



# STANDARD GUIDELINES FOR THE PREPARATION OF AN IMPACT STATEMENT<sup>1</sup>

DRAFT

November 2018

---

<sup>1</sup> These Guidelines have been developed to reflect the NIRB's jurisdiction under Article 12, Section 12.5.2 of the *Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* and the requirements of ss. 26 and 101 of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14.

Issued by:

**NUNAVUT IMPACT REVIEW BOARD**

P.O. Box 1360

29 Mitik Street

Cambridge Bay, NU X0B 0C0

Telephone: 1-866-233-3033

Fax: 1-867-983-2594

E-mail: [info@nirb.ca](mailto:info@nirb.ca)

Website: [www.nirb.ca](http://www.nirb.ca)

DRAFT

## TABLE OF CONTENTS

TABLE OF CONTENTS.....	iii
DEFINITIONS AND TERMS.....	v
PART I – THE ASSESSMENT.....	1
1.0 Introduction.....	1
2.0 Guiding Principles .....	1
2.1 The NIRB’s Impact Review Principles .....	1
2.2 Public Participation.....	2
2.3 Inuit Qaujimaningit, Inuit Qaujimajatuqangit, Traditional, and Community Knowledge.....	3
2.4 Precautionary Principle.....	3
2.5 Sustainable Development .....	4
3.0 Scope of the NIRB Assessment.....	5
4.0 Preparation and Review of the Impact Statement.....	5
4.1 Guidance .....	5
4.2 Study Strategy and Methodology .....	6
4.3 Use of Existing Information .....	7
PART II – THE IMPACT STATEMENT.....	8
5.0 Guidance on the Content and Presentation of the Impact Statement.....	8
5.1 Content.....	8
5.2 Concordance Table .....	8
5.3 Presentation.....	9
5.4 Translation .....	9
5.5 Main Document of the Impact Statement.....	10
5.6 Summaries .....	11
5.6.1 Executive Summary .....	11
5.6.2 Popular Summary.....	11
6.0 Introductory Sections of the Impact Statement .....	11
6.1 Project Overview .....	11
6.2 Project Location.....	12
6.2.1 Land Tenure .....	12
6.3 Proponent Information.....	13
6.4 Regulatory Regime .....	14
6.5 Regional Context .....	14
7.0 Project Components and Activities .....	14
7.1 Project Design.....	14
7.2 Analysis of Need and Purpose.....	15
7.3 Scope of the Project .....	16
7.3.1 Detailed Project Proposal Description .....	16
7.3.2 Project Phases .....	17
7.4 Future Development .....	17
7.5 Alternatives.....	17
7.6 Economic and Employment Information.....	18
8.0 Impact Assessment Methodology.....	19
8.1 Scope of the Environmental Assessment.....	19
8.1.1 Factors to be considered.....	19

8.1.2	Scope of Factors.....	20
8.1.2.1	Valued Ecosystem and Socio-economic Components .....	20
8.1.2.2	Assessment Boundaries .....	22
8.2	Public Consultation.....	24
8.3	Inuit Qaujimaningit, Inuit Qaujimajatuqangit, Traditional, and Community Knowledge 25	
8.4	Description of the Environment and Baseline Information .....	26
8.5	Study Strategy and Methodology .....	26
8.5.1	Acquisition Methodology and Documentation .....	27
8.5.2	Data Analysis and Presentation .....	27
8.6	Impact Assessment Approach.....	27
8.6.1	Impact Prediction .....	28
8.6.2	Impacts of the Environment on the Project.....	29
8.6.3	Cumulative Effects Assessment.....	30
8.6.4	Transboundary Impacts.....	31
8.6.5	Indicators and Criteria.....	31
8.6.6	Significance Determination .....	32
8.6.7	Certainty.....	33
9.0	Project Environment and Impact Assessment .....	33
9.1	Biophysical Environment and Impact Assessment.....	33
9.2	Socio-Economic Environment and Impact Assessment.....	34
9.3	Human Health and Environmental Risk Assessment .....	34
9.4	Accident and Malfunctions Assessment.....	35
10.0	Environmental Management System .....	36
10.1	Environmental Management Plan.....	36
10.2	Environmental Protection Plan .....	36
10.3	Monitoring and Mitigation Plans.....	37
10.4	Biophysical Environmental Plans.....	38
10.5	Socio-Economic Environmental Plans .....	38
10.6	Closure and Reclamation Plan.....	39
10.6.1	Care and Maintenance Plan .....	40
10.7	Follow-Up and Adaptive Management Plans.....	40
10.8	Significance of Residual Impacts .....	41
11.0	List of Consultants and Organizations.....	41
12.0	Conclusion .....	41
	LITERATURE CITED .....	42

