder, Indigenous and public consultation.	3.4
	The assessment of environmental effects shall focus on valued components (VECs). A VEC is a component or attribute that is important for its ecological, legal, scientific, cultural, economic or aesthetic values. VECs for the project should be selected based on defined criteria and their selection justified. The assessment shall consider potential environmental effects that the Project may have on each VEC.	5.3.2, 10 to 22
	In considering VECs, the Proponent will recognize that: • the value of a component not only relates to its role in the ecosystem, but also to the value placed on it by humans; • culture and way of life of those using the area affected by the Project may also be considered as VECs; and • functional relationships within the environment may also be considered as VECs.	5.3.2
	The EIS will define the study areas and time frames, or spatial and temporal boundaries used in the analysis of environmental effects, including cumulative effects. It is expected that the spatial and temporal boundaries shall vary between VECs to reflect the nature of both the VEC and the predicted effects.	5.5.2, 10 to 22
	Temporal and spatial boundaries must reflect:	5.5.2, 10 to 22
	• the geographic range over which the project's environmental effects may occur, recognizing that some effects shall extend beyond the project area;	5.5.2, 10 to 22
	• timing/scheduling of project activities;	5.5.2, 10 to 22
	• natural variations of each VEC;	5.5.2, 10.to 22
	• the time required for recovery from an impact; and	5.5.2, 10 to 22
	• cumulative effects of other projects and activities to VECs	5.5.2, 10 to 22
	The VECs to be considered must include:	
	• atmospheric environment;	5.3.2, 10
	• landforms, soils, snow and ice;	5.3.2, 13
	• water resources (surface water and ground water);	5.3.2, 11, 12
	• wildlife;	5.3.2, 16
	• species at risk and designated species;	5.3.2, 17
	• historic and cultural resources;	5.3.2, 18
	• other current use of lands and resources;	5.3.2, 20
	• community services and infrastructure; and	5.3.2, 21
	• economy, employment and business.	5.3.2, 22

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	The Proponent may add other VECs. In addition, the EIS shall include a consideration of key organisms that live off or rely on bio-physical VECs during their life cycle. Rationale for the selection of the above VECs, as well as a proposed study approach, is provided in Section 4 of these guidelines and is to be presented in the EIS for all VECs.	5.3.2, 10 to 22
	The EIS shall describe, in detail, study methods and analytic methods, including incorporation of information gathered through consultation and Indigenous traditional knowledge.	5.4.2, 5.4.3, 10 to 22
4.0	**PREPARATION OF THE EIS**	
	The EIS is a statement of the Proponent's environmental conclusions and commitments related to the Project; it must be explicitly endorsed by the Proponent.	Noted
	The EIS shall employ the clearest language possible. However, where the complexity of the issues addressed requires the use of technical language, a glossary defining technical words and acronyms shall be included.	Glossary, Acronym
	The Proponent must also prepare a Plain Language Summary (PLS) to accompany the EIS. The PLS is described in Section 4.2 and will be used to facilitate Indigenous consultation and aid public review of the conclusions of the EIS.	Summary Document
	The EIS shall be a stand-alone document upon which a critical review can be undertaken. Where external sources of information or data are used, they shall be referenced within the body of the EIS and listed completely at the end. Where conclusions that are critical to the assessment of environmental impacts are cited from other reports, the EIS shall provide sufficient detail of the originating data and analysis to enable a critical review of that material and submit reference material as an appendix to the EIS.	EIS and Appendices A to AF
	It is recommended that the EIS be presented in the sequence outlined in these Guidelines. If a different sequence is used, the EIS shall include a Table of Concordance to these Guidelines, so that information requirements identified herein can be easily located in the EIS.	Table of Concordance
	The EIS shall refer to, rather than repeat, information previously presented in other sections of the document. However, it is important that underlying limitations, uncertainties and assumptions of all environmental predictions, especially those that support major statements or conclusions, be described in the body of the EIS rather than simply referencing supporting studies. A key subject index is to be provided giving locations in the text by volume, section and sub-section.	Throughout EIS
	The EIS shall provide charts, diagrams and maps wherever useful to clarify the text, including a depiction of how the developed Project sites will appear from both an aerial and terrestrial perspective. Where possible, maps shall use common scales to allow for comparison and overlay of mapped features and shall indicate common and accepted local place names.	Throughout EIS
	Where technically feasible, provide geographic information in standard Geographic Information System (GIS) mapping (digital) format. The EIS and all associated reports and studies shall use System International (SI) units of measure and terminology throughout.	Throughout EIS
	The following sections describe the different topics to be addressed in the EIS. The EIS must provide sufficient information to allow readers to understand the potential environmental effects of the Project, focusing on the most significant potential effects as identified by the proponent and through these guidelines.	Noted
	The EIS must provide an acceptable rationale for not fully addressing any issue identified in the guidelines and must highlight key impacts that require more intensive investigation.	Noted

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	PART I: CONTENT OF THE EIS	
4.1	**Executive Summary**	
	The EIS should begin with an Executive Summary, including a concordance table that describes where each information requirement of the EIS Guidelines has been addressed in the EIS.	Executive Summary, Tables ES1, Table ES2
4.2	Plain Language Summary	EIS Summary
	In order to enhance understanding of the EIS and facilitate consultation activities, a Plain Language Summary (PLS of the EIS must be prepared.	EIS Summary
	The PLS will summarize the Project and the major findings and conclusions of the EIS.	EIS Summary
	It must be a stand-alone document no longer than approximately 50 pages, excluding annexes and appendices.	EIS Summary
	It should clearly describe the Proponent, the Project (including rehabilitation and closure activities), and the environmental impacts of the Project.	EIS Summary
	Maps at appropriate sizes and scales must be included to clearly show the location of all Project components and/or environmental components.	EIS Summary
	As the name implies, the PLS should avoid unnecessary use of technical terms or jargon and be written so that an average reader with no specialist knowledge of mining or EA can comprehend the Project, the analysis of environmental effects, the conclusions reached, and the supporting rationale.	EIS Summary
4.3	**Project Introduction**	
4.3.1	***The Proponent***	
	The EIS shall:	
	• identify the proponent and the name of the legal entity that would develop, manage and operate the Project;	1.1
	• provide contact information for the proponent (e.g., name, address, telephone, facsimile, e-mail);	1.1.1
	• explain corporate and management structures, as well as insurance and liability management related to the Project;	1.1, 1.2
	• explain corporate environmental, Indigenous relations and community relations policies;	1.2
	• specify how the Proponent would ensure that corporate policies are implemented and respected for the Project;	1.2.
	• summarize key elements of its environmental management system and how it would be integrated into the Project; and	1.2
	• identify key personnel, contractors and/or sub-contractors responsible for preparing the EIS.	1.3
	The qualifications of biologists conducting surveys for migratory birds, species at risk and species of conservation concern and wetland delineations should be provided in an appendix to the EIS.	Appendix A
4.3.2	***Project Overview***	
	The EIS shall briefly summarize the development proposal. If the Project is part of a larger sequence of projects, the EIS shall outline the larger context and present the relevant references, if available.	1.5
	The Project location should be described in the context of surrounding land uses and infrastructure. The intent of this overview is to provide the key components and the location of the Project, rather than a detailed description, which shall follow as described in Section 4.3.4 of this document.	1.6

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
4.3.3	***Regulatory Framework and the Role of Government***	
	The EIS should identify the EA process and the government bodies involved in the assessment. It should also describe the process used to determine the requirement for the provincial EA.	1.7.1
	In addition, the EIS shall:	
	• identify the environmental regulatory approvals and legislation that are applicable to the Project at provincial and municipal levels, including: ◦ activities requiring regulatory approval; ◦ names of permits or regulatory approvals; ◦ names of legislation applicable in each case; and ◦ names of the regulatory agencies responsible for each permit or approval;	1.7.2
	• identify environmental government policies, resource management, planning or study initiatives pertinent to the Project and discuss their implications;	1.7.3
	• identify any relevant Land Use Plans, Land Zoning and/or Community Plans;	1.6.5
	• describe land tenure in the vicinity of the Project;	1.6.4
	• identify and delineate major components of the Project and identify those being applied for and constructed within the jurisdiction of these approvals processes under provincial legislation; and	1.5.2, 1.5.3
	• provide a summary of the regional, provincial and/or national objectives, standards or guidelines that have been used by the proponent to assist in the evaluation of any predicted environmental effects.	1.7.5
4.3.4	***Non-Government Participants in the Environmental Assessment***	
	The EIS shall identify the main participants in the EA including Indigenous organizations, community groups and environmental organizations.	1.8
4.3.5	***Land Claims Agreements and Interim Agreements***	1.9
	The EIS shall identify any publicly available agreements or arrangements entered into between the Proponent and/or the Government of Newfoundland and Labrador and/or Indigenous organization(s) in the context of land claims and, where applicable, address how they may affect or be affected by the Project. This includes the Tshash Petapen (New Dawn) Agreement and the Labrador Innu Land Claims Agreement-in-Principle, which is not legally binding but forms the basis of negotiation of a final agreement.	1.9
4.3.6	***Other Registrations***	
	The Proponent shall indicate whether any other registrations have previously been submitted in relation to this Project, or are to be submitted for EA in the future as a result of this Project.	1.10
4.4	**Project Description**	
4.4.1	***Purpose of and Need for the Project***	
	The EIS shall state the purpose of the Project, from the Proponent's perspective and clearly describe the need for the Project (i.e., the problem or opportunity the Project is intended to solve or satisfy). This is the fundamental rationale for the Project and provides the context for the consideration of alternatives to the Project.	2.1

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	The statement of the Project's justification shall be presented in economic terms, shall provide a clear description of methods, assumptions and conclusions used in the analysis and shall include an evaluation of the following: • current and forecasted iron ore demand; • market opportunities, forecasts and expected evolution; • risks to the Project, including market prices and schedule delays, interest rates and other risk factors relevant to the decision to proceed with the Project; and • projected financial benefits at the regional, provincial and national levels.	2.1
4.4.2	***Alternatives to the Project***	2.2, 2.8
	The EIS must include an analysis of alternatives to the Project; describing functionally different ways to meet the Project's need and purpose.	2.8, EIS Summary Table A1
	The EIS shall:	
	• identify the alternatives to the Project that were considered;	2.2, 2.8, EIS Summary Table A1
	• develop criteria to identify the major environmental, economic and technical costs and benefits of the alternatives; and	2.2, 2.8, EIS Summary Table A1
	• identify the preferred alternatives to the Project based on the relative consideration of the environmental, economic and technical costs and benefits.	2.2, 2.8, EIS Summary Table A1
	The level of detail for this analysis must be sufficient to allow the reader to understand the alternatives and how they compare to the Project. The analysis of alternatives to the Project is to provide clearly described methods and criteria for comparing alternatives and sufficient information for the reader to understand the reasons for selecting the preferred alternative and for rejecting others. This analysis shall include a description of the conditions or circumstances that could affect or alter these choices, such as market conditions, regulatory changes and other factors, either prior to construction or during the life of the Project.	2.8, EIS Summary Table A1
	The EIS shall include a comparative analysis of the environmental effects and technical and economic feasibility of alternatives that led to the choice of the selected Project alternative.	2.8, EIS Summary Document Table A1
	The EIS shall demonstrate how the preferred alternative contributes to sustainable development.	9.4.3
	The Proponent shall include an evaluation of the thresholds for economic viability of the Project and considerations respecting the timing of phases and components of the Project.	2.8
	In assessing alternatives, the proponent is encouraged to take into account any potentially adverse impacts of the technically and economically feasible alternatives on asserted or proven Indigenous rights.	2.8, EIS Summary Table A1
4.4.3	***Project Location***	
	The EIS shall provide a concise description of the geographical setting in which the Project shall take place. The description shall focus on aspects of the environment that are important for understanding the potential environmental effects of the Project, including:	1.6.3, 2.4, 4
	• any existing designated or planned environmentally sensitive or significant areas; national, provincial and regional parks; protected natural areas and watersheds; ecological reserves; wetlands; riverine and lacustrine fish habitats; mature and interior forest habitat for migratory birds; and habitats of provincially designated species, including critical habitat for the designated species; areas of concentration of other wildlife; and other sensitive areas and habitat;	1.6.6, 2.4, 14, 15, 16, 17

