



**ENVIRONMENTAL IMPACT STATEMENT GUIDELINES**

**for the**

**Joyce Lake Direct Shipping Iron Ore Project**

Prepared by:

The 2143 Environment Assessment Committee for the Minister of the Department of Environment and  
Climate Change, Government of Newfoundland and Labrador

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## GLOSSARY OF ACRONYMS AND ABBREVIATIONS

ACCDC	Atlantic Canada Conservation Data Centre
ANFO	Ammonium Nitrate/Fuel Oil
ARD	Acid Rock Drainage
BACT	Best Available Control Technology
CCME	Canadian Council of Ministers of the Environment
CEAA	<i>Canadian Environmental Assessment Act</i>
CEPA	<i>Canadian Environmental Protection Act (1999)</i>
CNWA	<i>Canadian Navigable Waters Act</i>
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
ECC	Newfoundland and Labrador Department of Environment and Climate Change
ECCC	Environment and Climate Change Canada
EPP	Environmental Protection Plan
EPR	Environmental Preview Report
GHG	Greenhouse Gases
HC	Health Canada
MBCA	<i>Migratory Birds Convention Act</i>
MEND	Mine Environment Neutral Drainage
mg/m <sup>3</sup>	Milligrams per cubic metre
ML	Metal Leaching
MDMER	<i>Metal and Diamond Mining Effluent Regulations</i>
NL	Government of Newfoundland & Labrador
NLEPA	Newfoundland and Labrador <i>Environmental Protection Act</i>
NLESA	Newfoundland and Labrador <i>Endangered Species Act</i>
NPAG	Non-Potentially Acid Generating
NO <sub>x</sub>	Nitrogen Oxides
PAH	Polycyclic Aromatic Hydrocarbon
PAG	Potentially Acid Generating
PLS	Plain Language Summary
PM <sub>2.5</sub> , PM <sub>10</sub>	Particulate Matter (subscript indicates size threshold, in microns)
SAR	Species at Risk
SARA	<i>Species at Risk Act</i>
SO <sub>2</sub>	Sulphur Dioxide
SOCC	Species of Conservation Concern
SSAC	Species Status Advisory Committee
VEC	Valued Ecosystem Component
VOC	Volatile Organic Compounds

## 1.0 INTRODUCTION

The proponent, Joyce Direct Iron Inc., is proposing to develop an iron ore mine within western Labrador, approximately 20 km northeast of the Town of Schefferville, Québec, and located in an area which is subject to the asserted Aboriginal rights of five Indigenous governments/organisations. The project will use a process involving the dry crushing and dry screening of ore to produce up to 2.5 million tonnes of product per year of iron ore products. Products will be trucked to the existing rail owned by Tshiuetin Rail Transportation Inc., then along the Quebec North Shore and Labrador rail for delivery to the Port of Sept-Îles, Québec.

The project will consist of an open pit which will require dewatering of Joyce Lake; a low grade stockpile; waste rock and overburden stockpiles; a modular/portable dry crushing and screening processing plant; an accommodations complex; ancillary infrastructure to support the mine and dry processing plant; an approximately 43 km haul road between the processing plant and rail yard; a 1.2 kilometre rock causeway linking the open pit area to the mainland across Iron Arm; and a 7 kilometre long rail loop with rail yard for loading products. As the crushing and screening plant will use a dry process to produce final products, no tailings management is required. Construction is expected to last one year, followed by seven years of operation and one year for decommissioning and rehabilitation.

The Project requires Environmental Assessment (EA) under the Newfoundland and Labrador *Environmental Protection Act (NLEPA)*, specifically, the preparation of an Environmental Impact Statement (EIS). These requirements are discussed in further detail in Section 2.2.

The Project is also undergoing EA under the *Canadian Environmental Assessment Act* and the final guidelines can be found at the Impact Assessment Agency of Canada's (formerly the Canadian Environmental Assessment Agency) website at <https://ceaa-acee.gc.ca/050/evaluations/proj/80015>.

### 1.1 Purpose of the Environmental Impact Statement Guidelines

On November 3, 2021, the Minister of Environment and Climate Change (ECC) informed the proponent that an environmental impact statement (EIS) is required for the proposed Joyce Lake Direct Shipping Iron Ore Project. The purpose of these guidelines is to identify for the proponent the nature, scope, and minimum information and analysis required in preparing the EIS.

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 and additional detail, studies, and/or examination of components may be required. 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.

The EIS is a statement of the proponent's environmental conclusions and commitments related to the undertaking, and must be explicitly endorsed by the proponent.

For the purpose of these guidelines:

"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 two or more of them.

"Environmental effect" means a change in the present or future environment that would result from an undertaking.

"Follow-up Program" means a monitoring program:

- (a) to determine the effectiveness of mitigation measures, and
- (b) for compliance with terms and conditions applicable to the release.

"Minister" means the provincial Minister of the Department of Environment and Climate Change.

"Undertaking" means an enterprise, activity, project, structure, work or proposal and a modification, abandonment, demolition, decommissioning, rehabilitation and an extension of them that may, in the

opinion of the minister, have a significant environmental effect. The term undertaking refers to a project that must be registered for environmental assessment. The terms “project” and “undertaking” are used interchangeably in these guidelines.

A “proponent” may be a person, corporation or government department that owns, manages, or controls a proposed project.

## **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.

The EA of this project shall, in a manner consistent with the purposes above:

- consider and evaluate alternatives to the Project, or its components, and alternative means of carrying out the Project, or its components, that are technically and economically feasible;
- document public and Aboriginal consultation activities in a manner that is transparent and accessible;
- propose measures to avoid or mitigate adverse environmental effects;
- propose measures to enhance or prolong beneficial environmental effects;
- describe residual (post-mitigation) 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;
- assess the cumulative environmental effects of the Project in combination with other projects and activities that have been or will be carried out;
- 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 adverse environmental effects after mitigation measures are implemented;
- specifically list and cite all sources of information in the EIS;



- outline the design of studies necessary to provide additional information for the preparation of the EIS;
- address concerns identified during Aboriginal consultation activities by including within the EIS specific responses to those concerns and, where appropriate, specific proposals for measures to address them;
- address concerns identified during the public information sessions by including within the EIS specific responses to those concerns and, where appropriate, specific proposals for measures to deal with them; and
- as soon as they have been completed, provide copies of all reports or studies undertaken in order to satisfy these guidelines.

### 1.2.2 Local Knowledge and Indigenous Traditional Knowledge

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.

Local knowledge and Indigenous traditional knowledge 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.

Indigenous traditional knowledge has an important contribution to make to an EA. Numerous issues relevant to the review process may be informed by Indigenous traditional knowledge, including harvesting, use of lands and resources for traditional purposes, cultural well-being, and the use of lands and heritage resources.

Although the bases for Indigenous traditional knowledge and science-based knowledge can differ, they may on their own or together, contribute to the understanding of these issues.

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 may differ among communities and persons with respect to the use, management and protection of this knowledge.

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 and public and Aboriginal consultation activities, in keeping with appropriate ethical standards and without breaching obligations of confidentiality.

### 1.2.3 Sustainable Development

Sustainable development 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.

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.

The EA of the Project, including its analysis of alternatives, 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.

### 1.2.4 Precautionary Approach

One of the purposes of EA is to ensure that Proponents consider the Precautionary Principle. If an undertaking 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 or Indigenous traditional knowledge is lacking.

The Proponent shall indicate how the precautionary principle was considered in the design of the Project in at least the following ways:

- demonstrate that all aspects of the Project have been examined and planned in a careful and precautionary manner to prevent or minimize 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;
- outline and justify the assumptions made about the effects of all aspects of the Project and the approaches to minimize these effects;
- evaluate alternative means of carrying out the Project and compare them in light of risk avoidance and adaptive management capacity;
- in designing and operating the Project, demonstrate that priority has been given to strategies that avoid the creation of adverse effects;
- develop contingency plans that explicitly address accidents and malfunctions, e.g., environmental emergency plans;
- 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
- present public and Indigenous views on the acceptability of all of the above.

## **2.0 THE ENVIRONMENTAL ASSESSMENT PROCESS**

### **2.1 Contact for the Environmental Assessment**

John Reynolds (EAC Chair)  
Environmental Scientist  
Environmental Assessment Division  
Department of Environment and Climate Change  
P.O. Box 8700  
St. John's NL A1B 4J6

Telephone: (709) 729-0090

Email: [johnreynolds@gov.nl.ca](mailto:johnreynolds@gov.nl.ca)

## **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, 2003*. The Environmental Assessment Division of the Newfoundland and Labrador Department of Environment and Climate Change (ECC) administers the process including:

- consulting at every stage with interested government departments, the public and Indigenous Governments and Organizations;
- evaluating submissions by Proponents and reviewers; including Indigenous Governments and Organizations;
- advising the Minister on potential environmental effects prior to decisions; and
- monitoring released projects to ensure compliance and effectiveness of mitigation.

An undertaking that triggers review pursuant to the *Environmental Assessment Regulations, 2003* is required to be registered for examination by ECC. 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. At the conclusion of the review period, the Minister has four options: release the undertaking from further assessment, require an Environmental Preview Report (EPR), require an EIS, or notify the Lieutenant-Governor in Council if the undertaking is contrary to law or to a policy that the Lieutenant-Governor in Council has declared to be the policy of the government of the province. On November 4, 2021, the Minister advised Joyce Direct Iron Inc. that an EIS is required.

### 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 and, once completed, the Proponent shall submit printed and electronic copies of the EIS to the involved government agencies in the quantities specified in Table 1. 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, and shall provide copies of the EIS to consulted Indigenous governments/organisations.

Baseline studies will be required 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. The required baseline studies are discussed further in section 4.2.

**Table 1 Environmental Impact Statement Copy Requirements**

Organization	Electronic Copies *	Printed copies	
		EIS	PLS
ECC	10	1	1
DFO	1	1	0
ECCC (federal)	2	1	0
Public Viewing Locations (TBD)	NA	1 at each location	1 at each location

\*Electronic copies to be provided on CD or thumb drive

### 2.3 Provincial - Federal Cooperation

The Governments of Newfoundland and Labrador and Canada intend to conduct respective EA reviews in a cooperative manner, but retain separate decision making. The process will feature separate EIS guidelines, separate Aboriginal consultation processes and practices, and separate public comment periods. The Proponent may submit a singular EIS that is intended to fulfill the requirements of both jurisdictions.

## 2.4 Consultation

Indigenous Governments and Organizations and the public will have several opportunities to participate in the EA and provide their views on the potential environmental effects of the Project. These are outlined in Table 2.

*Table 2: Indigenous and Public Participation Opportunities*

<b>Opportunity</b>	<b>Duration</b>
Comment on Draft EIS Guidelines	40 days
Comment on Proponent's EIS or Plain Language Summary (PLS)	50 days
Comment on any additional EIS requirements, i.e., Addendum (if required by the Minister)	50 days

Electronic and hard copy versions of documents will be provided to ECC and these will be made available for Aboriginal consultation and public review. Key documents will be available on the ECC Environmental Assessment webpage for this EA: <https://www.gov.nl.ca/ecc/projects/project-2143/>.

Public comment periods will be announced in the EA Bulletin, and posted on the NL Government News Release webpage (<https://www.gov.nl.ca/releases/>) and on the ECC Environmental Assessment webpage mentioned above. Interested parties may contact the EA Committee Chair identified in Section 2.1 for further information regarding comment periods.