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• the current land use in the area and the relationship of the Project facilities and components with any existing land use including traditional, private and crown lands; and	1.6.5, 2.4, 19, 20
	• a description of the nearest potentially sensitive human receptors such as residences, cabins, sacred sites, places of worship, etc. and of local communities that may be affected by project activities.	1.6.7, 19, 20
	The location of the mine site and transportation corridors shall be described and clearly indicated on maps of appropriate scale. The location map should include the boundaries of the proposed site and transportation corridors, major existing infrastructure, municipal drinking water supply areas (protected and unprotected) if applicable, adjacent land uses and important environmental features.	Figures 2.2 to 2.8
	In addition, site plans/sketches and photographs showing project location, site features and the intended locations of project components should be included.	Throughout EIS
4.4.4	***Project Description***	2.0
4.4.4.1	**Facilities and Components**	
	The EIS shall describe all of the Project's facilities and components in detail, focusing on those with the most potential for environmental interactions and risk (e.g., Project "footprint" wastes and emissions and associated zones of influence).	1.5.2, 2.5
	As appropriate to convey the information (i.e., environmental interactions), the EIS shall present descriptions, locations, plans, figures and/or drawings for each facility, including:	
	• tailings management facilities;	n/a
	• waste rock storage (including discussion of ore contaminants (e.g. manganese) that may affect processing and volume of waste rock);	2.5.1, 2.5.2, 2.5.6, 2.5.9
	• all effluent generation, treatment systems, handling and discharge locations, as well as all anticipated effluents and contaminants, including ammonia residue from blasting operations;	2.5.7
	• air emission sources (e.g., diesel generators, equipment, roads, waste rock/tailings lift-off, crushing, grinding, process heaters, blasting, conveyors, etc.);	2.6.4
	• ambient air sampling stations and their locations;	10.5.2.2
	• noise sources, expected noise levels and noise monitoring locations;	2.6.4, 10.5.2.3; Figure 10.3
	• sources and frequency of vibrations;	2.6.4, 10.5.2.5
	• water control structures or diversions that may be required to facilitate the project:	2.5.1, 2.6.2
	• transmission lines, including towers, poles and aerial crossings over water bodies;	
	• bridges and watercourse crossings (including conveyors) along proposed access roads and railway, including any preliminary designs for crossing structures;	2.5.4, 2.5.5
	• permanent and temporary access infrastructure (including road and rail) to be • constructed;	2.5.4, 2.5.5, 2.5.6
	• fuel storage systems, including secondary containment (dykes) and a list of fuels;	2.5.8
	• any quarries that are contemplated as part of the Project; and	2.5.1
	• viewscapes that could be affected by the Project.	2.5

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
4.4.4.2	**Activities**	
	The EIS shall include descriptions of the construction, operation, maintenance, foreseeable modifications, including the expansion and lengthening of the operations and, where relevant, rehabilitation and closure of sites and facilities associated with the Project.	2.6, 2.6.1, 2.6.2, 2.6.5
	Detailed descriptions of activities to be carried out during each phase of the Project should include the location, magnitude and scale of each activity, including labour force requirements.	2.6, 2.6.1, 2.6.2, 2.6.5, 2.7
	A schedule must be provided, showing time of year, frequency and duration of project activities.	Table 2.7
	The description of the construction and operation activities shall include:	
	• estimates of emission quantities (t/yr);	2.6.4
	• solid waste, hazardous waste and waste reduction strategies;	2.5.1, 2.5.6, 2.6.1, 2.6.2
	• spill potentials and prevention strategies (e.g. hydraulic hose ruptures, fuelling mishaps, tank failure); and	2.6.2, 2.6.3
	• re-vegetation strategy for tailings storage or other areas.	2.6.5
	The EIS should describe proposed means to treat waste resulting from the Project and/or the capacity of contractors to do so.	2.5.3, 2.6.1, 2.6.2
	The EIS should describe any regular maintenance that may be required for proposed bridges, transmission lines and conveyors installed over navigable waterways. Activities involving periods of increased environmental disturbance or the release of materials into the environment are to be highlighted.	2.6.2
	The level of detail in the description of the Project's facilities and activities shall be sufficient to enable prediction of environmental effects.	2.5, 2.6
4.4.4.3	**Labour Force Requirements**	
	The EIS shall include descriptions of the construction, operations, rehabilitation and closure labour force requirements, including:	2.7, 22
	• the National Occupation Classification (NOC) 2006 codes (at the 4-digit level) associated with each position for all phases of the project, including the number of positions associated with each NOC 2006 code;	Table 2.8
	• qualifications, certifications and other requirements, including the need for, location and availability of related training opportunities (e.g., post-journeyperson training) associated with key positions for all phases of the project;	2.7, 22
	• the approximate timelines for each of the positions during the construction and operations phases of the project, including the number of positions for each 4-digit NOC 2006 code throughout the project at specified time intervals (monthly, or at least quarterly) to show levels of employment throughout the Project timeline;	Table 2.8
	• whether the positions are full-time equivalent or actual positions. If they are actual positions, the breakdown of full-time and part-time or full-year and part-year positions;	Table 2.8
	• an estimate of the number of apprentices (by level) and journeypersons required;	Table 2.8
	• the estimated percentage of the hired workforce from Newfoundland and Labrador;	To be determined in the Benefits Plan and the Gender Equity and Diversity Plan

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• the estimated percentage of hired workforce from Labrador, by gender;	To be determined in the Benefits Plan and the Gender Equity and Diversity Plan
	• the estimated percentage of hired Indigenous workforce, by gender; and	To be determined in the Benefits Plan and the Gender Equity and Diversity Plan
	• strategies for recruitment.	To be determined in the Benefits Plan and the Gender Equity and Diversity Plan
4.4.5	***Alternative Means of Carrying out the Project***	2.8
	The EIS must identify and describe alternative means of carrying out the Project that are technically and economically feasible. The analysis shall describe:	
	• the alternative means considered, whether they are technically and economically feasible and the rationale for rejecting alternatives;	2.2, 2.8, EIS Summary Table A.1
	• a description of the conditions or circumstances that could affect or alter these choices, such as market conditions, regulatory changes and other factors, either prior to construction or during the life of the Project;	2.2, 2.8, EIS Summary Table A.14
	• the environmental effects of the technically and economically feasible alternatives, in sufficient detail to allow comparison with the effects of the Project; and	2.2, 2.8, EIS Summary Table A.1
	• the preferred means of carrying out the Project based on the relative consideration of environmental effects including the criteria and rationale for their selection.	2.2, 2.8, EIS Summary Table A.1
	Any potentially adverse impacts of the technically and economically feasible alternative means on asserted Indigenous and Treaty rights must also be identified.	2.2, 2.8, EIS Summary Table A.1
	The EIS shall analyze and compare the design alternatives for the Project in relation to their environmental and social costs and benefits, including those alternative means that cost more to build and/or operate but which result in reduced adverse environmental effects or more durable social and economic benefits.	2.2, 2.8, EIS Summary Table A.1
	At a minimum, the discussion of alternative means of carrying out the Project shall include: • tailings management; • waste rock storage management and location; • transportation, including alternative rail routes outside municipal water supply areas; • power; • dewatering options at Joyce Lake • contracting or lengthening of the operations; • labour supply; and • mining methods (e.g., open pit versus others).	2.2, 2.8, EIS Summary Table A.1

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
4.5	**Description of the Existing Environment**	
	The EIS shall provide a description of the biophysical and socio-economic environments that could be affected by the Project, both in the immediate vicinity and beyond. This shall include the components of the existing environment and environmental processes, their interrelations and interactions, as well as their variability over time scales appropriate to the effects analysis.	4, 5.5.5, 10 to 22
	The level of detail shall be sufficient to:	
	• identify, assess and determine the significance of adverse environmental effects that may be caused by the Project;	4, 5.5.5, 10 to 22
	• identify and characterize the beneficial effects of the Project; and	4, 5.5.5, 10 to 22
	• provide the data necessary to enable effective follow-up.	4, 5.5.5, 10t o 22.0
	The baseline description shall characterize environmental conditions resulting from historical and present activities in the local and regional study area.	4, 5.1, 5.5.5, 10 to 22
	The physical and biological environments shall be described based on an ecosystem approach that considers both scientific and traditional knowledge and perspectives regarding ecosystem health.	4, 5.1, 5.5.5, 10.0 to 22.0
	The EIS must identify and justify the selected indicators and measures of ecosystem health (i.e., measurable parameters). These indicators should be transferable to future project monitoring and other follow-up.	4, 5.5.4, 5.5.6, 10 to 22
	In assessing impacts to the biological environment, the EIS shall consider the resilience of relevant species populations, communities and their habitats. It shall summarize all pertinent historical information on the size and geographic extent of relevant animal or floral populations as well as density, based on best available information. Where little or no information is available and when appropriate, specific studies shall be designed to gather information on species populations and densities that could be adversely affected by the Project. Habitat at regional and local scales must be defined when mapping aquatic and terrestrial vegetation types and/or communities.	14 to 17
	Habitat use at regional and local scales should be characterized by type of use (e.g. breeding, migration, feeding, nursery, rearing, wintering), frequency and duration. Emphasis must be on those species, communities and processes most sensitive to project impacts. However, the interrelations of these components to the greater ecosystem and communities of which they are a part must be indicated.	14 to 17
	The EIS must address issues such as habitat, nutrient and chemical cycles, food chains and productivity, to the extent that they are appropriate to understanding the effects of the Project. Range and probability of natural variation over time must also be considered.	11 to 17
	The EIS must provide a description of the rural, Indigenous and urban communities likely to be affected by the Project, including demographic, economic, social and community health information. If the information available from government or other agencies is insufficient or no longer representative, the Proponent shall complete the description of the environment with current surveys and studies.	19, 21, 22
	The EIS shall indicate the Project's proximity to sensitive features such as residences, cabins, public drinking water supplies, sacred sites, places of worship and locations of hunting and gathering activities (i.e., country foods collection). Depending on the type of potential effect the project may have on these receptors, appropriate baseline evaluation should be undertaken (e.g. baseline noise, air quality, drinking water, country foods evaluation).	19, 20
	The EIS must also describe existing geology, geochemistry, soils and terrain at the mine site and in the immediate vicinity.	13

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	The EIS must explain any extrapolation, interpolation or other manipulation applied to the baseline data used to describe environmental conditions in the study area. Any information gaps from a lack of previous research or practice shall be described indicating information that is not available or existing data that cannot accurately represent environmental conditions in the study area over four seasons. If data gaps remain, the Proponent shall describe its efforts to resolve the data gaps, including any direct consultation with groups, individuals and others.	10 to 22
4.6	**Effects Assessment**	5.5
	The EIS shall contain a comprehensive analysis of the Project's predicted effects on the environment, including cumulative effects that are likely to result from the Project in combination with other projects or activities have been or will be carried out.	10 to 22
	The assessment shall include, but not be limited to the effect of any environmental change on health, socio-economic conditions and heritage values and on the current use of land and resources by Indigenous people. Potential effects from all components of the Project at the site and within the Project's zone of influence shall be discussed.	18 to 22
	The EIS shall predict the Project's effects during all project phases (e.g., construction, operation, maintenance, foreseeable modifications, closure, decommissioning and reclamation) and describe them using appropriate criteria.	5.5.2, 10 to 22
	The environmental effects assessment in the EIS shall be based on best available information and methods. The methods employed shall be clearly explained. All conclusions must be substantiated and the supporting logic clearly traceable. The proponent is encouraged to make use of existing information relevant to the Project.	5.4, 5.5, 10 to 22
	When relying on existing information to meet the requirements of various sections of the EIS Guidelines, the Proponent must either include the information directly in the EIS or clearly direct (e.g. through cross-referencing) the reader to where it may obtain the information.	10 to 22
	When relying on existing information, the Proponent must also comment on how the data have been applied to the Project, clearly separate factual lines of evidence from inference and state any limitations on the inferences or conclusions that can be drawn from them according to the criteria for information quality set out in the EIS Guidelines. For instance:	10 to 22
	• assumptions should be clearly identified and justified;	Noted
	• all data, models and studies must be documented such that the analyses are transparent and reproducible;	Noted
	• the uncertainty, reliability and sensitivity of models used to reach conclusions must be indicated;	Noted
	• conclusions should be substantiated; and,	Noted
	• the studies should be prepared using best available information and methods.	Noted
	Modeling methods and equations presented must include information on margins of error and other relevant statistical information (e.g., confidence intervals, possible sources of error).	5.1, 10, 11, 12
	The Proponent shall prepare a table describing the proposed Project's anticipated effects, which shall enable the reader to review and consider those effects.	10 to 22
	Views of the public and Indigenous organizations relative to the EA, including any perceived changes in the environment from the Project, must be acknowledged and considered. In considering the local social and economic effects of the Project, the Proponent shall have due regard for the attitudes, beliefs and perceptions of local residents and how these are grounded in their culture, social organizations and historical experience.	3.4, 5.4.1, 10 to 24