The EA Division will commence Aboriginal consultation periods by sharing the pertinent document(s) with Indigenous governments/organisations and inviting comments within a prescribed timeframe. All comments received will be accorded full and fair consideration.

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. 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. The Proponent must record and respond to the concerns of the local communities regarding the potential environmental effects of the Project. Appendix A provides additional information on the notification requirements for the information sessions.

#### 2.4.1 Aboriginal Consultation

The Government of Newfoundland and Labrador (NL) is committed to consulting Indigenous Governments and Organizations when NL contemplates making land and resource development decisions that have the potential to adversely impact asserted or proven Aboriginal rights.

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 Aboriginal rights.

NL also aims to maintain, foster and improve effective working relationships among Indigenous Governments and Organizations, the Proponent and NL.

In particular, NL's consultation process is intended to produce better communication, stronger relationships and easier resolution of issues among Indigenous Governments and Organizations, the Proponent and NL.

Consultation should be conducted with the objective of helping ensure that land and resource development decisions minimize or, where reasonably practicable, avoid or eliminate adverse impacts on asserted rights.

For clarity, the Province will consult only those Indigenous Governments and Organizations whose members have asserted or proven Aboriginal rights in the Project area.

To assist the consultation processes, the EIS must describe all concerns raised by Indigenous Governments and 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 Aboriginal rights, as conveyed to the Proponent by Indigenous Governments and Organizations or NL.

The Proponent must ensure that it engages with Indigenous Governments and Organizations whose members' asserted or proven Aboriginal rights may be adversely impacted by the Project. In preparing the EIS, the Proponent must ensure that it provides sufficient, early notification; and timely, updated information to Indigenous Governments and Organizations to ensure they are reasonably informed about the Project. The Proponent shall also discuss with Indigenous Governments and Organizations the most

practical and appropriate method of engagement. This will require the Proponent to provide up-to-date information describing the Project to the relevant Indigenous Governments and Organizations. The Proponent shall also involve Indigenous Governments and Organizations in determining how best to deliver that information (e.g. the types of information required, formats, and the number of community meetings required).

The EIS must document any potentially adverse environmental effects on asserted or proven Aboriginal rights 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. NL will use this information towards fulfilling its duty to consult Indigenous Governments and Organizations about the Project. In addition to Proponent-involved Aboriginal consultation, NL may undertake or require additional consultation or engagement activities directly with Indigenous Governments and Organizations.

#### 2.4.2 Record of Aboriginal and Public Consultation

The EIS must describe all Aboriginal 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 Governments and Organizations and the public and the Proponent's responses.

### **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 different phases of this Project, i.e., construction, development, production, operation and maintenance, decommissioning, rehabilitation and closure of the proposed Project, as described in the Proponent's registration document dated May 2021, and registered for provincial environmental assessment on May 21, 2021.



### 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 and maintenance, decommissioning, rehabilitation and closure of the following components:

- an open pit including dewatering infrastructure to dewater Joyce Lake and to manage groundwater levels;
- waste rock disposal areas and overburden stockpiles;
- low grade ore stockpiles, run of mine ore stockpiles and final product stockpiles;
- dry crushing and screening plant for dry processing;
- all ancillary infrastructure to support the mine and process plant, including water supplies, the accommodations camp and office buildings, central power plant, transmission lines, maintenance workshop, truck wash, fuel storage and fueling stations, mobile equipment, sewage and water treatment units, explosives magazine, storm water management and drainage infrastructure (sediment ponds, berms, drainage ditches, and pumps);
- all haulage, mine site and access roads;
- rock causeway and bridges;
- rail transportation component including rail loop construction to connect the haulage road to the Tshiuetin Rail Transportation Inc. rail system;
- all quarry sites that could potentially be developed as part of the Project (including any sites at which the excavation and evaluation of quarry materials may take place in advance of deciding which of the potential quarry sites will be used for the project), and
- any other infrastructure required.

### 3.2 Factors to be Considered

The EIS shall consider:

- the purpose of the Project;
- alternatives to the Project;
- the need for the Project;
- alternative means of carrying out the Project or components of the Project that are technically and economically feasible and the environmental effects of any such alternative means;
- the environmental effects of the project, including the environmental effects of malfunctions, spills or accidents that may occur in connection with the project and any cumulative environmental

effects that are likely to result from the Project in combination with other projects or activities that have been or will be carried out in relation to the identified valued ecosystem components (VECs);

- measures that are technically and economically feasible and that would mitigate any adverse environmental effects of the Project;
- measures that would enhance or prolong beneficial environmental effects;
- residual (post-mitigation) 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;
- 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;
- 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;
- comments from the Indigenous Governments and Organizations and from the public that are received in accordance with *NLEPA* and regulations by including, within the EIS, specific responses to those concerns and, where appropriate, specific proposals for measures to deal with them;
- local knowledge and Indigenous traditional knowledge;
- the capacity of renewable resources that are likely to be affected by the Project to meet the needs of the present and those of the future; and
- the requirements of a follow-up and monitoring program for the Project.

### **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, and Aboriginal and public consultation.

The assessment of environmental effects shall focus on valued ecosystem 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.

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.

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.

Temporal and spatial boundaries must reflect:

- the geographic range over which the project's environmental effects may occur, recognizing that some effects shall extend beyond the project area;
- timing/scheduling of project activities;
- natural variations of each VEC (e.g. species ranges and/or habitat suitability);
- the time required for recovery from an effect; and
- cumulative effects of other projects, land use, and activities on VECs.

The VECs to be considered must include:

- atmospheric environment including Greenhouse Gases (GHG);
- landforms, soils, snow and ice;
- water resources (surface and ground water);
- avifauna and other wildlife and their habitats;
- species at risk, designated species and species of conservation concern;
- human health;
- historic and cultural resources;
- other contemporary use of land and resources; and
- economy, employment and business.

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. The EIS shall describe, in detail, study methods and analytic methods, including incorporation of information gathered through public and Aboriginal consultation.

#### **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.

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. The Proponent must also prepare a Plain Language Summary (PLS) to accompany the EIS. The PLS is described in Section 4.1.2 and will be used to aid public review of the conclusions of the EIS.

The EIS shall be a stand-alone document, including the required baseline studies, 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 effects 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.

It is recommended that the EIS be presented in the sequence outlined in these Guidelines. The EIS shall include a Table of Concordance to these Guidelines, so that information requirements identified herein can be easily located in the EIS. 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.

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. Where technically feasible, provide geographic information in standard Geographic Information System (GIS) mapping (digital) format. The EIS and all associated reports and required baseline studies shall use System International (SI) units of measure and terminology.

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, as identified by the Proponent and through these guidelines.

Section 4 is organized into two parts:

- Section 4.1 is the Content of the EIS and describes the layout and required content of the EIS; and
- Section 4.2 is the Detailed Guidance on Select Environmental Components which provides an overview of the required baseline studies and approach.

The information included in this document is not intended to be exhaustive and additional detail, studies, or examination of additional components may be required.

## **4.1 Content of the EIS**

### **4.1.1 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.

### **4.1.2 Plain Language Summary**

In order to enhance understanding of the EIS and facilitate consultation activities, a Plain Language Summary (PLS) of the EIS must be prepared. The PLS will summarize the Project and the major findings and conclusions of the EIS. It must be a stand-alone document no longer than approximately 50 pages, excluding annexes and appendices. It should clearly describe the Proponent, the Project (including rehabilitation and closure activities), and the environmental effects of the Project. Maps at appropriate sizes and scales must be included to clearly show the location of all Project components and/or environmental components. 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. The PLS should be organized as follows:

## **Introduction**

- Project Overview
- Environmental Assessment Process
  - Purpose of the EIS
  - Provincial EA Requirements

## **Project Description**

- Purpose of and Need for the Project
- Project Description
  - Location
  - Components
  - Activities
  - Schedule

## **Scope of the Assessment**

- Scope of the Project
- Factors to be Considered
- Scope of the Factors
  - Identification of VECs
  - Spatial and Temporal Boundaries

## **Project Alternatives**

- Alternatives to the Project
- Alternative Means of Carrying out the Project
  - Description of Alternative Means
  - Environmental Effects of Technically and Economically Feasible Alternative Means
  - Selection of a Preferred Alternative Means

## **Consultation**

- Aboriginal and Public Consultation and Engagement Activities undertaken for the EA (Proponent and Government)

## **Existing Environment**

### **Environmental Effects Assessment**

- Method and Approach
- VECs
  - Potential Environmental Effects
  - Mitigation Measures
  - Residual Environmental Effects
  - Government, Indigenous Governments and Organizations, and Public Comments; and, Proponent's Responses

- Effects of the Environment on the Project
  - Method and Approach
  - Potential Effects
  - Mitigation
  - Residual Effects
  - Government, Indigenous Governments and Organisations, and Public Comments; and, Proponent's Responses
- Effects of Possible Accidents or Malfunctions
  - Method and Approach
  - Potential Effects
  - Mitigation
  - Residual Effects
  - Government, Indigenous Governments and Organisations, and Public Comments; and, Proponent's Responses
- Effects on Capacity of Renewable Resources
- Cumulative Environmental Effects
  - Approach
  - Scoping
  - Potential Cumulative Effects
  - Mitigation Measures
  - Residual Effects
  - Government, Indigenous Governments and Organisations, and Public Comments; and, Proponent's Responses

**Outline of Environmental Protection Plans, including Emergency Response Plans**

**Outline of Environmental Effects Follow-Up and Monitoring Programs**

**Benefits of the EA to Newfoundlanders and Labradorians**

**Overall Conclusions of the Proponent**

4.1.3 Project Introduction

4.1.3.1 The Proponent

The EIS shall:

- identify the Proponent and the name of the legal entity that would develop, manage and operate the Project;
- provide contact information for the Proponent (e.g., name, address, telephone, facsimile, e-mail);
- explain corporate and management structures, as well as insurance and liability management related to the Project;
- explain corporate environmental, Indigenous relations and community relations policies;

- specify how the Proponent would ensure that corporate policies are implemented and respected for the Project;
- summarize key elements of its environmental management system and how it would be integrated into the Project; and
- identify key personnel and consultants responsible for preparing the EIS. The qualifications of all contracted scientific experts, including 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.

#### 4.1.3.2 Project Overview

The EIS shall briefly summarize the development proposal. If the Project is a component of a larger operation, the EIS shall outline the larger context and present the relevant references, if available. 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 4.1.4 of this document.

#### 4.1.3.3 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. In addition, the EIS shall:

- identify the environmental regulatory approvals and legislation that are applicable to the Project at federal, 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;
- identify environmental government policies, resource management, planning or study initiatives pertinent to the Project and discuss their implications;
- identify any relevant Land Use Plans, Land Zoning and/or Community Plans;
- describe land tenure in and adjacent to the Project area;
- 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



- 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.

#### 4.1.3.4 Non-Government Participants in the Environmental Assessment

The EIS shall identify the main participants in the EA including Indigenous Governments and Organizations, community groups and environmental organizations.

#### 4.1.3.5 Land Claims Agreements and Interim Agreements

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 Governments and Organizations and, where applicable, address how they may affect or be affected by the Project.

#### 4.1.3.6 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.

### 4.1.4 Project Description

#### 4.1.4.1 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.

The purpose of the Project shall include an economic analysis that provides a clear description of methods, assumptions and conclusions in relation to 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 costs and benefits at the regional, provincial and national levels.