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	The EIS shall clearly articulate how relevant issues raised by the public or Indigenous organizations have been considered, including any changes to the Project, or mitigation or follow-up measures arising from such consideration.	10.2, 11.2, 12.2, 13.2, 14.2, 15.2, 16.2, 17.2, 18.2, 19.2, 20.2, 21.2, 22.2
4.6.1	***Accidents and Malfunctions***	
	The EIS shall identify and describe accidents and malfunctions that may occur as a result of project activities, including an explanation of how those events were identified, potential consequences (including potential environmental effects), worst case scenarios and the effects of these scenarios and assess the significance of associated environmental effects.	2.6.3, 5.3.3, 5.5.10, 10.8, 11.8, 12.8, 13.8, 14.8, 15.8, 16.8, 17.8, 18.8, 19.8, 20.8, 21.8, 22.8
	The EIS should identify potential accidents, malfunctions, unplanned events (e.g., premature or permanent shutdown), or emergency situations that could be associated with all phases of the Project. This includes accidents and malfunctions associated with all modes of transportation used for project activities such as, product spills during loading of ships, train derailments, fuel transportation and storage, resource road conflicts with wildlife and other users as well as the probabilities and hazards associated with them. If air travel to the site is being considered as a regular project occurrence, proposed safeguards and responses to possible incidents should be addressed.	2.6.3, 5.3.3, 5.5.10, 10.8, 11.8, 12.8, 13.8, 14.8, 15.8, 16.8, 17.8, 18.8, 19.8, 20.8, 21.8, 22.8
	The EIS shall also identify the safeguards that will be established to protect against such occurrences and the contingency/emergency response procedures to be in put in place should an accident/malfunction occur. The factors which contribute to the uncertainty of detecting and mitigating impacts associated with accidents and malfunctions must be assessed.	2.6.3, 5.3.3, 5.5.10, 10.8, 11.8, 12.8, 13.8, 14.8, 15.8, 16.8, 17.8, 18.8, 19.8, 20.8, 21.8, 22.8
	Given the potential for accidents and malfunctions to impact the province, the EIS should discuss how an accident scenario would be handled (e.g., notification, response etc.).	2.6.3, 7.2.5, 10.8, 11.8, 12.8, 13.8, 14.8, 15.8, 16.8, 17.8, 18.8, 19.8, 20.8, 21.8, 22.8
4.6.2	***Capacity of Renewable Resources***	
	The EIS shall consider the capacity of renewable resources that are likely to be significantly affected by the Project to meet the needs of the present and those of the future.	5.1, 9.4.3
	The EIS shall identify any VECs predicted to experience significant adverse residual environmental effects, describe how the Project could affect their sustainable use and describe the criteria used in the analysis.	5.1, 9.4.3
4.7	**Avoidance and Mitigation Measures**	
	Mitigation is the elimination, reduction or control of the adverse environmental effects of the Project. It includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means.	5.1, 5.5.6, 10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.2, 22.6
	The EIS must consider measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project. The approach to mitigation shall be premised on a preference for avoidance and reduction of effects at their source, including modifying the Project design, or relocating its components, where technically and economically feasible.	5.1, 5.5.6, 10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.2, 22.6

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	The EIS shall describe the standard mitigation practices, policies and commitments that constitute technically and economically feasible mitigation measures and that will be applied.	5.1, 5.5.6, 10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.2, 22.6
	The Proponent, where possible, should refer to similar situations where the proposed mitigation has proven to be successful. Mitigation failure should be discussed with respect to risk and severity of consequence.	5.5.6, 10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.2, 22.6
	The EIS shall describe the Proponent's environmental protection plan (EPP) and the environmental management system through which it will be delivered.	7.1
	The EPP shall provide an overall perspective on how potentially adverse effects would be minimized and managed over time. In addition, the EIS shall describe the relationship between the EPP and the waste and tailings management plans.	7.1
	The Proponent shall describe its commitments, policies and arrangements directed at promoting beneficial or mitigating adverse socioeconomic effects and explain how it will ensure compliance among its contractors and sub-contractors and how compliance will be audited and enforced.	1.2
	The EIS shall specify the actions, works, minimal disturbance footprint techniques, best available technology, corrective measures or additions planned during the Project's phases (construction, operation, modification, decommissioning, abandonment or other undertaking related to the Project) to eliminate or reduce the significance of adverse effects.	5.5.6, 10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.2, 22.6
	The EIS shall also present an assessment of the effectiveness of the proposed technically and economically feasible mitigation measures. The Proponent shall discuss the application of the Precautionary Principle in the identification of mitigation measures. The Precautionary Principle is defined in Section 1.2.4.	5.5.6
	If there are technically and economically feasible mitigation measures that were considered and rejected, the EIS must discuss these and explain why they were rejected. Trade-offs between cost savings and effectiveness of the various forms of mitigation must be justified. The Proponent must identify who is responsible for the implementation of these measures and the system of accountability.	5.5.6
	Should the Project be released the Proponent must ensure that measures are taken to avoid or lessen any potential adverse effects, regardless of their significance, on designated species, their critical habitat or the residences of individuals of those species. Potential effects must be monitored and mitigation must be consistent with any applicable recovery strategy and action plans. The EIS must include information that will allow the Province to meet this requirement.	17
	In addition, the EIS will identify the extent to which technology innovations will help mitigate environmental effects. Where possible, it will provide detailed information on the nature of these measures, their implementation and management, as well as whether follow-up will be required.	10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.2, 22.6
4.8	**Cumulative Effects Assessment**	5.6
	The EIS must include an analysis of cumulative effects of the Project in combination with other projects or activities that have been or will be carried out. The objective of an EA is not to define two classes of environmental effects. Rather, a single set of environmental effects that take into account the aggregate effect of the Project in the context of other foreseeable developments and activities acting upon the environment should ultimately be identified.	5.6

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	The analysis of cumulative effects must consider different types of effects (e.g., synergistic, additive, induced, spatial or temporal) and identify impact pathways and trends.	5.6.1
	The EIS shall assess the significance of the residual cumulative environmental effects that remain after mitigation has been implemented. Baselines for cumulative should attempt to describe the changes to the environment with regards to a pre-industrial development starting point. Notably, a cumulative effect on a VEC may be important even if the effects of the Project on the VEC are not significant.	5.6.1
	The EIS shall:	
	• identify and justify the VECs that will constitute the focus of the cumulative effects assessment. For greater certainty, cumulative effects must be assessed in relation to each VEC for which a residual impact of the Project is predicted to be adverse and likely (regardless of the significance of the impact). The assessment should examine the likelihood, nature and extent of the predicted cumulative effects of the Project in combination with other projects and activities that have been or will be carried out. It may be appropriate, during the course of the EA, to refine the definition of VECs selected for cumulative effects assessment.	5.6, 24
	• present a justification for the spatial and temporal boundaries of the cumulative effects assessment. The boundaries for the cumulative effects assessment will depend on the VECs being considered (e.g., will generally be different for different VECs). The boundaries for the cumulative effects assessment will also generally be different from (larger than) the boundaries for assessing effects of the Project;	5.6, 24
	• describe and justify the choice of projects and selected activities for the cumulative effects assessment. These shall include past activities and projects, those being carried out and future projects or activities likely to be carried out;	5.6.2, 24
	• describe the mitigation measures that are technically and economically feasible;	5.6.1, 10.7, 11.7, 12.7, 13.7, 14.7, 15.7, 16.7, 17.7, 18.7, 19.7, 20.7, 21.7, 22.7, 24
	• determine the significance of the residual cumulative effects; and	5.6, 10.7, 11.7, 12.7, 13.7, 14.7, 15.7, 16.7, 17.7, 18.7, 19.7, 20.7, 21.7, 22.7, 24
	• assess the effectiveness of the measures applied to mitigate the cumulative effects. In cases where measures exist that are beyond the scope of the Proponent's responsibility that could be effectively applied to mitigate these effects, the Proponent shall identify these effects and the parties that have the authority to act. In such cases, the Proponent shall summarize the discussions that took place with the other parties in order to implement the necessary measures over the long term.	10.7, 11.7, 12.7, 13.7, 14.7, 15.7, 16.7, 17.7, 18.7, 19.7, 20.7, 21.7, 22.7, 24

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	The following projects (as well as planned expansions and extensions) may interact cumulatively with the Project: • Iron Ore Company of Canada (Labrador Operation); • Kami Iron Ore Project - Alderon • Wabush Mines - Cliffs Resources; • Mount Wright Mine – ArcelorMittal; • Bloom Lake Mine– Cliffs Resources; • Schefferville Area Iron Ore Mines (James, Redmond and Houston Properties) – Labrador Iron Mines; • DSO Iron Ore Project – Tata Steel Minerals Canada; • Lower Churchill Generation Project; and • Maritime Transmission Link Project.	5.6.2, 24
	These and other projects and activities (e.g., road development, tourism etc.) should be considered in assessing cumulative effects to VECs. Notably, the cumulative effects assessment should be focused on key VECs and their potential stressors, rather than on providing detailed descriptions of other projects.	5.6.2, 10.7, 11.7, 12.7, 13.7, 14.7, 15.7, 16.7, 17.7, 18.7, 19.7, 20.7, 21.7, 22.7, 24
	The methods used to scope and assess cumulative impacts should be clearly described in the EIS, demonstrating how conclusions have been reached.	5.6, 10.7, 11.7, 12.7, 13.7, 14.7, 15.7, 16.7, 17.7, 18.7, 19.7, 20.7, 21.7, 22.7, 24
4.9	**Effects of the Environment on the Project**	6
	The EIS should describe the climatic conditions at the project site and in local and regional study areas and provide a description of seasonal variations and trends in climatic conditions, to allow the assessment of effects on the Project. Any use of off-site data must be described. An analysis of the data to determine the degree the data represents the conditions at the Project site must be included. The use of the data should be qualified with an understanding of local and regional variability and the geographic locations of any onsite and offsite meteorological stations.	6.3.1
	The geographic locations of any onsite and offsite meteorological stations must be provided. Climate data should also be provided and taken into account when evaluating impacts of the project on air quality, hydrology and water management. The influence of local and regional topography or other features that could affect conditions in the study area should also be considered, as appropriate.	6.3.1
	Specifically, the EIS shall include a description of the following components:	
	• Physiography: topography, drainage network;	6.3.3.1
	• Climate: historical records of total precipitation (rain and snow), mean, maximum and minimum temperatures;	6.3.1.1
	• Geological context: bedrock and surficial cover stratigraphy and composition, geotechnical properties and structural geology features such as fractures and faults, in the mine area and where major project infrastructures and earthworks are proposed (e.g. mine open pit, infrastructures, cutting and tunnelling locations along the railway route etc.);	6.3.3
	• Hydrogeological context: hydrogeological characteristics of the different geological units (hydraulic conductivities, porosity, storage coefficients) ; groundwater geochemistry and groundwater levels for the areas that will be disturbed by major project components;	6.3.4
	• Streamflow data records (levels and yields) of surroundings lakes, rivers and brooks;	6.3.4

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• Geotechnical properties of Quaternary sediments, such as slope stability and bearing capacity of facility foundations and the railway line route under both static and dynamic conditions, including ground ice and thermal conditions.	6.3.3
	The EIS must predict how local conditions and natural hazards, such as severe and/or extreme weather conditions and external events (e.g., flooding, ice jams, rock slides, landslides, fire, outflow conditions and seismic events) could adversely affect the project and how this in turn could affect the environment (e.g., environmental emergencies due to extreme environmental conditions).	5.3.4, 6.3
	The EIS should describe measures that will be implemented to prevent and respond to such events.	6.3
	The EIS should discuss the sensitivity of the project to changes in specific climate and related environmental parameters, including total annual rainfall, total annual snowfall, frequency and/or severity of precipitation extremes, watercourse levels and stream flow.	6.3.1
	In addition, the EIS shall discuss:	
	• potential geotechnical and geophysical hazards within the Project area, including potential seasonal subsidence, seismicity and faulting, risks associated with cut/fill slopes and constructed facilities. Where appropriate, the assessment should be supplemented by illustrations such as maps, figures, cross sections and borehole logs;	6.3.3
	• potential effects on foundation stability of major Project components from geological fractures and faults and associated implications of these features on project planning and engineering design. Those Project components assessed shall include, but are not limited to railway embankments, tunnels, major watercourse crossings and open pits;	6.3.3
	• potential effects of the groundwater level on mining operations; and	6.3.3
	• potential effects of climate change on the Project including, but not limited to, the impact of extreme weather events associated with climate change.	6.3.2
	The EIS must provide measures and strategies to mitigate the potential effects of the environment on the project.	6.3
4.10	**Environmental Management**	
4.10.1	***Planning***	
	The EIS shall describe the proposed Environmental Management Plans (EMPs) for all stages of the Project and include a commitment by the proponent to implement the EMPs, should the Project proceed. EMPs must be developed in provincial government agencies, Indigenous organizations, the public and other stakeholders. This may occur after the EA, but must be consistent with the information presented in the EIS. Pertinent legislation, regulations, industry standards, documents and legislative guides shall be used when developing EMPs.	7.2
	The EIS shall also outline a preliminary decommissioning and reclamation plan for the Project. The plan must address ownership, transfer and control of the different Project components, as well as the responsibility for monitoring and maintaining structures.	7.2.6
	The EIS shall include a conceptual discussion of how decommissioning of permanent facilities may occur.	7.2.6
4.10.2	***Follow-Up Program***	7.3
	The EIS must include a framework upon which follow-up, including effects monitoring, would be based throughout the life of the Project, including the post-closure phase. A follow-up program must be designed to verify the accuracy of the effects predictions and to determine the effectiveness of the measures implemented to mitigate the adverse environmental effects of the Project.	5.5.9, 7.3, 10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	The follow-up program must be designed to incorporate pre-project baseline information, as well as compliance data (e.g., established benchmarks, regulatory documents, standards or guidelines) and real-time data (e.g., observed data gathered in the field). Effects predictions, assumptions and mitigation actions that will be tested as part of the follow-up program must be framed as field-testable monitoring objectives. The monitoring design should include a statistical evaluation of the adequacy of existing baseline data, to provide a benchmark against which to test for project effects and the need for any additional pre-construction or pre-operational monitoring to augment baseline data.	7.3, 10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
	A schedule for follow-up frequency and duration is required after an evaluation of the length of time needed to detect effects, given estimated baseline variability, likely magnitude of environmental effect and desired level of statistical confidence in the results (Type 1 and Type 2 errors).	7.3, 10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
	The description of the follow-up program should include:	
	• the requirements and objectives of the follow-up program;	7.3, 10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
	• a description of the main components of the program, each monitoring activity under that component and the objectives of each monitoring activity (i.e., confirmation of mitigation, confirmation of assumptions and verification of predicted effects);	7.3, 10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
	• a schedule for the finalization and implementation of the follow-up program;	7.3, 10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
	• a description of the roles and responsibilities for the program and its review process, by government, Indigenous organizations and the public;	7.3, 10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
	• a discussion of possible involvement of independent researchers;	7.3, 10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
	• any contingency procedures/plans or other adaptive management provisions for dealing with unforeseen effects, or situations where benchmarks, regulatory standards or guidelines are exceeded; and	7.1, 7.3, 10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
	• a description of how results will be managed and reported.	7.3, 10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	Sufficient detail shall be provided to allow independent judgment as to the likelihood that the follow-up program will provide the quantity and quality of information required to achieve its objectives.	7.3, 10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
	In addition, the NL *Endangered Species Act* contains provisions requiring that measures are taken to monitor adverse effects of a project on wildlife species or critical habitat of a species that is designated as threatened, endangered, or extirpated. If potential adverse effects on a listed wildlife species or its critical habitat are identified, a monitoring plan must be developed to identify the circumstances under which corrective measures may be needed to address any issue or problem identified through the monitoring (i.e., if unanticipated effects occur or the importance of effects is greater than anticipated).	7.3, 17
	The monitoring plan should clearly describe how government departments responsible for the species in questions would be engaged in reviewing proposed adaptive management measures, in the event that mitigation measures are not effective.	7.3, 10.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 17.10, 18.10, 19.10, 20.10, 21.10, 22.10
4.11	**Significance of Residual Adverse Environmental Effects**	5.5.3 & 5.5.8
	The EIS must describe any expected residual (post-mitigation) effects of the Project on the biophysical and human environments, after technically and economically feasible mitigation measures have been applied. The residual effects, even if deemed not significant, should be described.	5.5.6, 5.5.7, 5.5.8, 10.9, 11.9, 12.9, 13.9, 14.9, 15.9, 16.9, 17.9, 18.9, 19.9, 20.9, 21.9, 22.9
	The EIS shall provide sufficient detail so that the environmental effects of the Project and the degree to which they can be mitigated, can be clearly understood.	10.9, 11.9, 12.9, 13.9, 14.9, 15.9, 16.9, 17.9, 18.9, 19.9, 20.9, 21.9, 22.9
	The criteria for evaluating the significance of the residual effects (including cumulative effects) shall be described, including pre-defined significance thresholds for each VEC (e.g. existing provincial regulatory and industry standards and guidelines). The criteria may include: magnitude; duration and frequency; ecological or socioeconomic context; geographic extent; and degree of reversibility. Professional expertise and judgment may also be applied.	5.5.3, 5.5.7, 5.5.8, 10.9, 11.9, 12.9, 13.9, 14.9, 15.9, 16.9, 17.9, 18.9, 19.9, 20.9, 21.9, 22.9
	The EIS must contain enough detail to enable readers to follow the reasoning and process by which the Proponent assessed the significance of effects.	5.5.8, 10.9, 11.9, 12.9, 13.9, 14.9, 15.9, 16.9, 17.9, 18.9, 19.9, 20.9, 21.9, 22.9
	The EIS must state the Proponent's conclusion, for each VEC, as to whether the Project in combination with the cumulative effects of other projects and activities is likely to cause significant adverse effects. Residual effects significance criteria shall be presented for each VEC in the EIS along with the analysis to support the conclusion of significance.	5.6, 10.11, 11.11, 12.11, 13.11, 14.11, 15.11, 16.11, 17.11, 18.11, 19.11, 20.11, 21.10, 22.11, 24

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
4.12	**Economic and Social Benefits of the Project**	9.0
	Information on the predicted economic and social benefits of the Project should be presented. This information shall be considered by the Government in assessing the justifiability of any significant adverse environmental effects, if necessary.	9
	The Proponent must demonstrate prudent resource management in compliance with Section6 (1b) of the *Mining Act*, to the satisfaction of the Minister of Natural Resources.	
4.13	**Benefits of the EA to Newfoundland and Labrador**	
	The EIS must describe how the EA process for the Project benefits to Newfoundlanders and Labradoreans, focusing on aspects such as:	
	• maximized environmental benefits: What expected environmental benefits will be created as a result of the project being assessed?;	9.4
	• contribution of the EA to sustainable development: Describe how the EA process for the project is expected to contribute to the concept of sustainable development for a healthy environment and economy;	9.4.3
	• Indigenous consultation: How is Indigenous consultation throughout the EA expected to influence the Project design and the environmental effects analysis?;	3.2, 3.3, 3.4, 10.2, 11.2, 12.2, 13.2, 14.2, 15.2, 16.2, 17.2, 18.2, 19.2, 20.2, 21.2, 22.2
	• public participation: How is public participation in the EA expected to influence the project design and the environmental effects analysis?;	3, 10.2, 11.2, 12.2, 13.2, 14.2, 15.2, 16.2, 17.2, 18.2, 19.2, 20.2, 21.2, 22.2
	• technological innovations: Are new technologies expected to be developed to address environmental impacts that could be used for other projects?;	9.4.3
	• increases in scientific knowledge: Is any new scientific information expected to be collected through the EA or follow-up that could benefit the assessment of other projects?; and	9.3, 9.4
	• community and social benefits: Describe any expected changes in project design that would result in indirect benefits to communities and/or social benefits (e.g., enhanced access to wilderness areas for recreation).	9.3, 9.4
4.14	**Assessment Summary and Conclusions**	
	The EIS must summarize the overall findings of the EA, with emphasis on the main environmental issues identified. It must predict the likely significance of adverse environmental effects, including accidents and malfunctions, caused by the Project.	26
	For all VECs, the EIS must include a table that summarizes:	
	• the Project's potential adverse environmental effects;	Tables 10.34, 11.74, 12.9, 13.8, 14.10, 15.15, 16.15, 17.14, 18.4, 19.5, 20.4, 21,4, 22.17
	• proposed mitigation and compensation measures;	Tables 10.34, 11.74, 12.9, 13.8, 14.10, 15.15, 16.15, 17.14, 18.4, 19.5, 20.4, 21,4, 22.17

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• proposed follow-up;	Tables 10.34, 11.74, 12.9, 13.8, 14.10, 15.15, 16.15, 17.14, 18.4, 19.5, 20.4, 21,4, 22.17
	• potential residual effects;	Tables 10.34, 11.74, 12.9, 13.8, 14.10, 15.15, 16.15, 17.14, 18.4, 19.5, 20.4, 21,4, 22.17
	• potential cumulative effects;	10.7, 11.7, 12.7, 13.7, 14.7, 15.7, 16.7, 17.7, 18.7, 19.7, 20.7, 21.7, 22.7, 24
	• potential effects of accidents and malfunctions on the VEC;	Tables 10.36, 11.76, 12.11, 13.10, 14.10, 15.17, 16.17, 17.16, 18.6, 19.7, 20.5, 21,6, 22.19
	• applicable standards or guidelines;	10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.2, 22.6
	• comments from the public and responses;	3, 10.2, 11.2, 12.2, 13.2, 14.2, 15.2, 16.2, 17.2, 18.2, 19.2, 20.2, 21.2, 22.2
	• comments from Indigenous organizations and individuals and responses;	3.2, 3.3, 3.4, 10.2, 11.2, 12.2, 13.2, 14.2, 15.2, 16.2, 17.2, 18.2, 19.2, 20.2, 21.2, 22.2
	• relationship of the VEC to an Indigenous group's asserted Indigenous and Treaty right; and	23
	• commitments made by the proponent, including the timing and responsibility of each.	10.6, 11.6, 12.6, 13.6, 14.6, 15.6, 16.6, 17.6, 18.6, 19.6, 20.6, 21.6, 22.6, 25
	PART II: DETAILED GUIDANCE ON SELECT ENVIRONMENTAL COMPONENTS	
	The following section provides an overview of the proposed studies and approach to be undertaken in the EIS for each VEC. Detailed study approaches and analytic methods and assumptions shall be provided in the EIS.	

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
4.15	**Baseline Studies**	
	Due to the complexity particular to a number of the VECs likely to be affected by the Project, it has been determined that stand alone baseline studies will be required. These baseline studies are required to support the evaluation of environmental effects, the development of mitigation measures and monitoring and follow up programs. Where new information becomes available, additional baseline studies may be required.	4, 5.1, 5.5.5, 10 to 22, Appendices A to AF
	Baseline studies should generally have the following format:	
	• Rationale/Objectives: In general, the baseline studies should be conducted to obtain all required data for use in determining the potential for significant effects on a the VEC as well as for monitoring and follow-up programs.	4, 5.1, 5.5.5, 10 to 22, Appendices A to AF
	• Study Area: The boundaries of the study area shall be defined depending on the characteristics of the VEC being investigated.	4, 5.1, 5.5.5, 10 to 22, Appendices A to AF
	• Methods: Methods shall be proposed by the Proponent, in consultation with resource agencies, as appropriate. The methods used in each baseline study shall be described in the EIS.	4, 5.1, 5.5.5, 10 to 22, Appendices A to AF

	• Study Outputs:
	  ◦ Study outputs shall be proposed by the Proponent. Information and data generated shall be sufficient to adequately predict the effects on the VEC and to determine monitoring and follow-up requirements.
	  ◦ Identification of information sources.
	  ◦ Appendix of raw data in electronic tabular form for the bio-physical baseline studies.
		4, 5.1, 5.5.5, 10 to 22, Appendices A to AF

	The baseline studies, in their entirety should be incorporated into the EIS document as appendices.	Appendices A to AF
4.16	**Atmospheric Environment**	
	The effects of the Project on atmospheric environment will be assessed within the area that can reasonably be affected by the Project, based on the distance to sensitive receptors. Boundaries for assessing the cumulative effects of the Project in combination with other projects and activities that have been or will be carried out may be different from (larger than) the boundaries for assessing the effects of the Project.	10
4.16.1	***VEC Definition and Rationale for Selection***	

	• Atmospheric environment is defined as ambient air quality and the acoustic and visual environments (noise, vibrations, light) within the vicinity of the Project. Atmospheric environment has been selected as a VEC based on:
	  ◦ protection of human health and safety, as well as ecological health and aesthetics;
	  ◦ potentially sensitive human and wildlife receptors;
	  ◦ provisions of the *Air Pollution Control Regulations* under the NLEPA; and
	  ◦ the potential for greenhouse gas emissions.
		10.1

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
4.16.2	***Potential Project-VEC Interactions***	
	Potential Project-VEC interactions include:	

	• Effects on ambient air quality due to;
	  ○ particulate matter (e.g., dust) and other potential air contaminants during construction activities (including the of rail lines);
	  ○ particulate matter (e.g., dust) and other contaminant releases during the operations phase including those potentially caused by:
	  ▪ mining operations;
	  ▪ fines and concentrate storage;
	  ▪ handling or loading and unloading;
	  ▪ road dust (e.g., vehicle use on-site and off-site);
	  ▪ dust along rail lines;
	  ▪ emissions from blasting;
	  ▪ tailings dust lift-off; and
	  ▪ vehicle emissions, including rail locomotives;
		10.4

	• Effects on ambient sound levels associated with:
	  ○ construction activities (both at the mine and off-site);
	  ○ mining and concentrating operations (including blasting) and transportation of fines and concentrate on-site;
	  ○ vehicles/trucks in noise-sensitive areas;
	  ○ transportation of fines and concentrate from the site to the rail loop; and
		10.4

	• Effects as a result of vibrations associated with:
	  ○ construction-related activities, such as blasting or heavy equipment movement on-site or off-site;
	  ○ mining and concentrating operations (including blasting) and transportation of fines and concentrate; and
		10.4

	• Effects of artificial lighting at the Project site during operation on nearby residents and the environment.	10.4
4.16.3	***Existing Environment***	
	The EIS must describe the following:	
	• ambient air quality in the Project areas and, for the mine site, the results of a baseline survey of ambient air quality, focusing on the contaminants $PM_{2.5}$, PM_{10} and NO_x;	10.5.3.5
	• current ambient noise levels at both sites and within the local area, including the results of a baseline ambient noise survey. Information on typical sound sources, geographic extent and temporal variations must be included; and	10.5.3.6
	• existing ambient light levels at the Project site and at any other areas where Project activities could have an effect on light levels. The EIS should describe night-time illumination levels during different weather conditions and seasons.	10.5.3.9
4.16.4	***Effects Assessment and Mitigation***	
	The adverse environmental effects of the Project on the atmospheric environment must be assessed for all phases of the Project. In addition, the effects of potential accidents and malfunctions and cumulative effects associated with other industrial use of the area, must be assessed.	10.6.1