#### 4.1.4.2 Alternatives to the Project

The EIS must include an analysis of alternatives to the Project; describing functionally different ways to meet the Project's need and purpose. The EIS shall:

- identify the alternatives to the Project that were considered;
- develop criteria to identify the major environmental, economic and technical costs and benefits of the alternatives; and
- identify the preferred alternatives to the Project based on the relative consideration of the environmental, economic, and technical costs and benefits.

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, pandemic levels and other factors, either prior to construction or during the life of the Project.

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. The EIS shall demonstrate how the preferred alternative contributes to sustainable development. 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.

In assessing alternatives, the Proponent shall consider Indigenous perspectives on the potentiality for adverse impacts of the feasible alternatives on asserted or proven Aboriginal rights.

#### 4.1.4.3 Project Location

The EIS shall provide a concise description of the geographic 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:

- any existing designated or planned environmentally sensitive or significant areas; national, provincial and regional parks; protected natural areas and watersheds; ecological reserves; impacted watersheds from the project; watersheds, sub-watersheds, waterbodies, and wetlands directly impacted by the project footprint; riverine and lacustrine fish habitats; mature and interior forest habitat for migratory birds; and habitats of designated species at risk, including critical habitat for the designated species; areas of concentration of other wildlife; and other sensitive areas and habitat;
- the current land use in the area and the relationship of the Project facilities and components with any existing or future land use; and
- 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.

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, any existing infrastructure, municipal drinking water supply areas (protected and unprotected) if applicable, adjacent land uses and important environmental features. In addition, site plans/sketches and photographs showing project location, site features and the intended locations of project components should be included.

#### 4.1.4.4 Project Description

##### 4.1.4.4.1 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). The EIS shall present descriptions, locations, plans, figures and/or drawings for each facility, as appropriate, to convey information on potential environmental interactions, including:

- waste rock storage (including discussion of ore contaminants that may affect processing and volume of waste rock);
- overburden storage areas;
- processing facility;

- all ancillary structures;
- permanent and temporary access infrastructure (including road and rail) to be constructed;
- existing or proposed access roads where public access is intended to be restricted. Restricted roads or sections of road will require the proponent to apply for, and obtain, a Surface Lease under the Mineral Act.
- all effluent generation, treatment systems, handling and discharge locations, as well as all anticipated effluents and contaminants, including ammonia residue from blasting operations;
- air emission sources (e.g., dust lift-off, diesel generators, heavy equipment, roads, waste rock, crushing, grinding, process heaters, blasting, pits, laydown areas, stockpiles, waste rock storage, parking lots, etc.);
- ambient air sampling stations and their locations;
- noise sources, expected noise levels and noise monitoring locations;
- sources and frequency of vibrations;
- water control structures or diversions that may be required to facilitate the Project;
- any utility installations, including transmission lines, generators, towers and poles and any aerial crossings over water bodies;
- causeway, bridges and any watercourse crossings along proposed access roads and railway, including any preliminary designs for crossing structures;
- all infrastructure construction, including haulage roads and ancillary structures;
- fuel, fueling stations and/or chemical storage systems, including secondary containment (dykes and double piping) and a list of fuels and/or chemicals to be stored;
- explosive storage facilities;
- all quarry sites that could potentially be developed as part of the Project (including any sites at which the excavation and evaluation of quarry materials may take place in advance of deciding which of the potential quarry sites will be used for the project, and these activities described);
- sources of lighting emissions associated with the Project; and
- viewsapes that could be affected by the Project.

#### 4.1.4.4.2 Activities

The EIS shall include descriptions of the construction, operation, maintenance, foreseeable modifications, including the expansion and lengthening of the operations and, where relevant, decommissioning,

rehabilitation and closure of sites and facilities associated with the Project. The proponent is reminded of compliance with Section 4 of the *Mining Act*, which requires submission of a development plan, a rehabilitation and closure plan and provision of financial assurance. Furthermore, the proponent is reminded that it is to take all reasonable steps to progressively rehabilitate a site whether or not closure has commenced, as per section 8 of the *Mining Act*.

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. A schedule must be provided, showing time of year, frequency and duration of project activities. This schedule should indicate how it accommodates the ability of Indigenous Governments and Organizations to conduct traditional and leisure activities.

The description of the construction and operation activities shall include:

- estimates of emission quantities (use units of t/yr and mg/m<sup>3</sup>);
- A waste management plan that describes the storage, handling, treatment and disposal of waste water, solid waste, hazardous waste and includes waste reduction strategies.;
- spill potentials and prevention strategies (e.g., hydraulic hose ruptures, fueling mishaps, tank failure, etc.);
- long-term operation, maintenance, decommissioning, rehabilitation, closure and surveillance of applicable project components.

Operation activities should make use of best available control technology and utilize best practices in the industry.

The EIS should describe proposed means to treat waste resulting from the Project and/or the capacity of contractors to do so.

The EIS should describe any regular inspection and maintenance that may be required for proposed, causeways, bridges, transmission lines, existing and proposed access roads, as well as for the open pit mine and associated facilities and infrastructure. Activities involving periods of increased environmental disturbance or the release of materials into the environment are to be highlighted.

The level of detail in the description of the Project's facilities and activities shall be sufficient to enable prediction of environmental effects.

#### 4.1.4.4.3 Labour Force Requirements

The EIS shall include descriptions of the construction, operations, rehabilitation and closure labour force requirements, including:

- National Occupation Classification (NOC 2016) 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 code);
- A commitment to develop a Gender Equity and Diversity Plan (GEDP) to improve employment and training opportunities for women, Indigenous persons, gender diverse individuals and other underrepresented groups. The Plan's main components should include a women's employment plan, a diversity plan for Indigenous persons and other underrepresented groups, and a business access strategy for these target populations;
- The approximate time lines for each of the positions during both construction and operation phases of the project. This would include the number of positions for each 4-digit NOC 2016 code throughout the project at specified time intervals (monthly or at least quarterly) which would show levels of employment throughout the project timeline;
- An indication of whether the positions are full-time equivalent or if they are the actual number of positions; if they are indeed the actual number of positions, how many are full-time vs. part-time;
- An estimate of the number of apprentices (by level and trade/4-digit NOC code) and journeypersons required;
- 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;
- The anticipated source of the workforce, including an estimate of local employment (local area, provincial) and any strategies for recruitment. This should also include clarification on which positions would be direct hires, and which would be from companies contracted to carry out project work, including:
  - an estimate of the number of apprentices (by level) and journeypersons required;
  - the estimated percentage of the hired workforce from Newfoundland and Labrador;
  - the estimated percentage of hired workforce from Labrador, by gender; and
  - the estimated percentage of hired Indigenous workforce, by gender.

#### 4.1.4.5 Alternative Means of Carrying out the Project

The EIS must identify and describe alternative means of carrying out the Project, or components of 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;
- a description of the conditions or circumstances that could affect or alter these choices, such as market conditions, socio-economic conditions, pandemic conditions, regulatory changes and other factors, either prior to construction or during the life of the Project;
- the environmental effects of the technically and economically feasible alternatives, in sufficient detail to allow comparison with the effects of the Project; and
- the preferred means of carrying out the Project or its components based on the relative consideration of environmental effects including the criteria and rationale for their selection.

Any potentially adverse impacts of all feasible alternative means on asserted or proven Aboriginal rights must also be identified.

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.

At a minimum, the assessment of alternative means of carrying out the Project shall include:

- waste rock storage management and location;
- overburden storage and management;
- transportation, including alternative rail routes;
- alternatives to diesel fuel and alternative sources of power supply;
- dewatering options at Joyce Lake;
- contracting or lengthening of the operations;
- labour supply;
- mining methods (e.g., open pit versus others);
- ore processing/beneficiating methods; and
- rehabilitation and reclamation methods.

#### 4.1.5 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. The level of detail shall be sufficient to:

- identify and assess any adverse environmental effects that may be caused by the Project;
- identify and characterize the beneficial effects of the Project; and
- provide the data necessary to enable effective follow-up.

The baseline description shall characterize environmental conditions resulting from historic and present activities in the local and regional study area. The physical and biological environments shall be described based on an ecosystem approach that considers scientific and traditional knowledge and perspectives regarding ecosystem health. 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.

In assessing effects 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 (i.e. ranges) 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.

Habitat use at regional and local scales should be characterized by type of use (e.g., spawning, breeding, migration, feeding, nursery, rearing, wintering), frequency and duration. Emphasis must be on those species, communities and processes most sensitive to project effects. However, the interrelations of these components to the greater ecosystem and communities of which they are a part must be indicated. The EIS must address issues such as habitat, migratory behavior, 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.



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 with current surveys and studies.

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 effects the Project may have on these receptors, appropriate baseline evaluation should be undertaken (e.g., baseline noise, air quality, drinking water, country foods evaluation).

The EIS must also describe existing geology, geochemistry, geomorphology, soils and terrain at the project site and in the immediate vicinity.

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.

#### 4.1.6 Environmental Effects and Assessment

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 that have been or known to be carried out. The assessment shall include, but not be limited to, the effect of any environmental change on health and socio-economic conditions and heritage values and on the current and future use of land and resources by the public and members of Indigenous Governments and Organizations. Potential effects from all components of the Project at the site and within the Project's zone of influence shall be discussed. 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.

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. When relying on existing information to meet the requirements of various sections of the EIS Guidelines, the Proponent must include the information directly in the EIS or clearly direct (e.g., through cross-referencing) the reader to where they may obtain the information. With respect to pre-existing baseline studies, the Proponent will append these to the EIS as distinct appendices. 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:

- assumptions should be clearly identified and justified;
- all data, models and studies must be documented such that the analyses are transparent and reproducible;
- the uncertainty, reliability and sensitivity of models used to reach conclusions must be indicated;
- conclusions should be substantiated; and,
- the studies should be prepared using best available information and methods.

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).

The Proponent shall prepare a table describing the proposed Project's anticipated effects, which shall enable the reader to review and consider those effects.

Views of the public and Indigenous Governments and 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 knowledge, understandings, attitudes, beliefs and perceptions of local residents and how these are grounded in their culture, social organizations or historical experience. The EIS shall clearly articulate how relevant issues raised by the public or Indigenous Governments and Organizations have been considered, including any changes to the Project, or mitigation or follow-up measures arising from such consideration.

#### 4.1.6.1 Predicted Future Condition of the Environment if the Undertaking Does Not Proceed

The EIS shall describe the predicted future condition of the environment with respect to the key issues, if the project does not proceed. The predicted future condition of the environment shall help to distinguish project-related effects from environmental change due to natural processes.

#### 4.1.6.2 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);
- a quantitative analysis of the risks of accidents and malfunctions across all phases of the Project; and
- the plausible worst case scenarios and the effects of these scenarios and associated environmental effects.

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.

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 place should an accident/malfunction occur. Factors which contribute to the uncertainty of detecting and mitigating effects associated with accidents and malfunctions must be assessed.

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.).

#### 4.1.6.3 Capacity of Renewable Resources

The EIS shall consider the capacity of renewable resources that are likely to be affected by the Project to meet the needs of the present and those of the future. The EIS shall identify any VECs predicted to experience adverse residual environmental effects, describe how the Project could affect their sustainable use and describe the criteria used in the analysis.

#### 4.1.7 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. The EIS must consider measures that are technically and economically feasible and that would mitigate any 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 its components as well as relocation of certain components, where technically and economically feasible.

The EIS shall describe the standard mitigation practices, policies and commitments that constitute technically and economically feasible mitigation measures and that will be applied. 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.

The EIS shall describe the Proponent's Environmental Protection Plan (EPP) and the environmental management system through which it will be delivered. 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 management plans. 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.

The EIS shall specify the actions, works, minimal disturbance footprint techniques, best available technology, monitoring and surveillance, corrective measures or additions planned during the Project's phases (construction, operation, modification, decommissioning, close-out or other undertaking related to

the Project) to eliminate or reduce the magnitude of adverse effects. 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.

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.

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 listed or 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.

Should the Project be released, the Proponent must ensure that measures are taken to avoid or mitigate any potential adverse impacts on asserted or proven Aboriginal rights in the project area.

In addition, the EIS shall identify the extent to which technology innovations will help mitigate environmental effects. Where possible, it shall provide detailed information on the nature of these measures, their implementation and management, as well as whether follow-up will be required.

#### 4.1.8 Cumulative Effects Assessment

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. An effective cumulative effects assessment will take into account the aggregate effect of the Project in the context of other foreseeable developments and activities.

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. The EIS shall assess any residual cumulative environmental effects that remain after mitigation has been implemented. Notably, a

cumulative effect on a VEC may be important even if the effects of the Project on the VEC are not significant.

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 effect of the Project is predicted to be adverse and likely. 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;
- 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;
- describe and justify the choice of 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;
- describe the mitigation measures that are technically and economically feasible;
- determine the significance of the residual cumulative effects;
- 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; and
- where appropriate, demonstrate how Indigenous traditional knowledge was incorporated in the above requirements for the cumulative effects analysis.

The following past and present projects (as well as planned expansions and extensions) may interact cumulatively with the Project:

- Iron Ore Company of Canada (Labrador Operation);
- Wabush Mines - Tacora Resources;
- Mount Wright Mine – ArcelorMittal;
- Bloom Lake Mine - Québec Iron Ore; Champion Iron

- 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;
- Maritime Transmission Link Project.; and
- Tshiuetin Rail Transportation Line and Quebec North Shore & Labrador Railway

The cumulative effects assessment should not be constrained by federal, provincial or territorial borders. These and other projects and activities (e.g., road development, tourism, outfitters, 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.

The methods used to scope and assess cumulative effects should be clearly described in the EIS, demonstrating how conclusions have been reached.

#### 4.1.9 Effects of the Environment on the Project

In addition to describing environmental effects on the environment as a result of the undertaking, the EIS should also 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 and an analysis of its degree of representativeness for Project conditions 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. 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 effects of the project on air quality, hydrology, hydrogeology, 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. Specifically, the EIS shall include a description of the following components:

- Physiography: topography, drainage network;
- Climate: historical records of total precipitation (rain and snow), mean, maximum and minimum temperatures. These data should be updated with current to-date values where possible and sources

identified. Modelling should be described that also includes how data gaps and data completeness are incorporated.

- 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, infrastructure, cutting and tunneling locations along the railway route etc.);
- Hydrogeological context: hydrogeological characteristics of the different geological units, including the Dolly formation, (hydraulic conductivities, porosity, storage coefficients); groundwater geochemistry and groundwater levels for the areas that are adjacent to, and/or will be disturbed by project activities;
- Streamflow data records (levels and yields) of surroundings lakes, rivers and brooks; and
- Geotechnical properties of the area, 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.

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). The EIS should describe measures that will be implemented to prevent and respond to such events. 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.

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;
- 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: waste rock stockpiles, overburden and organic stockpiles, railway embankments, tunnels, major watercourse crossings and open pits;



- potential effects of the groundwater level on mining operations or potential effects of mining operations on groundwater flow and occurrence; and
- potential effects of climate change on the Project including, but not limited to, the impact of extreme weather events associated with climate change.

The EIS must provide measures and strategies to mitigate the potential effects of the environment on the project.

#### 4.1.10 Environmental Protection

##### 4.1.10.1 Planning

The EIS shall describe the proposed Environmental Protection Plans (EPP), including Emergency Response Plans, for all stages of the Project and include a commitment by the Proponent to implement the EPPs, should the Project proceed. EPPs must be developed in consultation with government agencies, Indigenous Governments and 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 EPPs.

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. The EIS shall include a conceptual discussion of how decommissioning of permanent facilities may occur.

##### 4.1.10.2 Environmental Effects Follow-up and Monitoring Programs

The EIS must include a framework upon which follow-up, including environmental effects monitoring, would be based throughout the life of the Project, including the post-closure phase. Follow-up and monitoring programs 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.

The environmental effects follow-up and monitoring programs 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 and monitoring programs 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. The duration of the follow-up and monitoring programs shall be as long as is needed to evaluate the effectiveness of the mitigation measures.

A schedule for follow-up and monitoring 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.

The description of the environmental effects follow-up and monitoring programs should include:

- the requirements and objectives of the follow-up and monitoring programs;
- a description of the main components of each 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);
- a schedule for the finalization and implementation of the follow-up and monitoring programs;
- a description of the roles and responsibilities for each programs and its review process, by government, Indigenous Governments and Organizations, and the public;
- a discussion of possible involvement of independent researchers;
- 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
- a description of how results will be managed and reported.

Sufficient detail shall be provided to allow independent judgment as to the likelihood that each follow-up and monitoring program will provide the quantity and quality of information required to achieve its objectives.

The NL *Endangered Species Act* and the federal *Species at Risk Act* (SARA) contain provisions requiring that measures be 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 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). The monitoring plan should clearly describe how government departments responsible for the species in question would be engaged in reviewing proposed adaptive management measures, in the event that mitigation measures are not effective.

An Environmental Effects follow up and monitoring program shall be provided, at a minimum, for each VEC.

#### 4.1.11 Residual Adverse Environmental Effects

The EIS must describe any expected residual effects (post-mitigation) of the Project on the biophysical and human environments, after technically and economically feasible mitigation measures have been applied. The residual effects should be described. 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.

The criteria for evaluating 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. The EIS must contain enough detail to enable readers to follow the reasoning and process by which the Proponent assessed the significance of effects.

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 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.

#### 4.1.12 Economic and Social Benefits of the Project

Information on the predicted economic and social benefits of the Project should be presented and include current, to-date information. This shall be considered by Government in assessing the justifiability of any adverse environmental effects or adverse impacts on asserted or proven Aboriginal rights, if necessary.

The Proponent must demonstrate prudent resource management in compliance with Section 6.(1b) of the *Mining Act*, to the satisfaction of the Minister of Industry, Energy and Technology.

#### 4.1.13 Benefits of the EA to Newfoundland and Labrador

The EIS must describe how the EA process for the Project benefits Newfoundlanders and Labradorians, focusing on aspects such as:

- maximized environmental benefits: What expected environmental benefits will be created as a result of the project being assessed?;
- 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;
- Aboriginal consultation: How is Aboriginal consultation throughout the EA expected to influence the Project design and the environmental effects analysis?;
- public participation: How is public participation in the EA expected to influence the project design and the environmental effects analysis?;
- technological innovations: Are new technologies expected to be developed to address environmental effects that could be used for other projects?;
- 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?;
- community and social benefits: Describe any expected changes in project design that would result in indirect benefits to communities and/or social benefits; and,

a commitment to develop a Benefits Agreement that meets the approval of the Minister of Industry, Energy and Technology and a Gender Equity and Diversity Plan that meets the approval the Minister of Industry, Energy and Technology and the Minister Responsible for the Office of Women and Gender Equality.

#### 4.1.14 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.

For all VECs, the EIS must include a table that summarizes:

- the Project's potential adverse environmental effects;
- proposed mitigation and compensation measures;
- proposed follow-up;
- potential residual effects;
- potential cumulative effects;
- potential effects of accidents and malfunctions on the VEC;
- applicable standards or guidelines;
- comments from the public and responses;
- comments from Indigenous Governments and Organizations and responses;
- relationship of the VEC to s asserted or proven Aboriginal rights; and
- commitments made by the Proponent, including the timing and responsibility of each.

#### 4.1.15 References

The proponent shall include a complete and detailed bibliography of all data and information sources used to prepare the EIS. The same requirement applies to each baseline study.

## 4.2 Detailed Guidance on Select Environmental Components

The following section provides an overview of the baseline 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.

### 4.2.1 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.

Baseline studies should generally have the following format:

- (a) Rationale/Objectives: In general, the baseline studies should be conducted to obtain all required data for use in determining the potential for effects on a VEC as well as for monitoring and follow-up programs.
- (b) Study Area: The boundaries of the study area shall be defined depending on the characteristics of the VEC being investigated.
- (c) 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.
- (d) 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;
  - All maps are to be presented using Geographic Information System (GIS) with shape files;
  - Raw data must be included in the Appendices in electronic tabular form; and
  - Identification of all information sources.

The baseline studies, in their entirety should be incorporated into the EIS document as appendices.

#### 4.2.1.1 Atmospheric Environment including Greenhouse Gas (GHG) Emissions

The effects of the Project on the 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.

Although global in scale, greenhouse gas (GHG) emissions will be considered under this VEC. Both the federal government, as part of the 2015 Paris Agreement, and the provincial government, as part of The

Way Forward on Climate Change (2019), have committed to reducing GHG emissions by 30 percent below 2005 levels by 2030. These GHG reduction targets are linked to carbon pricing. The 2016 Pan-Canadian Framework on Clean Growth and Climate Change included commitments to introduce carbon pricing in all provinces and territories. The Province's carbon system went into effect on January 1, 2019 and includes performance standards for large industrial facilities and large scale electricity generation, measured in terms of GHG emissions per unit of output within a facility boundary, and a carbon tax on fuels combusted outside regulated facilities' boundaries. Certain new industrial facilities are also required to utilize best available control technologies (BACT). The *Management of Greenhouse Gas Act* (MGGA) and its regulations are the mechanisms to implement performance standards and BACT, and the *Revenue Administration Act* (RAA) and its regulations are the mechanisms to implement a carbon tax.

Using a project boundary as defined in section 2(c) of the MGGA and the reporting requirements described in sections 4 to 6 and 7(4)(q) of the *Management of Greenhouse Gas Reporting Regulations*, the EIS will provide details on projected annual production by type and annual materials moved, annual energy consumption by type during construction, operating and decommissioning phases (i.e., on-site stationary combustion, electricity generation, mobile transportation and blasting but excluding purchased electricity generated off-site), and associated annual GHG emissions by source during construction, operating and decommissioning phases. This information will determine whether the facility will be regulated under the MGGA (sections 4 and either 5 or potentially 5.1) and its regulations, and specifically whether it will be subject to BACT requirements of the *Management of Greenhouse Gas Regulations* (section 12.1). If GHG emissions within the project boundary are not regulated under a performance standard pursuant to the MGGA (section 5 or 5.1), they will be subject to RAA carbon tax provisions.

The EIS should separately provide details on annual energy consumption by type and annual GHG emissions by source for activities outside the project boundary such as on-road, air and water transportation, purchased electricity (i.e., from Newfoundland and Labrador Hydro), and significant purchased services from providers outside the project boundary. These GHG emissions will be subject to RAA carbon tax provisions.

The EIS will provide information relative to the predicted effects of climate change on the project, e.g., the possibility of flooding or other infrastructure damage. Provincial climate change projections for Wabush should be considered when constructing/ upgrading access and haul roads, causeway, pit and underground workings and buildings.