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	All potential Project emissions must be estimated, including greenhouse gases (GHG) and an emissions inventory table must be included in the EIS, listing emission sources, operating periods, pollution control equipment (where applicable), predicted stack concentrations and total emissions. Typical construction and operation-related emissions include, but are not limited to, particulates (PM_{10} and $PM_{2.5}$) and metals in dusts and fuel combustion by-products such as sulphur dioxide (SO_2), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs) and metals. Potential odours from Project emissions at a local level (i.e. near Project equipment) must be discussed and assessed. GHG quantities are to be expressed in carbon dioxide equivalents (t/yr) and should be compared with provincial and national totals and mining sector totals.	10.6.2
	Modeling shall be conducted in accordance with the requirements of the *Air Pollution Control Regulations* of the NLEPA and the following NLDOEC guidance documents: • Guidance for Plume Dispersion Modeling (GD-PPD-019.2); and • Determination of Compliance with the Ambient Air Quality Standards (GD-PPD-009.4)	Appendix F
	Air dispersion modelling conducted in accordance with the above guidelines shall be summarized in the EIS. Air quality modeling shall provide meteorological data (e.g., wind data – for example wind roses) and examine scenarios whereby air quality in nearby communities that could be affected by the cumulative effects of the Project in combination with other projects and activities in the area.	Appendix F
	Modeling shall include the $PM_{2.5}$ and PM_{10} fraction of particulate matter, NO_x emissions from operational equipment and any other emissions of concern that are identified. The modeling should specify all assumptions with respect to emission rates and dust control applications. The analysis must reflect the requirements and standards contained in pertinent legislation, policies, guidelines and directives relating to the atmospheric environment (e.g., National Ambient Air Quality Objectives, Canada Wide Standards, applicable provincial ambient air quality criteria).	Appendix F
	The crusher plant and any other significant particulate emission sources will be required to have Best Available Control Technology (BACT) for dust suppression. A description of proposed emission controls should be included in the EIS.	10.6.2.1
	The EIS should indicate whether and how air quality in local municipalities will be monitored and with whom any resulting data would be shared.	10.10
	The EIS must assess potential noise and vibration impacts to the environment and local communities.	10.6.4
	Specifically, the EIS must:	
	• identify and quantify potential noise and vibration sources during construction and operation phases;	10.6.4
	• identify potential receptors and describe the proximity of identified receptors to the Project area, including identifying and describing whether particular receptors may have a heightened sensitivity to noise and vibration exposure (e.g., workers accommodations near the mine installations and residents along the Tshiuetin Rail Transportation Inc. rail line) or expectation of peace and quiet (e.g., recreational areas);	10.5.3.8
	• include a map illustrating estimated noise and vibration levels from the Project at key receptors;	Figures 10.13 and 10.14
	• describe whether there is a potential for adverse effects associated with Project-related vibrations (e.g., potential for damage to nearby residences, domestic wells, ice cover on nearby lakes); and	10.6.4
	• describe mitigation and management measures related to noise and vibration including the conditions for mitigation and evaluate Project compliance with appropriate noise guidelines.	10.6.4

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	The EIS must identify sources and types of variation in Project-related light levels by providing information on duration, frequency and levels of light emissions. It should provide an assessment of effects of night-time light levels on wildlife. In addition, the EIS must evaluate how light disturbances could impact individuals and communities and their commercial and recreational activities, including tourism.	10.6.5
	Technically and economically feasible mitigation measures must be proposed to reduce or minimize adverse effects. The EIS will provide a prediction of adverse residual effects, including cumulative effects and their significance.	10.6.5
4.17	**Landforms, Soils, Snow and Ice**	
4.17.1	***VEC Definition and Rationale for Selection***	
	Landforms, soils and snow are defined as the landforms, soils, snow and ice within the vicinity of the Project or that could be affected by the Project. They have been included as a VEC because of their importance to project planning and potential to be impacted by Project activities.	13
4.17.2	***Potential Project-VEC interactions***	
	Potential Project-VEC interactions include:	
	• Acid Rock Drainage/Metal Leaching arising from Project activities;	13.4
	• impacts to the quality or quantity of soils;	13.4
	• impacts to snow and ice; and	13.4
	• impacts of landform and soils on the Project.	13.4
4.17.3	***Existing Environment***	
	The description of the existing environment in the EIS shall include:	
	• existing unique or valuable landforms (e.g., eskers, fragile landscapes, wetlands), including details regarding their ecological functions and distribution in the local study area;	13.5.3
	• geomorphology and topography at areas proposed for construction of major project components, including the type, thickness and distribution of soils as applicable;	13.5.3
	• bedrock lithology, morphology, geomorphology and soils where earthworks are proposed;	13.5.3
	• potential for ground and rock instability (e.g., slumping, landslides and potential slippage) at areas planned for Project facilities and infrastructure;	13.5.3
	• suitability of topsoil and overburden for use in the re-vegetation of surface-disturbed areas; and	13.6.2
	• sites of palaeontological or palaeobotanical significance.	13.4.1
4.17.3.1	**Acid Rock Drainage and Metal Leaching**	
	If there is a potential for Acid Rock Drainage/Metal Leaching (ARD/ML) to occur as a result of the Project, the EIS should include an investigation of the associated potential from overburden, mine waste rock, ore and tailings. This investigation should include:	
	• population assessments for each lithological/alteration/waste management unit. Assessments should account for vertical and horizontal distribution, as well as sampling biases, to proper characterization over the unit's range of variability;	13.5.3.9
	• a chronology of ARD/ML investigations and the design of an ARD/ML and mineralogy and elemental analysis characterization program, including all static and kinetic test work conducted to date. The rationale, advantages and disadvantages of, detailed description, sample selections and methodology for all test work;	13.5.3.9

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• predictions of the ARD/ML potential of all materials (bedrock and surficial) to be disturbed or created during all phases (construction, operation, decommissioning, reclamation and post-closure) of the proposed project. This must include an interpretation of the results, an estimation of risk for the onset of ARD for each lithological/alteration/ waste management unit and mine component, metal leaching and the predicted drainage chemistry for each mine component, including the types and concentrations of major trace elements; and	13.5.3.9
	• clear, concise cross-sections which relate the ARD/ML assessment (static/kinetic sample locations and results), geology and development plans and reference Mine Environment Neutral Drainage (MEND) guidelines.	13.5.3.0
4.17.4	***Effects Assessment and Mitigation***	
	In conducting the analysis, the EIS shall consider pertinent acts, best practices, policies, guidelines and directives. The EIS shall provide a description of measures to mitigate effect and list potential residual effects and their significance.	13.6
	The discussion should include a list of: • rehabilitation measures for borrow sources; • an erosion and sediment control plan; and • measures to mitigate changes to local drainage patterns.	13.6
	Specifically, the EIS shall discuss the following:	
	• general impact on landform as a result of Project development, borrow resource extraction, with a focus on sensitive landforms and those serving as wildlife habitat;	13.6.1
	• implications to the Project planning and design of baseline information related to terrain conditions;	13.6.1
	• potential impacts on the stability of terrain in the vicinity of Project facilities and infrastructure. Discussion should focus on the potential for impacts arising from surface disturbances due to construction (e.g., overburden stripping, cuts/fills) and any associated implications for Project design and management of project components, including railway embankments, tunnels, access roads, watercourse crossings, ore/waste rock piles, etc.;	13.6.1
	• the potential for the occurrence, frequency and distribution of terrain hazards, including snow drifts and snow banks, as a result of construction activities (e.g. cut/fill, extraction of construction materials);	13.5.3.6, 13.6.1
	• potential for soil erosion, including stream bank erosion, resulting from surface disturbances associated with the construction, operation and maintenance of Project components;	13.6.2
	• proposed commitments to preserve, store and reuse soil (including humus layers and organic soils), as applicable for site rehabilitation;	13.6.2
	• potential contamination of soils due to the deposition of air emissions and airborne fugitive dust-fall from the Project;	13.6.2
	• potential contamination of snow (e.g., due to runoff from tailings, emissions or other sources); and	13.6.3
	• potential for the Project to impact ice on local lakes (e.g., impact of the ice road and the potential for blasting to cause cracking).	13.6.3
4.17.4.1	**Acid Rock Drainage and Metal Leaching**	
	The ARD/ML prediction information (based on MEND guidelines) and historical site databases and experience will be used to assess the potential leachate risks and determine mitigation requirements for the project.	13.5.2, References

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	Additional information should be provided for:	
	• mine waste rock, tailings, ore characterization, volumes, segregation/ disposal methods, mitigation/management plans, contingency plans, operational and post-closure monitoring and maintenance plans;	13.5.3.9, 13.6.4
	• the feasibility of successfully segregating Potentially Acid Generating (PAG) and Non-Potentially Acid Generating (NPAG) waste materials during operations, proposed geochemical segregation criteria and identification of operational methods that will be required to achieve geochemical characterization during operations (i.e., geochemical surrogates, on site lab, procedures needed etc.);	13.5.2, 13.5.3.9
	• sensitivity analysis to assess the effects of imperfect segregation of waste rock;	13.11
	• estimates of potential lag time to ARD/ML onset for PAG materials (including various waste rock, tailings, ore) and ability to fully saturate appropriate PAG materials during operation and post-closure based on regional experience, if any;	13.4.4, 13.5.3.9, 13.6.4
	• pit water chemistry (existing, during operation, post-closure) and pit closure management measures (e.g., flooding). This should include geochemical modeling of pit water quality in the post-closure period;	13.6.4, 13.10
	• surface and seepage water quality from the mine waste rock stockpiles, other stockpiles and other infrastructure during operation and post-closure; and	13.2.4, 13.4.4, 13.5.3.9, 13.6.4
	• ARD/ML prevention/management strategies under a temporary or early closure scenario, including ore.	13.4.4, 13.6.4
	The manual produced by the Mine Environment Neutral Drainage (MEND) Program, entitled, *MEND Report 1.20.1, Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials, Version 0 - December 2009* will be used to formulate ARD/ML prediction.	13.5.2, References
4.18	**Water Resources**	
	The effects of the Project on water resources will be assessed within the local drainage areas that can be reasonably expected to be affected by the Project. Boundaries for assessing the cumulative effects of the Project in combination with other projects and activities that have been or will be carried out may be different from (larger than) the boundaries for assessing the effects of the Project.	11, 12, 14, 15
4.18.1	***VEC Definition and Rationale for Selection***	
	Water resources include the quality and quantity of groundwater and surface water resources in the vicinity of the Project. It has been selected as a VEC because of: • its importance to ecosystem function and human use (including potable water supplies; recreational use and protection of aquatic life); • concerns regarding potential for release of hazardous materials on-site and potential contamination associated with mine and process water management; • possible lowering of water table and effects on surface water / groundwater interactions (e.g., wetlands); and, • provisions of the NL *Water Resources Act*.	11.1
4.18.2	***Potential Project-VEC Interactions***	
	Potential Project-VEC interactions include:	
	effects related to mine water management as well as effects on water quality from effluent discharges and seepage;	12.4
	potential ammonia contamination from incomplete combustion of exploded materials (e.g. directly to surface waters, or to groundwater via bedrock fractures);	11.4, 12.4
	effects on water quantity and hydrology/hydrogeology;	11.4, 12.4
	effects of dewatering Joyce Lake;	11.4, 12.4

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• effects related to mine water use (demand);	11.4, 12.4
	• effects of accidents and malfunctions; and	11.4, 12.4
	• erosion and sedimentation, including dust deposition.	11.4, 12.4
4.18.3	***Existing Environment***	
4.18.3.1	*Groundwater*	
	For the mine site, the EIS must describe the hydrogeologic conditions at the mine site. It must examine all available existing hydrogeology information required to assess the effects of the Project. Where knowledge gaps exist, the proponent must collect additional baseline information and provide it in the EIS.	12.5
	The EIS must include:	
	• a review of the physical geography and the geology of the mine site project area as it pertains to local and regional groundwater flow systems in the mine area (see list in Section 4.9);	12.5.3
	• the physical and geochemical properties of hydrogeological units, such as aquitards and aquifers (see list in Section 4.9);	12.5.3
	• groundwater levels and a piezometric map for each aquifer;	Table 12.5
	• bedrock fracture sizes and orientations in relation to groundwater flow, including any preferential flow paths for groundwater (both shallow and deep);	12.5.3
	• hydrogeologic maps and cross-sections for the mine area that outline the extent of aquifers, including stratigraphy, piezometric levels at different depths (to estimate vertical hydraulic gradients and show confined aquifers)/ potentiometric contours; locations of wells, boreholes, springs, lakes and streams; groundwater flow direction;	Figures 12.4 and 12.5
	• groundwater flow patterns and chemistry, identifying recharge and discharge areas and identifying groundwater interaction with surface waters;	12.5.3
	• evaluation of discharge rates; and	12.5.3.1
	• assessment of groundwater quality in the different aquifers.	12.5.3
	Baseline information must include existing water supply wells (if any) identified within the area of influence of the Project property.	12.2.3
4.18.3.2	*Surface Water*	
	The EIS should describe surface water quality, hydrology and sediment quality within the area of influence of the Project. The baseline should provide the basis for the assessment of potential effects to surface water, presenting the range of water and sediment quality and surface water hydrology. A time-series graph of key variables and stream flows must be provided to illustrate patterns and variability. The full range of stream flow characteristics, in addition to mean values, should be described.	11.5, 12.5.3.1
	Furthermore, the EIS must:	
	• include delineation of drainage basins, at appropriate scales;	11.5.3.2
	• describe and present monitored hydrological data, such as water levels and flow rates in local streams and selected local lakes;	11.5.3.2
	• describe and assess hydrological regimes, including monthly, seasonal and year-to-year variability, normal flows, low flows, environmental (maintenance) flows and flood flows for selected return period flood events;	11.5.3.2
	• include flows or design peak flows for selected periods for the Project area, bridge and culvert design at stream crossings for access roads and railway lines and an assessment of potential ice problems;	11.5.3.2, 12.5.3.7