#### 4.2.1.1.1 VEC Definition and Rationale for Selection

Atmospheric environment is defined as ambient air quality and the acoustic and visual environments (e.g., 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 *Canadian Environmental Protection Act (1999)*(CEPA), and provisions of the *Air Pollution Control Regulations, 2004* under the NLEPA;
- potential effects of climate change on the project and its infrastructure; and
- potential for GHG emissions, under the *Management of Greenhouse Gas Act, 2016*.

GHG emissions have been included within this VEC because total annual project emissions will result in an increase in provincial GHG emissions totals while, at the same time, the provincial government has committed to significant reductions in GHG emissions by 2030. GHG emissions, both within and outside the project boundary, may be subject to provincial carbon pricing regulations.

#### 4.2.1.1.2 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 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; and
    - vehicle emissions, including rail locomotives
- Effects on ambient sound levels associated with:



- construction activities (both at the mine and off-site); and
- mining and concentrating operations (including blasting).
- vehicles/trucks/railcars in noise-sensitive areas;
- transportation of fines and concentrate from the site to the rail loop.
- 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.
- Effects of artificial lighting at the project site during operation on nearby residents and the environment;
- Effects of climate change, i.e., predicted increases in precipitation and more frequent extreme weather events, on the project and risks to its activities and infrastructure; and
- GHG emissions generated within and outside the project boundary during the construction, operations and decommissioning phases of the project.

#### 4.2.1.1.3 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, but not limited to the contaminants PM<sub>2.5</sub>, PM<sub>10</sub>, CO, CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub> and VOCs;
- Additional air pollutants of concern should be examined and considered in an air quality effects assessment which include, but are not limited to, polycyclic aromatic hydrocarbons (PAHs), ammonia (NH<sub>3</sub>), toxic metals (e.g. mercury, manganese), ground-level ozone (O<sub>3</sub>), and diesel PM.
- appropriate health based screening criteria and standards should be used to assess air quality contaminants of potential concern (COPCs) and their impacts to human health.
- current ambient noise levels at the mine site 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;

- 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;
- provincial climate change precipitation projections for Wabush (nearest regional site) or, with approval from the Climate Change Branch, projections for any site that may more closely represent climate conditions at the Project footprint;
- historical and current provincial GHG emissions including emissions specifically from the industrial sector; and
- compare and assess project GHG emissions in the context of the MGGA, the RAA and the provincial GHG reduction target for 2030.

#### 4.2.1.1.4 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.

All potential Project emissions must be estimated and an emissions inventory table must be included in the EIS, listing emission sources, operating periods and pollution control equipment (where applicable). Typical construction and operation-related emissions include, but are not limited to, particulates (PM<sub>10</sub> and PM<sub>2.5</sub>) and metals in dusts and fuel combustion by-products such as sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), ammonia (NH<sub>3</sub>), toxic metals (e.g. mercury, manganese), ground-level ozone (O<sub>3</sub>), and diesel PM.

Potential odours from Project emissions at a local level (i.e., near Project equipment) must be discussed and assessed. Quantities are to be expressed in mg/m<sup>3</sup> and should be compared with provincial and national totals and mining sector totals.

All modeling shall be conducted/updated in accordance with the requirements of the *Air Pollution Control Regulations* of the NLEPA and the following ECC 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)

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. Modeling shall include the PM<sub>2.5</sub> and PM<sub>10</sub> fraction of particulate matter, NO<sub>x</sub> 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).

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. The EIS must also describe measures to control dust generated by vehicles along access roads and rail lines and include the types of suppressants used, frequency of application and any mitigations to minimize impacts of suppressants on the environment and human health.

The EIS should indicate whether and how air quality in local municipalities will be monitored and with whom any resulting data would be shared.

The EIS must assess potential noise and vibration impacts to the environment and local communities. Specifically, the EIS must:

- identify and quantify potential noise and vibration sources during construction and operation phases;
- 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., cabins frequented by local community members, 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);
- include a map illustrating estimated noise and vibration levels from the Project at key receptors;
- 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 describe mitigation and management measures related to noise and vibration including the conditions for mitigation and evaluate Project compliance with appropriate noise guidelines.

The EIS must identify the specification of the Project's lighting design, including sources and types of variation in Project-related light levels by providing information on duration, frequency and levels of light emissions. In addition, the EIS must describe all night operations for all project phases and evaluate how light disturbances could impact individuals and communities and their commercial and recreational activities, including tourism.

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.

The effects of the Project on provincial GHG emissions levels must be assessed for all phases of the project and mitigation measures proposed to minimize GHG emissions during the operations phase of the project. This assessment must account for natural sources of carbon that may be disturbed by the project, including disruption to permafrost and impacts to wetlands.

Annual estimates of production and materials moved, energy consumption by type and associated GHG emissions by source for all phases of the project should be provided as described in the *Management of Greenhouse Gas Reporting Regulations*. GHG emissions for activities outside the project boundary should be reported separately from GHG emissions inside the project's boundary. GHG emissions should be measured as tonnes of CO<sub>2</sub> equivalent per year as per section 4 and Schedule C of the *Management of Greenhouse Gas Reporting Regulations*.

If a facility emits at least 15,000 tonnes GHG emissions per year within the project boundary during the operations phase of a project, it may be regulated under either section 5 or 5.1 of the MGGGA and the *Management of Greenhouse Gas Regulations*, and it will therefore be subject to BACT requirements for activities inside the project's boundary as outlined in section 12.1 of the *Regulations*. With respect to section 12.1, the EIS should include a BACT study that proposes a range of technical and economically feasible mitigation measures to reduce or minimize GHG emissions within the context of other regulatory requirements such as air pollutant, occupational health and safety, and fire and life safety regulations, and identify the recommended approach for consideration by the Minister.

#### 4.2.1.2 Landforms, Soils, Snow and Ice

The effects of the Project and associated infrastructure/activities on landforms, soils, snow and ice will be assessed within the Project study area 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.

##### 4.2.1.2.1 VEC Definition and Rationale for Selection

This VEC is 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.

##### 4.2.1.2.2 Potential Project-VEC interactions

Potential Project-VEC interactions include:

- Acid Rock Drainage/Metal Leaching (ARD/ML) arising from Project activities;
- impacts to the quality or quantity of soils;
- impacts to snow and ice; and
- impacts of landform and soils on the Project.

##### 4.2.1.2.3 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;
- geomorphology and topography at areas proposed for construction of major project components, including the type, thickness and distribution of soils as applicable;
- bedrock lithology, morphology, geomorphology and soils where earthworks are proposed;

- potential for ground and rock instability (e.g., slumping, landslides and potential slippage) at areas planned for Project facilities and infrastructure;
- suitability of topsoil and overburden for use in the re-vegetation of surface-disturbed areas; and
- sites of palaeontological or palaeobotanical significance.

#### 4.2.1.2.3.1 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, and ore stockpiles. 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;
- 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;
- 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
- 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.

#### 4.2.1.2.4 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 effects and list potential residual effects and their significance. 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.

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;
- implications to the Project planning and design of baseline information related to terrain conditions;
- 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.;
- 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);
- potential for soil erosion, including stream bank erosion, resulting from surface disturbances associated with the construction, operation and maintenance of Project components;
- proposed commitments to preserve, store and reuse soil (including humus layers and organic soils), as applicable for site rehabilitation;
- potential contamination of soils due to the deposition of air emissions and airborne fugitive dust-fall from the Project;
- potential contamination of snow (e.g., due to runoff, emissions or other sources) and timing of snowmelt; snow clearing management around all project facilities, access roads and railways and the use of abrasives and chemical deicers for snow and ice control.
- potential for the Project to impact ice on local lakes (e.g., the potential for blasting to cause cracking; dewatering processes impacting ice formation).
- potential for the rock causeway to alter water flows, impacting ice formation, thickness and suitability for travel over Iron Arm; and,
- a detailed plan for monitoring of ice conditions at known over-ice travel locations; including frequency of monitoring and methods for public notification.

#### 4.2.1.2.4.1 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. The EIS should include information on:

- mine waste rock, ore characterization, volumes, segregation/disposal methods, mitigation/management plans, contingency plans, operational and post-closure monitoring and maintenance plans;
- 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);
- sensitivity analysis to assess the effects of imperfect segregation of waste rock;
- estimates of potential lag time to ARD/ML onset for PAG materials (including various waste rock, ore) and ability to fully saturate appropriate PAG materials during operation and post-closure based on regional experience, if any;
- 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;
- surface and seepage water quality from the mine waste rock stockpiles, other stockpiles and other infrastructure during operation and post-closure; and
- ARD/ML prevention/management strategies under a temporary or early closure scenario, including ore.

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.

With respect to this VEC, the EIS must clearly identify and describe the use of new materials, methods, processes, alternative or additional locations or any other changes required to mitigate environmental effects and/or address public and Indigenous concerns.



#### 4.2.1.3 Water Resources

The effects of the Project on water resources will be assessed within the local and regional 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.

##### 4.2.1.3.1 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*.

##### 4.2.1.3.2 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;
- potential ammonia contamination from incomplete combustion of exploded materials (e.g., directly to surface waters, or to groundwater via bedrock fractures);
- effects on water quantity and hydrology/hydrogeology;
- effects of dewatering Joyce Lake.
- effects related to mine water use (demand);
- effects of accidents and malfunctions; and
- erosion and sedimentation, including dust deposition.

With respect to this VEC, the EIS must clearly identify and describe the use of new materials, methods, processes, alternative or additional locations or any other changes required to mitigate environmental effects and/or address public and Indigenous concerns.

#### 4.2.1.3.3 Existing Environment

##### 4.2.1.3.3.1 Groundwater

The EIS must describe the hydrogeologic conditions at the Project 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.

The EIS must include:

- a review of the geology of the Project area as it pertains to local and regional groundwater flow systems in the Project area (see list in Section 4.1.9);
- the physical and geochemical properties of hydrogeological units, such as aquitards and aquifers (see list in Section 4.1.9);
- groundwater levels and a piezometric map for each aquifer;
- bedrock fracture sizes and orientations in relation to groundwater flow, including any preferential flow paths for groundwater (both shallow and deep);
- hydrogeologic maps and cross-sections for the Project 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;
- groundwater flow patterns and chemistry, identifying recharge and discharge areas and identifying groundwater interaction with surface waters;
- evaluation of discharge rates;
- assessment of groundwater quality in the different aquifers;
- a description of any local and regional potable groundwater resources in the area.

The EIS must specifically provide and/or acknowledge the following requirements:

- a full hydrogeological characterization and hydraulic testing of the Dolly formation. The modeling for the dewatering wells north of the proposed pit are to be updated with this data when

completed. This information may be submitted later in the project when road access to the mine site has been established but prior to breaking ground on the mine itself.

- The results of hydraulic testing, used to partially inform the requirements for pit dewatering, was conducted on small-diameter (50-mm) monitoring wells. If logistically possible, the EIS should include long-term pumping tests conducted at higher pumping rates to refine the hydrogeological characteristics of the aquifer and improve the dewatering plan by updating the groundwater model with more accurate values. The updated information may be submitted later in the project, when road access to the site has been established
- the actual depth required for the dewatering wells should be verified during future field tests and the groundwater model updated. This refinement may be submitted later in the project, when road access to the site has been established.
- an updated hydrogeological report that provides current baseline data on seasonal fluctuation of water quality and quantity. This can be accomplished using the existing 50-mm monitoring wells installed in 2013. Six months of data can be submitted for the EIS, with the following six months of data to be submitted once collected.

Baseline information must include existing water supply wells (if any) identified within the area of influence of the Project property.

#### 4.2.1.3.3.2 Surface Water

The EIS should describe existing surface water quality, hydrology, 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 quality, 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.