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• describe the interactions between surface water and groundwater flow systems under pre-development conditions and potential impacts on these interactions during the various phases of the Project;	11.5.3.2, 11.5.3.3, 11.5.3.4
	• describe any local and regional potable surface water if any; and	11.5.3.4, 12.5.3.6, 12.5.3.7
	• provide seasonal water quality field and lab analytical results and interpretation at several representative local stream and lake monitoring stations established at the Project site.	11.5.3.5
4.18.4	***Effects Assessment and Mitigation***	
	The adverse environmental effects of the Project on Water Resources must be assessed for all phases of the Project and potential accident scenarios. With respect to accident scenarios, the discussion of impacts to both ground and surface water resources must include an analysis of impacts of malfunctions and accidents events, taking into account:	11.6
	• the proposed ice roads across Iron Arm;	11.6.1-3 (for causeway)
	• transportation of fuel for the Project (e.g., mine trucks, boilers). The EIS must describe potential accidents and malfunctions associated with the transportation and storage of fuel along the rail and on the Project site; and	11.8
	• the management, storage and disposal of used oil and associated potential for malfunctions and accidents events.	11.8
4.18.4.1	*Groundwater*	
	The EIS must assess the effects of the Project on groundwater at the mine site. The effects assessment should provide a quantitative groundwater analysis to determine how Project-related facilities and activities will affect groundwater flows, quality and quantity, such as any effects to nearby lakes and streams, during all Project phases, including day-to-day operations and for malfunctions and accidental events.	12.2.4, 12.4, 12.6
	The assessment should describe the duration, frequency, magnitude and spatial extent of any effects and outline the need for mitigation and/or monitoring measures.	12.2.3, 12.4, 12.6
	Seepage rates, locations, quality and direction into or from the pit, overburden/waste rock/ore stockpiles, TMF, settling pond and effects on groundwater stream flows and groundwater quality within the Project area should be assessed.	12.4, 12.6
	Potential seepage to existing water bodies should be assessed (in relation to potential effects to fish and fish habitat, including baseflow recharge from groundwater). Mitigation strategies should be proposed.	12.2, 12.4, 12.6 12.10, 15
	The environmental considerations, including effects on groundwater resources that have influenced the location and management of proposed groundwater monitoring and water supply wells, shall be provided.	12.10.1, 12.10.2, 12.10.3, 12.10.4, 12.10.5
	In summary, the following components should be provided:	
	• a monitoring plan for groundwater levels and quality, before, during and after the Project;	12.4, 12.6, 12.10.5
	• estimation of water inflows into the open pit and withdrawal rates from the open pit;	12.5.3
	• assessment of a hydrological budget, including runoff, evapotranspiration and recharge rates under the various operation phases of the mine;	12.5.3, 12.6
	• a description of the duration, frequency, magnitude and spatial extent of any effects to surface and groundwater resources caused by the Project (e.g., use maps and cross-sections developed in Section 4.17.3.1 to show effects); and	12.6
	• a description of potential cumulative and residual effects of the overall Project on water resources and their significance.	12.7

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	The EIS must also specify what groundwater supply wells, if any, are proposed on site as part of the Project and how they will be constructed and located in relation to the various mining activities in order to minimize effects on groundwater quality.	12.4.2.1
	The analysis must be based on acts, policies, guidelines and directives relating to groundwater quality and quantity, such as the *Guidelines for Canadian Drinking Water Quality (*1996*)*.	12.2.1
	The EIS must describe measures to mitigate effects on groundwater quality and quantity and predict adverse residual effects and their significance.	12.6.
4.18.4.2	***Surface Water***	
	The EIS must assess the effects of the Project on surface water quality and quantity within the Project's zone of influence. Potential watershed management impacts associated with the creation of the tailings management facility must be described. The assessment should describe the duration, frequency, magnitude and spatial extent of any effects and outline the need for mitigation and/or monitoring measures. The analysis of impacts to surface water should include malfunctions and accidents events.	11.6 (no TMF)
	The EIS shall:	
	• include a detailed environmental water balance for the mine site, focused on predicted water balance inputs/outputs for a climate normal condition, dry- and wet-year conditions undertaken for major Project facilities including the Joyce Lake open pit, waste rock and low grade ore storage areas, tailings disposal area and processing area. For Project areas whose footprint will expand over time, the EIS will assess the respective change in environmental water balance over Project life including the decommissioning and post-closure period;	11.6.1, 11.6.2, 11.6.3
	• provide a detailed operational and post-closure water balance for mine water management plan identifying Project water demands/uses and water source(s), potential effects on water sources and proposed mitigation to avoid or minimize effects;	11.6.2, 11.6.3
	• identify water and sediment quality objectives, including the receiving water criteria of the Canadian Council of Ministers of the Environment (CCME) including the *Canadian Environmental Quality Guidelines for the Protection of Aquatic Life* for and the *Guidelines for Canadian Drinking Water Quality*, as applicable;	11.3
	• provide an overview on the closure plans at Joyce Lake;	11.6.3
	• describe the potential for the phenomenon known locally as "Red Water" to be associated with tailings management and associated impacts to water; and	11.6.2
	• The assessment should detail how proposed effluent is predicted to mix in the receiving environment for effluents discharged from the Project.	11.6.1, 11.6.2, 11.6.3
	In conducting the analysis, the Proponent should consider pertinent acts, policies, guidelines and directives relating to surface water quality and quantity. The EIS must describe technically and economically feasible measures to mitigate effects to surface water quality and quantity and predict adverse residual effects and their significance.	noted
	The EIS should also address what measures would be taken by the proponent if water quality or quantity were to be affected by the Project.	11.6.1-3

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
4.19	**Wildlife and Their Habitats and Protected Areas**	
	The effects of the Project on wildlife and their habitats will be assessed within the Project footprint (i.e., cleared areas) and areas that could reasonably be affected by the Project activities. The effects of the Project on protected areas that could be affected by the Project will also be assessed. Boundaries for assessing the cumulative effects of the Project in combination with other projects and activities that have been or will be carried out will generally be different from (larger than) the boundaries for assessing the effects of the Project.	16.1.1
4.19.1	***VEC Definition and Rationale for Selection***	
	Wildlife and their habitat refers to migratory and non-migratory species that are potentially feeding, breeding, moving and/or migrating through the Project area. Protected areas include all lands protected by municipal, provincial or federal legislation, policy or agreements. It has been selected as a VEC because of the need to protect ecosystems, species diversity, important habitats and ecosystems. In addition, species and other ecosystem components are important to local residents, regional stakeholders and regulatory authorities (i.e., municipal, provincial and federal) for recreation, economic and/or management considerations.	16.1, 16.2
4.19.2	***Potential Project-VEC Interactions***	
	Potential Project-VEC interactions include:	
	• habitat loss or degradation due to construction and operation of Project facilities and associated infrastructure;	16.4
	• effects on the physical condition of individuals due to emissions/discharges from the Project;	16.4
	• mortality due to construction, operation and/or decommissioning and/or accidents and malfunctions during these Project phases;	16.4
	• disruption of feeding, breeding, movement and/or migratory patterns due to noise, lights and/or presence of Project facilities, and	16.4
	• impacts of the Project to protected areas.	There are none
4.19.3	***Existing Environment***	
	The EIS must describe migratory and non-migratory birds (including waterfowl, raptors, shorebirds, marsh birds and other landbirds), ungulates, furbearers, amphibians, small mammals and their habitat at the Project site and within the local and regional areas. The results of any baseline surveys must be included. In addition to the surveys/reports the Proponent is required to submit all raw data.	16.1, 16.6
4.19.3.1	***Wildlife***	
	Wildlife includes: • Non-migratory birds include waterfowl, raptors, shorebirds, marsh birds and other landbirds. • Ungulates include boreal sedentary or migratory caribou populations in the region and moose. • Small mammals and furbearers e.g., species such as black bear, wolf, marten, red fox, beaver and otter.	16.1, 16.5
	Other wildlife and their habitat that could be impacted by Project activities must be characterized using existing data, supplemented by surveys as appropriate. The proponent should contact the NLDOEC for further detail on the information requirements.	16.5.3
	The EIS should give particular consideration to areas of concentration of migratory animals, such as breeding, denning and/or wintering areas, as well as breeding areas of species low in number and high in the food chain (e.g. furbearers such as black bear and wolf).	16.5.3

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
4.19.3.2	***Protected Areas***	
	The description of the existing environment must include consideration of existing or proposed protected areas, special management areas and conservation areas in the regional study area. The EIS must note the size of protected areas, the ecological region(s) they represent and any important biotic or abiotic feature(s) which may be affected by the Project (e.g., as a result of noise or visual stimulus).	There are none
	In addition, the EIS shall address the value of the protected areas, relating both to their environmental attributes and to the value placed on them by humans (e.g., cultural and social values, aesthetics).	There are none
4.19.4	***Effects Assessment and Mitigation***	
	The adverse environmental effects of the Project on wildlife and their habitats should be assessed for all phases of the Project and for malfunctions and accidental events.	16.6, 16.8
	The EIS shall present an analysis of the Project's effects on habitats, giving consideration to and demonstrating linkages to predicted physical and biological changes resulting from the Project. Management tools (i.e., federal and provincial laws and policies, guidance and provincial or regional strategies and plans) applicable to the protection of wildlife and/or wildlife habitat must be considered in the EIS.	16.6.1
	The EIS must:	
	• quantify and describe overall loss or alteration of terrestrial habitat that could result from the Project and its effect on key species. Where possible, rank habitat quality for each VEC species so that the loss of high-quality habitat can be assessed in the context of its regional availability. Regional boundaries for assessment of relative habitat loss should be based on major watershed boundaries and eco-sections;	16.6.1, Tables 16.4 and 16.5
	• assess the Project's potential effects on wildlife behaviour, such as feeding, breeding, migration and movement, with respect to: ◦ physical hazards and attractants for wildlife (e.g., roads, pits and other ◦ structural features); ◦ chemical hazards and attractants for wildlife (e.g., identified contaminants of potential concern); and ◦ sensory disturbance causing wildlife attraction or deterrence (e.g., noise, light and human presence;	16.6.2
	• assess the potential effects on species known to be important to Indigenous organizations; and	16.6
	• describe the potential siltation associated with tailing management and the impacts on wildlife and habitat.	16.4
	The EIS must describe technically and economically feasible measures to mitigate effects on wildlife and their habitats and predict adverse residual effects and their significance. This includes plans and predictions for re-vegetation of the Project area, taking into account growth rates of local vegetation.	16.4
	The EIS must evaluate the potential environmental effects of the Project on the environmental, cultural, social and aesthetic values of the protected areas that could be affected by the Project.	
	The analysis should include consideration of:	
	• effects on protected areas and their abiotic and biotic features, including impacts of dust and tailings on waterbodies in and flowing in/out of protected areas;	There are none
	• the potential for isolation of flora and fauna within protected areas, due to habitat alteration and loss; and	16.6
	• measures to mitigate the effects of the Project on the environmental, cultural and social benefits of protected areas.	16.6

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
4.20	**Species at Risk and Designated Species**	
	The effects of the Project on animal and plant Species at Risk (SARs) and Designated Species under the NLESA will be assessed within the Project footprint (i.e., cleared areas) and areas that could reasonably be affected by the Project activities. Boundaries for assessing the cumulative effects of the Project in combination with other projects and activities that have been or will be carried out will generally be different from (larger than) the boundaries for assessing the effects of the Project.	17
4.20.1	***VEC Definition and Rationale for Selection***	
	SARs include: • species that are listed under the *Species at Risk Act* (SARA) and relevant provincial legislation such as the NL *Endangered Species Act* (ESA); and • species recommended for legal listing by COSEWIC, the NL Species Status Advisory Committee (SSAC) and ranked by the Atlantic Canada Conservation Data Centre (ACCDC) as S1, S2, or S3 or general status (NL Department of Environment and Conservation – Wildlife Division General Status of Wildlife Ranks) as maybe at risk or undetermined.	17.1
	Preservation of SARs is important for maintaining ecological integrity and species biodiversity. There are also legislative and policy requirements to protect SARs and their habitats. For example, the NLESA requires EAs to identify any adverse effects on a listed species or its critical habitat be identified and that measures be taken to mitigate and monitor those effects. Measures undertaken must be consistent with applicable federal recovery strategies, federal action plans, or provincial recovery plans.	17.1, 17.2.1
4.20.2	***Potential Project-VEC Interactions***	
	Potential Project-VEC interactions for SARs include:	
	habitat loss or degradation due to construction and operation of Project facilities and associated infrastructure;	17.2.4, 17.4
	effects on the physical condition of individuals due to emissions/discharges from the Project;	17.2.4, 17.4
	mortality associated with construction, operation and/or decommissioning and/or accidents and malfunctions during all Project phases; and	17.2.4, 17.4
	disruption of feeding, breeding, movement and/or migratory patterns due to noise, lights and/or presence of Project facilities.	17.2.4, 17.4
	Project activities that will result in clearing of or disturbance to natural vegetation, or ground disturbance (e.g., grubbing, grading and excavation) may affect rare plant species by: • altering or destroying individual rare plants, or habitat capable of supporting rare plant species; • altering preferred habitat due to changes in surface water hydrology (e.g., ponding, surface water runoff patterns); • destroying plants, or reducing health conditions of individuals and /or their habitat due to soil erosion, structural soil changes, or soil contamination; or • displacing rare plants due to non-native and invasive species introduction.	17.2.4, 17.4
4.20.3	***Existing Environment***	
	As background for the analysis of the Project's effects on SARs, the EIS must:	
	• identify all SARs that may be affected by the Project, using existing data and literature as well as surveys to provide current field data, as appropriate;	17.5