The EIS must:

- include delineation of drainage basins, including wetlands, at appropriate scales;
- describe and present monitored hydrological data, such as water levels and flow rates in local streams and selected local lakes;

- 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;
- 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;
- 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;
- describe any local and regional potable surface water if any; and
- 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.

The EIS must specifically provide:

- the complete water and sediment study conducted by GENIVAR, 2013 for review.
- verification that the baseline data presented in historical and project specific water and sediment sampling is adequate for water quality modelling and representative of current baseline conditions. Current water and sediment data over multiple years and seasons may be required.

#### 4.2.1.3.4 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, considering:

- the construction of the rock causeway and bridges across Iron Arm;
- 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;
- the management, storage and disposal of used oil and associated potential for malfunctions and accidents events; and

- the use of explosive products (e.g., emulsion explosives, ammonium nitrate/fuel oil (ANFO)).

The EIS must clearly identify and describe the use of new materials, methods, processes, alternative or additional locations or any other changes required to mitigate environmental effects and/or address public and Indigenous concerns.

#### 4.2.1.3.4.1 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. The assessment should describe the duration, frequency, magnitude and spatial extent of any effects and outline the need for mitigation and/or monitoring measures. Seepage rates, locations, quality and direction into or from the pit, overburden/waste rock/ore stockpiles, settling pond and effects on groundwater stream flows and groundwater quality within the Project area should be assessed. 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.

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.

In summary, the following components should be provided:

- a monitoring plan for groundwater levels and quality, before, during and after the Project;
- estimation of water inflows into the open pit and withdrawal rates from the open pit;
- assessment of a hydrological budget, including runoff, evapotranspiration and recharge rates under the various operation phases of the mine;
- 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 4.2.1.3.3.1 to show effects); and
- a description of potential cumulative and residual effects of the Project on water resources and dewatering on the aquifer and surrounding environment.

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.

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 (2020)*. The EIS must describe measures to mitigate effects on groundwater quality and quantity and predict adverse residual effects.

#### 4.2.1.3.4.2 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 effects associated with the dewatering, the creation of waste rock and overburden storage areas, 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 effects to surface water should include malfunctions and accident events.

The EIS shall:

- provide figures and maps which clearly indicate all potentially impacted surface waterbodies within the Project footprint, local and regional study areas.
- include a detailed 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, ore storage areas, overburden storage areas 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;
- 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;
- 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* and the *Guidelines for Canadian Drinking Water Quality*, as applicable;

- provide an overview of the closure plans at Joyce Lake and for the rock causeway at Iron Arm; and
- include a description of potential cumulative and residual effects of the overall Project on surface water resources.

The EIS must specifically provide:

- a rigorous scientific determination of the potential for the phenomenon known locally as “Red Water“ to be caused by, or associated with, all Project activities, its impacts on water resources and potential mitigations;
- assessment of predicted wastewater effluent quality in relation to the requirements of the *Metal and Diamond Mining Effluent Regulations (MDMER)* of the *Fisheries Act*. The assessment should include detailed studies to support mixing zone assumptions for mine water and sanitary effluent discharge as well as a full explanation of how the CORMIX model, used to predict mixing behavior, is applied.;
- a description of safeguards that will be established to protect against settling ponds overflow such as monitoring systems or diversion channels in the event of an overflow in order to reduce the risk of adverse effects to water resources.
- acknowledge the requirement to enter into a Memorandum of Understanding with the Water Resources Management Division of the Department of Environment and Climate Change to install Real-Time Water Quality/Quantity Monitoring Network prior to project commencement.

In conducting the analysis, the Proponent should consider pertinent acts, policies, guidelines and directives (including updates to these) 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. 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 and how real time water monitoring stations will be used for this purpose.

The EIS must clearly identify and describe the use of new materials, methods, processes, alternative or additional locations or any other changes required to mitigate environmental effects and/or address public and Indigenous concerns.

#### 4.2.1.4 Avifauna (migratory and non-migratory), Other Wildlife and Their Habitats

The effects of the Project and associated infrastructure/activities on birds, and other wildlife and their habitats will be assessed within the Project study area and areas that could reasonably be affected by the Project activities in consultation with the Department of Fisheries, Forestry and Agriculture, Fisheries and Oceans Canada (DFO) and Environment and Climate Change Canada (ECCC) – Canadian Wildlife Service. 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.

#### 4.2.1.4.1 VEC Definition and Rationale for Selection

Birds (including waterfowl, raptors, shorebirds, marsh birds and other landbirds), and other wildlife (such as plants, fish, amphibians, small mammals, furbearers, and ungulates) and their habitats refers to migratory and non-migratory species that are potentially feeding, breeding, moving and/or migrating through the Project area and impacted by the Project and associated infrastructure/activities. It has been selected as a VEC because of the need to protect ecosystems, species diversity, important habitats and ecosystems. Species and other ecosystem components are important to local residents, regional stakeholders, and regulatory authorities (i.e., municipal, Indigenous, provincial and federal) for recreation, economic and/or management considerations.

#### 4.2.1.4.2 Potential Project-VEC Interactions

Potential Project-VEC interactions include:

- habitat loss, avoidance or degradation due to construction and operation of Project facilities and associated infrastructure;
- effects of emissions/discharges (including dust) from the Project on the physical condition of individuals, habitat quality and use;
- direct and indirect effects (e.g. mortality, avoidance, etc.) of construction, operation and/or decommissioning and/or accidents and malfunctions during these Project phases;
- direct and indirect effects on individuals and habitat quality due to accidents and malfunctions during all Project phases, such as fires caused by fuel spills or uncontrolled explosions associated with ANFO; and
- impacts of noise, light and presence of Project facilities and associated infrastructure/activities on feeding, breeding, movement and/or migratory patterns.



#### 4.2.1.4.3 Existing Environment

The EIS must describe migratory and non-migratory birds (including waterfowl, raptors, shorebirds, marsh birds and other landbirds), fish, amphibians, small mammals, furbearers, ungulates 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.

##### 4.2.1.4.3.1 Migratory Birds

Migratory birds are protected under the *Migratory Birds Convention Act* (MBCA) and associated Regulations. Birds protected under the MBCA are specifically named at Environment Canada, Birds Protected in Canada under the Migratory Birds Convention Act <https://www.canada.ca/en/environment-climate-change/services/migratory-birds-legal-protection/convention-act.html>. Preliminary data from existing sources should 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 (ACDC) 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>);
- the Quebec Breeding Bird Atlas 1984-89 (Les oiseaux nicheurs du Québec: atlas des oiseaux nicheurs du Québec méridional). More information is available at: <https://www.atlas-oiseaux.qc.ca/>; and
- other data and projects, based on consultation with government and other agencies.

The EIS must specifically provide a clear summary of the baseline information gathered from other sources (such as those identified above), and clear reference to the sources used throughout the EIS.

Existing data should be supplemented by surveys, if required. Surveys should be designed with reference to the Canadian Wildlife Service’s Technical Report No. 508, A Framework for the Scientific Assessment of Potential Project Impacts on Birds (Hanson et al. 2010). Appendix 3 of the Framework provides examples of project types and recommended techniques for assessing effects on migratory birds. Survey protocols for migratory birds should be reviewed by ECCC-CWS prior to implementation.

#### 4.2.1.4.3.2 Other Wildlife

Other wildlife includes:

- Fish;
- 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; and
- Small mammals and furbearers eg. species such as black bear, wolf, marten, red fox, beaver and otter.

Other wildlife and their habitats that could be affected by Project activities must be characterized using existing data, supplemented by surveys as appropriate. The Proponent is required to contact the Department of Fisheries, Forestry and Agriculture (FFA) and DFO for further detail on the information requirements. The EIS should give particular consideration to areas of concentration of migratory animals, breeding, denning and/or wintering areas.

#### 4.2.1.4.4 Effects Assessment and Mitigation

The adverse environmental effects of the Project on birds, and other wildlife and their habitats should be assessed for all phases of the Project, and for malfunctions and accidental events. 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. The EIS must:

- quantify and describe overall loss, avoidance or alteration of terrestrial habitat that could result from the Project and its effect on key species. Where possible, rank habitat value for each VEC species so that the loss of high-value areas can be assessed in the context of their regional availability and significance/uniqueness. Regional boundaries for assessment of relative habitat loss should be based on population ranges and/or regional assessment area, major watershed boundaries and eco-sections; and
- 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., vibrations, noise, light, and human presence.
- describe the potential for any siltation associated with Project activities to impact wildlife and habitat;
  - quantify and describe overall loss, or alteration of aquatic habitat that could result from the Project, particularly the de-watering of Joyce Lake and causeway construction, operation and decommissioning, and their effects on fish, fish habitat and fisheries; and
  - assess the potential effects on all species found permanently or temporarily in the project area.

The EIS must specifically provide:

- information on the specifications of the Project's lighting design, and an assessment of potential alternatives/mitigations to reduce adverse impacts on migratory birds;

The EIS must describe technically and economically feasible measures to mitigate effects on birds, and other wildlife, and their habitats and predict adverse residual effects. This includes plans and predictions for re-vegetation and rehabilitation of the Project area, taking into account growth rates of local vegetation. The EIS must clearly identify and describe changes required to mitigate environmental effects and/or address public and Indigenous concerns.

#### 4.2.1.5 Species at Risk and Species of Conservation Concern

The effects of the Project on animals (including bats) and plant Species at Risk (SAR), Designated Species under the NLESA and species of conservation concern will be assessed within the Project study area and areas that could reasonably be affected by the Project activities in consultation with the Department of Fisheries, Forestry and Agriculture – Wildlife Division. 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.

#### 4.2.1.5.1 VEC Definition and Rationale for Selection

The definition and selection for SAR include:

- species that are listed under the federal *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 (Department of Fisheries, Forestry and Agriculture – Wildlife Division General Status of Wildlife Ranks) as maybe at risk or undetermined.

Preservation of SAR is important for maintaining ecological integrity and species biodiversity. There are also legislative and policy requirements to protect SAR and their habitats. 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. Any measures undertaken to mitigate and monitor effects must be consistent with applicable federal recovery strategies, federal action plans, or provincial recovery plans.

#### 4.2.1.5.2 Potential Project-VEC Interactions

Potential Project-VEC interactions for SAR include:

- habitat loss, avoidance or degradation due to construction and operation of Project facilities and associated infrastructure;
- effects of emissions/discharges (including dust) from the Project on physical condition of individuals and habitat quality and use;
- direct and indirect effects (e.g. mortality, avoidance, etc.) of construction, operation and/or decommissioning;
- direct and indirect effects on individuals and habitat quality due to accidents and malfunctions during all Project phases, such as fires caused by fuel spills or uncontrolled explosions associated with ANFO; and
- impacts of noise, lights, and presence of Project facilities and associated infrastructure/activities, including increases in road and rail traffic, on disruption of feeding, breeding, movement and/or migratory patterns.

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.

#### 4.2.1.5.3 Existing Environment

As background for the analysis of the Project's effects on these identified VEC-SAR/SOCC, the EIS must:

- identify all SAR and SOCC that may be affected by the Project, using existing data and literature as well as surveys to provide current field data, as appropriate;
- 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
- 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 SAR that may occur in the Project area, or be affected by the Project.

The EIS must also specifically provide:

- information related to the pre-construction, construction and post-construction bat monitoring surveys (for both migratory and resident species) within the local study area;
- information related to Avifauna surveys within the local study area for spring and fall migration using existing sources and supplemented by surveys;
- information related to the targeted breeding surveys within the local study area for Common Nighthawk, Peregrine Falcon and Short-Eared Owl, as part of the avifauna survey;
- information related to plant surveys within the local study area which will include targeted sites determined by Fisheries, Forestry and Agriculture – Wildlife Division;
- a description of historical and recent caribou distribution and habitat use within the Project footprint; and

- current interaction between the sedentary Lac Joseph Caribou herd and traffic volumes along the Quebec North Shore and Labrador Railway.

The following information sources on species at risk and species of conservation concern should be consulted:

- *Species at Risk Act* (SARA ([www.sararegistry.gc.ca](http://www.sararegistry.gc.ca) ));
- Newfoundland and Labrador *Endangered Species Act* (NLESA);
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC);
- Species Status Advisory Committee (SSAC);
- Department of Fisheries, Forestry and Agriculture (FFA) – Wildlife Division General Status of Wildlife Ranks;
- Atlantic Canada Conservation Data Centre (ACCDC);
- Québec Loi sur les espèces menacées ou vulnérables
- Relevant Government agencies; and
- Local naturalist and interest groups.
- Indigenous Governments and Organizations

#### 4.2.1.5.4 Effects Assessment and Mitigation

The EIS should identify the adverse effects of the Project and associated infrastructure/activities on SAR, including individuals, critical habitat, recovery habitat, important habitat, and residences of species listed under SARA and the 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.

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 SAR and their critical habitat, recovery habitat, important habitat, and/or residences. The likely significance of the Project's potential adverse environmental effects on SAR and species of conservation concern must be predicted, and the EIS must clearly identify and describe any changes required to mitigate environmental effects and/or address public and Indigenous concerns.

The EIS must specifically provide:

- information on the specifications of the Project's lighting design, as well as assessment of potential alternatives to reduce adverse impacts on species at risk.
- an assessment of the potential impacts of the Project on caribou populations and their habitat, including methods for monitoring presence during all phases of the Project.

The analysis must take into account pertinent acts, policies, guidelines and directives relating to species at risk, such as:

- Addressing Species at Risk Act Considerations Under the *Canadian Environmental Assessment Act* for Species Under the Responsibility of the Minister responsible for Environment and Climate Change 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 and Climate Change 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.

#### 4.2.1.6 Human Health

The effects of the Project on the health of local residents, visitors, business owners and other sensitive receptors in relation to the local and regional study areas surrounding the project area will 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.

##### 4.2.1.6.1 VEC Definition and Rationale for Selection

Human health, as defined by the World Health Organization, is "a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity." It can be positively or negatively impacted by changes to the physical and socioeconomic environment and was selected as a VEC as it is a determinant of individual and community health and quality of life.

#### 4.2.1.6.2 Potential Project-VEC Interactions

Individual and population health may be affected by physical environmental changes caused by the Project (e.g., emissions, dust, noise, light, recreational land use and/or aesthetic changes) as well as changes to contemporary Indigenous land and resource use.

#### 4.2.1.6.3 Existing Environment

The EIS must describe the following:

- Clearly describe the location and distance from the proposed site(s) to all potential human receptors (permanent, seasonal or temporary), taking into consideration the different types of land uses (e.g. residential, recreational, industrial, etc.), and identifying all sensitive populations (e.g. schools, hospitals, retirement complexes or assisted care homes). Note that the types of residents and visitors in a particular area will depend on land use, and may include members of the public and/or members of specific population subgroups (Indigenous peoples, campers, hunters, etc.).
  - Clearly identify all Indigenous land use and Indigenous receptors in relation to the project location(s).
  - Maps (to scale) would be helpful which include locations and proximities of these receptors to specific project activities and potential impacts (e.g. air quality, noise etc.).
- baseline air quality data in the project areas, including site-specific data for the mine site, which should include the contaminants PM<sub>2.5</sub>, PM<sub>10</sub>, CO, CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub>, VOCs, polycyclic aromatic hydrocarbons (PAHs), ammonia (NH<sub>3</sub>), toxic metals (e.g. mercury, manganese), ground-level ozone (O<sub>3</sub>), and diesel PM;
- a Noise Modelling Study updated with the required noise adjustment levels to baseline sound data at all receptor locations;



- a full description of potable water resources that includes the location and usage details of local and regional potable groundwater supplies and potable surface water resources used by receptors in the Project areas;
- COPCs in surface and groundwater that may pose a risk to human health and identified using human health-based screening criteria;
- a full description of recreational water resources, including baseline information regarding type, location and duration of recreational water activity practiced on or in these waters;
- a baseline survey of country food usage that identifies which foods are consumed, the specific tissues and parts of plants consumed and the consumption rates of each food type for all receptors;
- a baseline assessment and inventory of all potential contaminants (including naturally-occurring contaminants such as methylmercury and arsenic) in country foods including adequate baseline concentrations of COPCs in country foods;
- completion of a Human Health Risk Assessment (HHRA) that provides a quantitative estimate of the likelihood of potential risks that individuals may receive from project related COPCs and to highlight the need for mitigation measures where there may be elevated exposures

#### 4.2.1.6.4 Effects Assessment and Mitigation

The EIS must describe and assess the following:

- characterization of all possible sources of contaminants/emissions, exposure pathways and consumption patterns that may generate health effects, if any;
- evaluation of all air quality COPCs in the context of appropriate health-based standards and screening criteria for human health impacts, keeping in mind that fine (PM<sub>2.5</sub>) and coarse particulate matter (PM<sub>10</sub>) are considered non-threshold air pollutants and that health effects may occur at any level of exposure. The EIS should acknowledge that there is no threshold below which there is no potential for adverse health effects. For guidance, please see: *Health Canada. 2016. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Air. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.*  
<http://publications.gc.ca/pub?id=9.802343&sl=0> ;

- assessment of noise health effects, including sleep disturbance and those due to low frequency noise, against recognized provincial, federal, and international standards;
- the potential for health effects that may arise from noise or vibrations. For guidance, please see: *Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. <http://publications.gc.ca/pub?id=9.832514&sl=0> ;*
- the potential for health effects that may arise from changes in drinking water quality and quantity;
- the potential risks to human health associated with exposure to recreational water that may be impacted by the project. For guidance on water quality, please see: *Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Water Quality. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. <http://publications.gc.ca/pub?id=9.832511&sl=0> ;*
- the potential for health effects that may arise from consumption of country foods impacted by the project. For guidance, please see: *Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Country Foods. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. <https://publications.gc.ca/site/eng/9.855584/publication.html> ;*
- the use of new materials, methods, processes, alternative or additional locations or any other changes required to mitigate environmental effects and/or address public and Indigenous concerns;
- preliminary information on proposed monitoring and follow-up programs informed by a HHRA that aim to eliminate, reduce or control adverse environmental effects and risks to human health related to the Project. For Guidance, please see:
  - Health Canada. 2019. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.  
<https://publications.gc.ca/site/eng/9.870475/publication.html>
  - Health Canada. 2010. Guidance on Human Health Detailed Quantitative Risk Assessment for Chemicals (DQRAchem). Healthy Environments and Consumer Safety Branch,

Health Canada, Ottawa, Ontario.

[https://publications.gc.ca/collections/collection\\_2011/schc/H128-1-11-639-eng.pdf](https://publications.gc.ca/collections/collection_2011/schc/H128-1-11-639-eng.pdf) ;

- implications of the Project on residents' perceptions of quality of life (e.g., from changes in recreational patterns and country foods consumption, light, noise, changes in landscape, ability to connect with nature and culture etc.);
- the effects of the Project on community services and infrastructure; and
- the effects of the Project on the health and safety of Project workers, and those working in the areas affected by the Project, including the possible effects of any accidents or spills, such as fires following a large diesel spill or an uncontrolled explosion associated with ANFO.

The EIS must describe technically and economically feasible measures to mitigate negative effects, and to promote positive effects for human health for all phases (construction, operation and maintenance, closure and decommissioning, and rehabilitation) of the Project and predict the potential for adverse residual effects and their significance. Monitoring activities and follow-up programs must be described. Pertinent acts, policies, guidelines and directives relating to health must be considered.

#### 4.2.1.7 Historic and Cultural Resources

The impact of the Project on historic and cultural resources within the area of the development shall be assessed. Such assessment shall require an archaeological consultant to conduct the necessary archaeological impact studies to the satisfaction of the Provincial Archaeology Office.

##### 4.2.1.7.1 VEC Definition and Rationale for Selection

"Historic Resource" means 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. Historic Resource is included based on the potential effect of the Project upon historic resources as protected by the *Historic Resources Act*.

The Project must give consideration of the effect of any change in the environment caused by the Project to existing and potential historic resources.

#### 4.2.1.7.2 Potential Project-VEC Interactions

Potential Project-VEC interactions are related to disturbance to and loss of, archaeological sites resulting from activities including, but not limited to, site clearing, grubbing, grading and infilling.

#### 4.2.1.7.3 Existing Environment

The EIS must identify any terrestrial and aquatic areas within the Project footprint known to contain historic resources. A description of the nature of the features located in those areas must be provided. Likewise, the potential for historic resources in the Project areas must be assessed and presented.

It is noted that the Provincial Archaeology Office has acknowledged that the 2014 Historic and Heritage Resources Baseline Study prepared by Stassinu Stantec Limited Partnership is adequate for these purposes. On the basis of this investigation, the archaeological site Attikamagen Lake 1 (GfDp-01) was identified as being potentially impacted. Accordingly, any interaction by the Project with the Attikamagen Lake 1 site must be mitigated by either project design changes to avoid this site, or systematic data recovery of the materials by a qualified archaeologist. If any new development or additions to the project footprint are proposed, or potential resources identified through consultation with Indigenous Organizations be realized, then such changes or additional information will be provided to the Provincial Archaeology Office for review to determine if additional archaeological work is required.

#### 4.2.1.7.4 Effects Assessment and Mitigation

Adverse environmental effects of the Project on historic and cultural resources shall be assessed for all phases of the Project, including construction, with particular emphasis on the mine site and associated infrastructure (i.e., roads, railway). In the event of accidental discovery of historic resources during any phase of the project, work must stop and the Provincial Archaeology Office be contacted immediately for further direction.

#### 4.2.1.8 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.

##### 4.2.1.8.1 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.

##### 4.2.1.8.2 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.

##### 4.2.1.8.3 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. 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.

- 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;

- 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;
- 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;
- Forestry: The current forest resources and activities at the mine site should be identified;
- Mineral Exploration: The current mineral resources and exploration activities in the mine area must be identified;
- Agriculture: The EIS must identify current agricultural resources and activities, if any, that could be affected by the mine;
- Labrador Rail Transportation: Identify any railway construction and/or operation that is subject to the NL Rail Service Act;
- Navigable Waters: The EIS should describe current use of local lakes and waterways for transport or travel for commercial or recreational purposes, or as a means of transport or travel for Indigenous peoples; and
- Communication Towers: The EIS should describe any potential impacts to communications towers.

#### 4.2.1.8.4 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). 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;

- impacts to existing roads used to access areas of cultural and recreational importance, including consideration for frequency of use, and monitoring for maintenance and safety measures; and
- the effects of noise, dust and visual impacts to recreation.

The analysis should take into consideration current and updated pertinent legislation, policies, guidelines and directives relating to land and resource use, including acquiring Surface Leases under the *Mining Act* for access roads or other areas where public access will be restricted. The EIS must describe technically and economically feasible measures that would be employed to mitigate effects on other current and future use of lands and resources, as well as predicted adverse residual effects, and/or address public and Indigenous concerns.