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• provide assessments of regional importance, abundance and distribution that optimize the ability to detect all species at risk and sufficient survey effort to obtain comprehensive coverage; and	17.5
	• identify residences, seasonal movements, movement corridors, habitat requirements, key habitat areas, identified critical habitat and/or recovery habitat (where applicable) and general life history of SARs that may occur in the Project area, or be affected by the Project.	4, 17.5
	The following information sources on species at risk and species of conservation concern should be consulted: • SARA (www.sararegistry.gc.ca); • NLESA; • COSEWIC; • SSAC; • NLDOEC – Wildlife Division General Status of Wildlife Ranks; • ACCDC; • Québec *Loi sur les espèces menacées ou vulnérables*; • Relevant Government agencies; • Local naturalist and interest groups; and • Indigenous organizations.	17.5.1
4.20.4	***Effects Assessment and Mitigation***	
	The EIS should identify the adverse effects of the Project on SARs, including individuals, critical habitat, recovery habitat, important habitat and residences of species listed under SARA and NLESA, species recommended for legal listing by COSEWIC, the SSAC, as well as adverse effects on species of conservation concern ranked by the ACCDC as S1, S2, or S3.	17.6
	The EIS should describe specific measures that will be taken to avoid or reduce adverse effects and to monitor them (consistent with any applicable federal recovery strategy, federal action plans and/or provincial recovery/management plan). The effects analysis must include project-specific impacts and cumulative effects on SARs and their critical habitat, recovery habitat, important habitat and/or residences. The likely significance of the Project's potential adverse environmental effects on SARs and species of conservation concern must be predicted.	17.6
	Analysis must take into account pertinent acts, policies, guidelines and directives relating to species at risk, such as: • Ad*dressing Species at Risk Act Considerations Under the Canadian Environmental Assessment Act for Species Under the Responsibility of the Minister responsible for Environment Canada and Parks Canada (SARA-CEAA, 2010);* • *The Species at Risk Act Environmental Assessment Checklists for Species Under the Responsibility of the Minister Responsible for Environment Canada and Parks Canada;* • *Support Tool for the Required Information Elements Under the Species at Risk Act for Environmental Assessments Conducted Under the Canadian Environmental Assessment Act (Environment Canada – Parks Canada 2010);* • *Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada (Environment Canada 2004); and* • *Newfoundland and Labrador: A Provincial Policy Regarding the Conservation of Species at Risk.*	17.21, 17.6

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
4.21	**Historic and Cultural Resources**	
	The effects of the Project on historic and cultural resources must be assessed.	18
4.21.1	***VEC Definition and Rationale for Selection***	
	Historic resources are defined pursuant to the NL *Historic Resources Act*, as a work of nature or of humans that is primarily of value for its archaeological, prehistoric, historic, cultural, natural, scientific or aesthetic interest, including an archaeological, prehistoric, historic or natural site, structure or object.	18.1
	The Project must give consideration of the effect of any change in the environment caused by the project on physical and cultural heritage, as well as any structure, site or thing that is of historical, archaeological, palaeontological or architectural significance. Palaeontological resource means a construct, structure or work of nature consisting of or being evidence of prehistoric multi-cellular organisms and palaeontological resources that are designated by regulation. These resources are important for their historic, cultural, spiritual and scientific value.	18.1
4.21.2	***Potential Project-VEC Interactions***	
	Potential Project-VEC interactions are related to disturbance to and loss of, archaeological sites resulting from site clearing, grubbing and grading activities.	18.4
4.21.3	***Existing Environment***	
	The EIS must identify any terrestrial and aquatic areas within the project footprint that are known to contain features of historical, archaeological, palaeontological, architectural, spiritual or cultural significance.	18.5.3
	A description of the nature of the features located in those areas must be provided.	18.5.3
	Informant interviews must be conducted with individuals familiar with the Project Area.	18.5.1
	Particular attention must be given to Indigenous cultural, archaeological and historic resources, in consultation with Indigenous organizations.	18.5.1, 18.5.3
	The potential for archaeological and historic resources to be present in the project areas must be assessed and presented.	18.5.3
4.21.4	***Effects Assessment and Mitigation***	
	The adverse environmental effects of the Project on historic and cultural resources will be assessed for all phases of the Project, as well as for accidents and malfunctions. The analysis should include an archaeological impact assessment of the Project area. The EIS must provide technically and economically feasible measures to mitigate effects and predict adverse residual effects and their significance, taking into consideration pertinent legislation (i.e., NL *Historic Resources Act*), policies, guidelines and directives. The analysis should include an archaeological impact assessment of the proposed Project areas, with particular emphasis on the mine site and associated infrastructure (i.e., roads, railway).	18.6, 18.8
4.22	**Other Contemporary Use of Lands and Resources**	
	The effects of the Project on other contemporary use of lands and resources will be assessed within the Project property boundaries and along the right-of-way of associated infrastructure.	20
4.22.1	***VEC Definition and Rationale for Selection***	
	Other contemporary use of lands and resources is defined as use of land and resources, including industrial uses, within the Project property boundaries and along the right-of-way of associated infrastructure. It was selected as a VEC due to its socio-economic importance. In particular, the Project area in Labrador is important to cabin owners and to area residents for recreational purposes.	20.1

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
4.22.2	***Potential Project-VEC Interactions***	
	Potential Project-VEC interactions will result from construction and operation activities that alter or destroy wildlife and fish habitat, contaminate country foods, contaminate drinking water supplies, result in restricted access, or modify the existing use of the Project area as a result of diminished air quality, changes to viewscapes, noise and other disturbances.	14, 15, 20.4
4.22.3	***Existing Environment***	
	The EIS must describe land use at the Project sites and within the regional areas. It should identify past, contemporary and any known planned land use(s) of the Project area that may be affected by the Project.	20.5.2
	Local land and resource users should be consulted to help characterize existing land and resource use patterns. The aspects listed below are to be considered to the extent that they are applicable to the site of the Project in Labrador.	20.5.1, 20.5.2
	• **Residential and Recreational Property**: The EIS must identify any property whose value may be adversely affected by any change in the environment caused by the Project. The occurrence of houses and cabins in the vicinity of the proposed mine site should be described, as well as any land identified for potential housing development. The discussion should include any impacts of the Project to local residents.	20.5.2.1
	• **Outdoor Recreation and Tourism**: An overview of the current access and use of the mine site and surrounding areas for recreation and the tourist industry (e.g., berry picking, plant harvesting, hiking, snowshoeing, snowmobiling and snowmobile trails, parks, camping, recreational use of water bodies must be provided;	20.5.2.2
	• **Hunting, Trapping and Guiding**: the current and projected value of the hunting, trapping and guiding industry close to or within the mine site must be provided;	20.5.2.3
	• **Forestry**: The current forest resources and activities at the mine site should be identified;	20.5.2.4
	• **Mineral Exploration**: The current mineral resources and exploration activities in the mine area must be identified;	20.5.2.5
	• **Agriculture**: The EIS must identify current agricultural resources and activities, if any, that could be affected by the mine;	20.5.2.6
	• **Labrador Rail Transportation**: Identify any railway construction and/or operation that is subject to the NL *Rail Service Act*;	20.5.2.7
	• **Float Planes**: The EIS should describe current use of local lakes; and	20.5.2.8
	• **Communication Towers**: The EIS should describe any potential impacts to communications towers.	29.5.2.9
4.22.4	***Effects Assessment and Mitigation***	
	The EIS must describe the adverse effects, including impacts of potential malfunctions and accidental events on existing and planned land and water uses, including the components identified in the previous section, that may arise from changes in the environment caused by the Project (e.g., noise/vibrations, air and water quality, visual and topographic characteristics of the area).	20.6
	The discussion should include consideration of:	
	• increased industrialization and changes to the visual landscapes for local communities, surrounding areas and along provincial roads and highways;	20.6
	• the effects of noise, dust and visual impacts to recreation.	20.6

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Guideline Number	Guideline Information Requirement	Section of EIS
	The analysis should take into consideration pertinent legislation, policies, guidelines and directives relating to land and resource use. The EIS must describe technically and economically feasible measures that would be employed to mitigate effects on other current use of lands and resources, as well as predicted adverse residual effects.	20.6
4.23	**Economy, Employment and Business**	
	The effects of the Project on economy, employment and business will be assessed at the provincial scale, in accordance with Newfoundland and Labrador requirements.	22
4.23.1	***VEC Definition and Rationale for Selection***	
	Economy, employment and business is defined as: • economy of Labrador and the rest of the Province; • taxes and royalties; • gross domestic product (GDP); • employment in Labrador and in the rest of the Province; • skilled and unskilled labour supply in Labrador and the rest of the Province; • expenditures in Labrador and the rest of the Province; • employment equity and diversity including under-represented groups (e.g., women, persons with disabilities, Indigenous organizations); • business capacity: goods and services; and • economic activities related to tourism.	22.1
	Understanding the Project's effects on economy, employment and business is fundamental to assessing socio-economic implications for the lives of residents and of revenues to governments.	22.1
4.23.2	***Potential Project-VEC Interactions***	
	The interaction of the Project with economy, employment and business is related to the Project's expenditures, employment and environmental impacts.	22.4
4.23.3	***Existing Environment***	
	Baseline conditions for economy, employment and business will be determined through a review of information from the Governments of Newfoundland and Labrador, and Canada and other relevant agencies and organizations (e.g., Chambers of Commerce and Boards of Trade; current Statistics Canada data and other available research data) within the region and potentially-affected Indigenous communities. Where additional information is required, studies and/or interviews shall be conducted.	22.5.1
	Baseline conditions will be characterized for:	
	• existing employment (e.g., by sector) and income conditions;	22.5.3
	• skilled and unskilled labour supply;	22.5.3
	• employment equity and diversity including potentially under-represented groups (e.g., women, Indigenous persons, persons with disabilities);	22.5.3
	• GDP for Newfoundland and Labrador;	22.5.3
	• income levels;	22.5.3
	• sources of income;	22.5.3
	• labour force indicators including labour force, employment, unemployment and employment, unemployment and participation rates;	22.5.3
	• business and industry profile (including industries of specific importance such as mineral exploration and mining);	22.5.3
	• tourism related activities; and	22.5.3

Table ES 2 Table of Concordance Between the NLDOECC EIS Guidelines and this EIS

Guideline Number	Guideline Information Requirement	Section of EIS
	• business capacity, including women, Indigenous persons and persons with disabilities.	22.5.3
4.23.4	***Effects Assessment and Mitigation***	
	The EIS must assess the effects of Project-related effects on economic, employment and business conditions and opportunities, as described in the above sections, focusing on the region, and potentially affected Indigenous communities.	22.6
	The discussion should describe proposed grants or other benefits which could accrue to local towns/municipalities as a result of the Project.	22.6
	Given the large number of workers required to complete the Project, the EIS must provide:	
	• expected impacts on the local labour force in Labrador, by gender, including impacts on the Indigenous labour force; and	22.6.2
	• technically and economically feasible measures to mitigate adverse effects and to optimize beneficial effects.	22.6.2
	The EIS should describe potential impacts to tourism activities in local municipalities.	22.4.1
	The EIS must include commitments to:	
	• provide quarterly reports to that meet the approval of the Minister of Advanced Education and Skills, during the construction phase, as well as for the duration of the operations phase, including information by gender on the following; ◦ the number employed (by 4-digit NOC 2006), ◦ the number of full-time/part-time employees, ◦ he number of apprentices (by level) and journeypersons, ◦ Indigenous organizations, and ◦ source of the workforce.	22.10, 25
	The EIS must include statements by the operator indicating their acknowledgment that the following documents must be finalized prior to the granting of EA release:	
	• A Gender Equity and Diversity Plan that meets the approval of the Minster of Natural Resources and the Minister Responsible for the Status of Women. The plan must include an employment plan and a business access strategy for women and for other under-represented groups, including Indigenous persons, persons with disabilities and visible minorities. These plans will document the proponent's strategy to maximize Newfoundland and Labrador's participation for these groups in the development of the Joyce Lake iron ore deposit and future operations; and,	9.3.4, 22.1, 22.10, 25
	• A Newfoundland and Labrador Benefits Plan that meets the approval of the Minister of Natural Resources.	22.10, 25
	Pertinent acts, policies, guidelines and directives relating to economy, employment and business must be taken into account.	9, 22.1
4.24	**Commitments Made in the EIS**	
	The EIS should provide a list of all commitments made regarding environmental mitigation, monitoring and follow-up. Each commitment must be cross-referenced to the section of the EIS where it has been made.	25