#### 4.2.1.9 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.

##### 4.2.1.9.1 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 women, Indigenous persons, and other under-represented groups; and
- economic activities related to tourism.

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.

#### 4.2.1.9.2 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.

#### 4.2.1.9.3 Existing Environment

Baseline conditions for economy, employment and business shall 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.

Current baseline conditions will be characterized for:

- existing employment (e.g., by sector) and income conditions;
- skilled and unskilled labour supply;
- employment equity and diversity, including women, Indigenous persons, and other historically under-represented groups;
- GDP for Newfoundland and Labrador;
- income levels;
- sources of income;
- labour force indicators including labour force, employment, unemployment and participation rates;
- business and industry profile (including industries of specific importance such as mineral exploration and mining);
- tourism related activities; and
- business capacity, including women, Indigenous persons and other under-represented groups.

#### 4.2.1.9.4 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 people and Indigenous communities. The discussion should describe proposed grants or other benefits, which could accrue to local towns/municipalities as a result of the Project.

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
- technically and economically feasible measures to mitigate adverse effects and to optimize beneficial effects.

The EIS should describe potential impacts to tourism activities in local municipalities. The EIS must include commitments to:

- provide quarterly reports to that meet the approval of the Minister of Immigration, Population Growth 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 2016),
  - the number of full-time/part-time employees,
  - the number of apprentices (by level) and journeypersons,
  - the number of employees from each Indigenous Government and Organization, and
  - source of the workforce.

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 Minister of Industry Energy and Technology, and the Minister Responsible for Women and Gender Equality. The plan must include an employment plan and a business access strategy for women, Indigenous persons, gender diverse individuals and other historically under-represented groups. The Office for Women and Gender Equality requests the proponent consider gender as more than the man/woman binary and gear strategies in the GEDP to encouraging gender diverse persons entering into and remaining in natural resources sectors.

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,

- A Newfoundland and Labrador Benefits Agreement that meets the approval of the Minister of Industry Energy and Technology

Current pertinent acts, policies, guidelines and directives relating to economy, employment and business must be taken into account.

#### 4.3 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.

#### 5.0 EIS GUIDELINE DATA AND INFORMATION SOURCES

Canadian Council of Ministers of the Environment. *Canadian Environmental Quality Guidelines for the Protection of Aquatic Life*.

<https://ccme.ca/en/resources/water-aquatic-life>

Canadian Environmental Assessment Agency. 2012. *Canadian Environmental Assessment Act and Regulations*. <http://laws-lois.justice.gc.ca/eng/acts/C-15.21/index.html>

Environment Canada. Birds Protected in Canada under the Migratory Birds Convention Act.

<https://www.canada.ca/en/environment-climate-change/services/migratory-birds-legal-protection/convention-act.html>.

Environment Canada. 2004. *Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada. First Edition, Canadian Wildlife Service, Environment Canada. 68 Pages*

[https://publications.gc.ca/collections/collection\\_2014/ec/CW66-237-2004-eng.pdf](https://publications.gc.ca/collections/collection_2014/ec/CW66-237-2004-eng.pdf).

Environment Canada – Parks Canada. 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*:

[https://publications.gc.ca/collections/collection\\_2010/ec/CW66-282-2010-eng.pdf](https://publications.gc.ca/collections/collection_2010/ec/CW66-282-2010-eng.pdf)

Hanson, A., I. Goudie, A. Lang, C. Gjerdrum, R. Cotter and G. Donaldson. 2009. *A Framework for the Scientific Assessment of Potential Project Impacts on Birds*. Canadian Wildlife Service's Technical Report Series No. 508. Atlantic Region. 61 pp.

[https://publications.gc.ca/collections/collection\\_2010/ec/CW69-5-508-eng.pdf](https://publications.gc.ca/collections/collection_2010/ec/CW69-5-508-eng.pdf)

Health Canada. 2010. *Guidance on Human Health Detailed Quantitative Risk Assessment for Chemicals (DQRAchem)*. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.

[https://publications.gc.ca/collections/collection\\_2011/schc/H128-1-11-639-eng.pdf](https://publications.gc.ca/collections/collection_2011/schc/H128-1-11-639-eng.pdf)

Health Canada. 2017. *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Country Foods*. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.

<https://publications.gc.ca/site/eng/9.855584/publication.html>

Health Canada. 2017. *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise*. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.

<http://publications.gc.ca/pub?id=9.832514&sl=0>

Health Canada. 2017. *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Water Quality*. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.

<http://publications.gc.ca/pub?id=9.832511&sl=0>

Health Canada. 2019. *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment*. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.

<https://publications.gc.ca/site/eng/9.870475/publication.html>

Health Canada. *Guidelines for Canadian Drinking Water Quality*. 2020.

[https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt\\_formats/pdf/pubs/water-eau/sum\\_guide-res\\_recom/summary-table-EN-2020-02-11.pdf](https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/summary-table-EN-2020-02-11.pdf)

MEND. 2009. *Prediction Manual for Drainage Chemistry from Sulphidic Geological Materials 1.20.0*.

<http://mend-nedem.org/mend-report/prediction-manual-for-drainage-chemistry-from-sulphidic-geologic-materials/>

Newfoundland and Labrador: *A Provincial Policy Regarding the Conservation of Species at Risk*.

<https://www.gov.nl.ca/ffa/files/wildlife-endangeredspecies-species-at-risk-policy.pdf>

Newfoundland and Labrador Executive Council, Office of Indigenous Affairs and Reconciliation. *The Government of Newfoundland and Labrador's Aboriginal Consultation Policy on Land and Resource Development Decisions ("The Policy")* April 2013.

[https://www.gov.nl.ca/exec/iar/files/aboriginal\\_consultation.pdf](https://www.gov.nl.ca/exec/iar/files/aboriginal_consultation.pdf)

Newfoundland and Labrador Department of Environment and Climate Change. *Guidance for Plume Dispersion Modeling (GD-PPD-019.2)*

<https://www.gov.nl.ca/ecc/files/env-protection-science-gd-ppd-019-2.pdf>

Newfoundland and Labrador Department of Environment and Climate Change. *Determination of Compliance with the Ambient Air Quality Standards (GD-PPD-009.4)*

<https://www.gov.nl.ca/ecc/files/env-protection-science-gd-ppd-009-4.pdf>

Newfoundland and Labrador Endangered Species Act:  
<http://assembly.nl.ca/Legislation/sr/statutes/e10-1.htm>

Newfoundland and Labrador Environmental Protection Act:  
<http://assembly.nl.ca/Legislation/sr/statutes/e14-2.htm#58>

Newfoundland and Labrador Historic Resources Act:  
<http://assembly.nl.ca/Legislation/sr/statutes/h04.htm>

Newfoundland and Labrador Management of Greenhouse Gas Act:  
<https://assembly.nl.ca/Legislation/sr/statutes/m01-001.htm>

Newfoundland and Labrador Management of Greenhouse Gas Regulations:  
<https://assembly.nl.ca/Legislation/sr/regulations/rc180116.htm>

Newfoundland and Labrador Management of Greenhouse Gas Reporting Regulations  
<https://www.assembly.nl.ca/Legislation/sr/regulations/rc170014.htm>

Newfoundland and Labrador Mineral Act:  
<http://assembly.nl.ca/Legislation/sr/statutes/m12.htm>

Newfoundland and Labrador Mining Act:  
<https://www.assembly.nl.ca/legislation/sr/statutes/m15-1.htm>

Newfoundland and Labrador Mining Regulations:  
<https://www.assembly.nl.ca/legislation/sr/regulations/rc000042.htm>

Newfoundland and Labrador Rail Service Act:  
<http://assembly.nl.ca/Legislation/sr/statutes/r01-2.htm>

Newfoundland and Labrador Revenue Administration Act:  
<https://www.assembly.nl.ca/Legislation/sr/statutes/r15-01.htm>

Newfoundland and Labrador Sustainable Development Act: (to be proclaimed)  
<http://assembly.nl.ca/Legislation/sr/statutes/s34.htm>

Newfoundland and Labrador Water Resources Act:  
<http://assembly.nl.ca/Legislation/sr/statutes/w04-01.htm>

SARA-CEAA Guidance Working Group (Canada). 2010. *Addressing 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*.  
[https://www.registrelep-sararegistry.gc.ca/virtual\\_sara/files/policies/SARA-CEAA-LEP-LCEE-guide\\_0811\\_eng.pdf](https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/policies/SARA-CEAA-LEP-LCEE-guide_0811_eng.pdf)

## APPENDIX A: PUBLIC NOTICES AND MEETINGS

The purpose of this section is to clarify for proponents and the public, the format, scheduling, number, notification requirements, etc. for public consultations in relation to undertakings required under the *Environmental Protection Act*, SNL 2002 cE-14.2, (Section 58) to prepare an Environmental Impact Statement (EIS).

1. The proponent is required to conduct a public meeting(s)/information session(s) under an EIS process as specified in the legislation. This requirement shall be specified in the project EIS guidelines.
2. A public meeting shall normally be held in the largest local population centre within the project area. This shall be the minimum requirement. In addition, when demonstrated public interest or concern warrants, additional meetings may be required. This may take the form of additional meetings to be held in major regional or provincial population centres, or possibly additional meetings within the original community. Such requirements are at the discretion of the Minister based on consensus advice from the environmental assessment committee (EAC) chairperson, and based upon public interest as evidenced by public submissions received.
3. The format of the public meeting may be flexible, and the proponent is free to propose a suitable format for approval by the EAC. The format may range from formal public meetings chaired by the proponent or representative with presentations followed by questions and answers, to a less structured open house forum where the public may discuss the proposal with the proponent or representatives. Other formats may be considered by the EAC and may be conducted by virtual means through a live streaming, video conferencing or teleconferencing process, such as Facebook Live, Zoom, Microsoft Teams, Skype, Webex, Go To Meeting and others. The purpose of the public information session is to 1) provide information concerning the proposed undertaking to those who may be affected, and 2) to record the concerns of the local community regarding the undertaking. Any format must meet these objectives.
4. The proponent must ensure that each public meeting is advertised in accordance with the following specified public notification requirements, which shall form part of the project guidelines when appropriate (proponent to substitute appropriate information for italicised items):

Public Notice

Public Information Session on the Proposed

*Name of undertaking*

*Location of undertaking*

Shall be held at

*Date and Time*

*Location*

This session shall be conducted by the Proponent,

*Proponent name and contact phone number/email address,*

as part of the environmental assessment for this Project,

The purpose of this session is to describe all aspects of the proposed project, to describe the activities associated with it, and to provide an opportunity for all interested persons to request information or state their concerns.

**ALL ARE WELCOME**

**MINIMUM INFORMATION CONTENT OF PUBLIC ADVERTISEMENT**

- Minimum newspaper ad size: 2 column widths. Minimum posted ad size: 7" x 5"
- Minimum newspaper ad coverage: Weekend preceding meeting and 3 consecutive days prior to meeting date; to be run in newspaper locally distributed within meeting area or newspaper with closest local distribution area.
- Minimum posted ad coverage: Local Town or City website (if permitted), proponent's web site (if applicable), local community channel (if applicable), and radio advertisements to be posted continually for 1 full week prior to meeting date.
- Social media posts (optional).

Any deviation from these requirements for any reason must receive prior written approval of the Minister of Environment and Climate Change.