ACRONYMS AND ABBREVIATIONS

°C	degree Celsius
µg	microgram
µS/cm	microSiemens per centimetre
AANDC	Aboriginal Affairs and Northern Development Canada
AC CDC	Atlantic Canada Conservation Data Centre
AD	Anno Domini
AET	actual evapotranspiration
AFDC	annual flow duration curve
AIP	Agreement in Principle
ANFO	ammonium nitrate with fuel oil
ARD	acid rock drainage
ARD/ML	acid rock drainage/metal leaching
As	arsenic
BACT	Best Available Control Technologies
BMP	beneficial management practices
Bq	becquerel
CAAQS	Canada Ambient Air Quality Standards
CAC	criteria air contaminants
$CaCO_3$	Calcium carbonate
CCME	Canadian Council of Ministers of the Environment
Cd	cadmium
CDPNQ	Centre de données sur le patrimoine naturel du Québec
CEA Agency	Canadian Environmental Assessment Agency
CEAA 2012	*Canadian Environmental Assessment Act, 2012*
CEM	Coastal Engineering Manual
Century	Century Global Commodities Corporation
CEPA	*Canadian Environmental Protection Act*
CEQG	Canadian Environmental Quality Guidelines
CFU	colony-forming unit
CGS	Canadian Geological Survey
CH_4	methane
CIE	Commission Internationale de L'Éclairage
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
CLSC	Local Community Service Centre
cm	centimetre
Cn	cyanide
CO	carbon monoxide
CO_2	carbon dioxide
CO_{2eq}	carbon dioxide equivalent
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPNIMLJ	Conseil de la Première Nation des Innus de Matimekush-Lac John
Cr	chromium
CSQG	Canadian Sediment Quality Guidelines
CSQG-PAL	Canadian Sediment Quality Guidelines for the Protection of Aquatic Life
Cu	copper
CWQG	Canadian Water Quality Guidelines
CWQG-PAL	Canadian Water Quality Guidelines for the Protection of Aquatic Life
CWS	Canadian Wildlife Service
dB	decibel
dBA	A-weighted decibel
DFO	Fisheries and Oceans Canada
DGSNL	Digital Government and Service NL
DO	dissolved oxygen
DOC	dissolved organic carbon

DSO	Direct Shipping Ore
EA	Environmental Assessment
ECCC	Environment and Climate Change Canada
ECWSR	*Environmental Control Water and Sewage Regulations*, 2003
EEB	Economy, Employment and Business
EEM	Environmental Effects Monitoring
EIS	Environmental Impact Statement
ELC	Ecological Land Classification
EMP	Environmental Management Plan
EMS	Environmental Management System
EPP	Environmental Protection Plan
EPR	Environmental Preview Report
ERP	Emergency Response Plan
ET	evapotranspiration
FDC	flow duration curves
FIFO	fly-in fly-out
FOS	Factor of Safety
FPWC	Federal Policy on Wetland Conservation
FRPC	fixed-radius point count
FS	Feasibility Study
FTA	Federal Transit Administration
GDP	Gross Domestic Product
GHG	greenhouse gas
GHGRP	Greenhouse Gas Emissions Reporting Program
GIS	geographic information system
GOC	Government of Canada
GPS	Global Positioning System
GRCH	George River Caribou Herd
GWh	gigawatt-hour
HA	highly annoyed
Ha	hectare
HADD	harmful alteration, disruption or destruction
HFC	hydrofluorocarbons
IAAC	Impact Assessment Agency of Canada
IBA	Impact Benefit Agreement
IDF	intensity-duration-frequency
IOC	Iron Ore Company of Canada
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization of Standardization
ISQG	Interim Sediment Quality Guideline
ITK	Indigenous Traditional Knowledge
JLNPD	Joyce Lake North Perimeter Ditch
JLSPD	Joyce Lake South Perimeter Ditch
JTU	Jackson Turbidity Unit
km	kilometre
km²	square kilometre
KPa	kiloPascal
kt	kilotonne
kW	kilowatt
L	litres
Labec Century	Labec Century Iron Ore Inc.
LEED	Leadership in Energy and Environmental Design
LEMV	Loi sur les espèces menacées ou vulnérable
LiDAR	Light Detection and Ranging
LIL	Labrador Innu Lands
LIM	Labrador Iron Mines Ltd.
LISA	Labrador Inuit Settlement Area
LM&E	Labrador Mining and Exploration
LNAPL	Light Non-Aqueous Phase Liquids

LOM	life of mine
LSA	Local Study Area
LSI	Langelier Saturation Index
m	metre
m²	square metre
m³	cubic metre
MAC	Mining Association of Canada
MAF	mean annual flow
mAMSL	metres above mean sea level
MBCA	*Migratory Birds Convention Act*
mbg	metres below ground
MDMER	*Metal and Diamond Mining Effluent Regulations*
MEND	Mine Environment Neutral Drainage
Mg	magnesium
mm	millimetre
MRC	municipalité régionale de comet
Mt	million tonne
MUSLE	Modified Universal Soil Loss Equation
MW	megawatt
N_2O	nitrous oxide
NAAQ	National Ambient Air Quality
NAO	North Atlantic Oscillation
Ni	nickel
NIR	National Inventory Report
NL	Newfoundland and Labrador
NLDF	Newfoundland and Labrador Department of Finance
NLDFF	Newfoundland and Labrador Department of Fisheries, Forestry and Agriculture
NLDIET	Newfoundland and Labrador Department of Industry, Energy and Technology
NLDIPGS	Newfoundland and Labrador Department of Immigration, Population Growth and Skills
NLDLAA	Newfoundland and Labrador Department of Labrador and Aboriginal Affairs
NLDNR	Newfoundland and Labrador Department of Natural Resources
NLDOECC	Newfoundland and Labrador Department of Environment and Climate Change
NLDTCAR	Newfoundland and Labrador Department of Tourism, Culture, Arts and Recreation
NLEPA	Newfoundland and Labrador *Environmental Protection Act*
NLESA	Newfoundland and Labrador *Endangered Species Act*
NLWLA	Newfoundland and Labrador *Wild Life Act*
NO_X	nitrogen oxides
NPR	Neutralization Potential Ratio
NPV	Net Present Value
NRCan	Natural Recourses Canada
NS	Nova Scotia
NTS	National Topographic System
NTU	Nephelometric Turbidity Unit
NW	northwest
OPS	Operational Policy Statement
PAG	potentially acid generating
PAO	Provincial Archaeology Office
Pb	lead
PDA	Project Development Area
PEA	Preliminary Economic Analysis
PEL	probable effect levels
PET	potential evapotranspiration
PFC	perfluorocarbons
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PMP	probable maximum precipitation
PoF	probability of failure
Ppb	parts per billion
PPV	peak particle velocity

QC	Quebec
QNS&L	Quebec North Shore and Labrador
RCP	representative concentration pathways
RMS	root mean square
RNC	Royal Newfoundland Constabulary
ROM	run-of-mine
RSA	Regional Study Area
SAR	Species at Risk
SARA	*Species at Risk Act*
SDR	systematic data recovery
Se	selenium
SE	southeast
SFE	Shake Flask Extraction
SO_2	sulphur dioxide
SOCC	Species of Conservation Concern
SSAC	Species Status Advisory Committee
SW	southwest
t	tonne
t/d	tonne per day
TCU	true colour unit
TDS	total dissolved solids
TFe	total iron
The Project	Joyce Lake Direct Shipping Iron Ore Project
TP	total phosphorus
TPM	total particulate matter
TRT	Tshiuetin Rail Transportation
TSP	total suspended particulate matter
TSS	total suspended solids
U	uranium
UFR	upward flux ratio
ULR	upward light ratio
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
US EPA	United States Environmental Protection Agency
USgpm	US gallons per minute
USGS	United States Geological Survey
UV	ultraviolet
V	volt
VC	Valued Component
W/m²	Watts per square metre
WCI	Western Climate Initiative
WLEMDIBAA	Western Labrador Economic Major Development Impacts and Benefits Agreement Area
WNS	White-nose Syndrome
WQMA	Water Quality Monitoring Agreement
WWTP	wastewater treatment plant
yr	year
Zn	zinc

GLOSSARY

Definitions of key terms used in the EIS are provided in the following list.

100–year storm	A storm whose intensity level has a one percent chance of occurring in any given year.
Indigenous traditional knowledge	Includes, but is not limited to, the knowledge Indigenous Peoples have accumulated about wildlife species and their environment.
Acid-Base Accounting	An analytical technique applied to mine wastes and geologic materials that determines the potential acidity from sulfur analysis versus the neutralization potential. It is used to predict the potential of that material to be acid producing or acid neutralizing. http://www.gardguide.com/index.php/Glossary.
Acoustic environment	The complete set of all objects and their respective physical properties having an influence on the sound field that surrounds a listener. http://keithyates.com/glossary. htm.
Acid Rock Drainage (ARD)	A low pH, metal–laden, sulfate–rich drainage that occurs during land disturbance where sulfur or metal sulfides are exposed to atmospheric conditions. It forms under natural conditions from the oxidation of sulfide minerals and where the acidity exceeds the alkalinity. Non–mining exposures, such as along highway road cuts, may produce similar drainage.
Bag Limit	A law imposed on hunters and anglers restricting the number of animals within a specific species that may be retained.
Bedrock stratigraphy	The arrangement or sequencing of strata of the native consolidated rock underlying the surface and their interpretation in terms of mode of origin and geologic history.
Carbon dioxide equivalent (CO_{2eq})	The result of the aggregation of greenhouse gases (GHG) which takes into account their respective global warming potentials.
Community knowledge	Information held by community members, such as farmers, hunters, fishers and naturalists, who are familiar with the environment in a specific geographic area.
Concentrator	Machinery designed to process mined ore into a more highly refined, concentrated product.
Coupler	A connector of mechanical components or systems.
Community health	The combination of sciences, skills, and beliefs directed towards the maintenance and improvement of the health of all the people in a community through collective or social actions.
Critical habitat	A habitat area essential to the conservation of a listed species.
Crushing and screening plant	Area where grinding, screening, spiral concentration and magnetic concentration take place.
Cumulative environmental effects	Environmental effects likely to result from a project in combination with the environmental effects of other past, existing, and future projects or activities.
Cumulative impact assessment	The critical analysis and summary of potential / realized cumulative impacts on an environment.
Diversion ditches	A drainage depression or ditch built across the top of a slope to divert surface water from that slope.

Ecological Land Classification (ELC)	The division of land based on its ecological role in the environment.
Esker	A long ridge of gravel and other sediment, typically having a winding course, deposited by meltwater from a retreating glacier or ice sheet.
Geographic extent	The geographic area within which an environmental effect of a defined magnitude occurs (e.g., site-specific, local, regional, provincial, national, international).
Hydraulic conductivity	A property of vascular plants, soil, or rock that describes the ease with which water can move through pore spaces or fractures.
Ice-out	The annual thawing of winter ice on a body of water.
Littoral habitat area	Aquatic habitat that is close to shore.
Load-out facilities	Area designed to receive concentrate after transportation.
Magnetic separation	A process in which magnetically susceptible material is extracted from a mixture using a magnetic force.
Marshalling yard/area	Transition area used for receiving and holding mineral shipments before further transportation.
Processing	The process by which ore is worked into a concentrate and transported to a stockpile awaiting movement off–site.
Progressive rehabilitation	Rehabilitation done continually and sequentially within a reasonable time during the entire period that a project continues.
Power easement	A license to use a power source owned by another person/entity.
Peak Particulate Velocity (PPV)	The velocity of vibrations through a solid surface.
Rail loop	A section of railway that leaves the main track but re–joins it further down the line.
Reasonable worst case scenario	The most negative outcome expected to occur within reason due to project activities.
Scarify	Creating cuts of scratches in a surface.
Settling/Sedimentation ponds	A device used to treat turbidity in industrial wastewater
Significance thresholds	A quantitative or qualitative standard, or set of criteria, pursuant to which the significance of a given environmental effect may be determined.
Sky glow	The illumination of night sky in urban areas.
Slope stability	Resistance of inclined surface to failure by sliding or collapsing.
Storage coefficients	Used to represent the storage coefficient of an aquifer which is the volume of water released from an aquifer per 1 foot surface area per 1 foot change in head.
Tailings	The materials left over after the process of separating the valuable fraction from the worthless fraction (gangue) of an ore. Note that there will be no tailings associated with this Project.
Temporal boundary	A restriction that is time dependent.
Waste rock	Rock that remains after the desired minerals have been extracted.
Watershed	An area or region drained by a river, river system, or other body of water.
Waste Rock Disposal Area	An area designated for storing rock that remains after the desired minerals have been extracted.

KEY SUBJECT INDEX