## DEFINITIONS AND TERMS

Refer to the Nunavut Impact Review Board's *Guide 2: Guide to Terminology and Definitions* ([NIRB, 2007](#)) for a complete list of definitions and abbreviations that are based on Nunavut related project proposals and the *Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* and the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14.

DRAFT

# PART I – THE ASSESSMENT

## 1.0 INTRODUCTION

The purpose of this document is to provide information to the Proponent about the Nunavut Impact Review Board (NIRB or Board) requirements for the preparation of an impact statement (IS) for a project proposal to be assessed pursuant to the development project review process established under Article 12, Part 5 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (the *Nunavut Agreement*) and Part 3 of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14, s. 2 (*NuPPAA*). This document specifies the nature, scope, and extent of the information required. Part I of this document provides guidance and general instructions on the preparation of the IS, and Part II outlines the information that must be included in the IS.

The text that follows comprises standard guidelines for the development of an IS (“Standard IS Guidelines”) and were developed pursuant to Article 12, Section 12.2.23(h) of the *Nunavut Agreement* and s. 26(1)(e) and s. 101 of the *NuPPAA*. The Standard IS Guidelines are intended to meet the objectives of Article 12, Section 12.5.2 of the *Nunavut Agreement* and s. 101(3) of the *NuPPAA*.

In addition to the Standard IS Guidelines, the NIRB may also issue additional Project-specific guidance to the Proponent to govern the preparation of the IS. The NIRB assesses the need for additional project-specific guidance by considering the information contained within the project proposal submitted to the NIRB, the information resulting from the NIRB’s public scoping and guidelines consultations, and any direction provided by the Minister pursuant to Section 12.5.1 of the *Nunavut Agreement* and s. 96(1) of the *NuPPAA*.

The NIRB relies on the Proponent’s IS and information provided by Intervenors, the public and affected communities during the review process to inform the Report provided by the NIRB to the responsible Minister(s) when the Board’s Review is completed. The IS must, therefore, provide the Board with a full description of the ecosystemic and socio-economic effects that may result from the Project. The IS shall also include a list of key mitigation measures that the Proponent proposes to undertake in order to avoid or minimize any adverse environmental effects of the Project. It is the proponent’s responsibility to provide sufficient data and analysis on potential changes to the environment.

## 2.0 GUIDING PRINCIPLES

### 2.1 The NIRB’s Impact Review Principles

In accordance with the NIRB’s primary objectives found in the *Nunavut Agreement* Section 12.2.5 and *NuPPAA* s. 23, the following principles and approaches should be followed in the review process and in the preparation of the IS:

- An ecosystem-based approach must be considered to ensure that the Review addresses both the direct impacts that the Project will have on the various ecosystem components, as well as the interactions that will occur between components.

- Socio-economic issues including economic development, health, recreation, and other aspects of well-being, must be considered in order to ensure a culturally holistic understanding of the Project's effects.
- An understanding of past, current, and potential future environmental, economic, and social trends in the region potentially affected by all phases of the Project will enable comprehensive understanding of potential project impacts, including potential cumulative effects.
- The well-being of residents of Canada outside the Nunavut Settlement Area must be taken into account and transboundary effects must be included.
- The public that may be impacted by the Project must be allowed to participate in the Review (see [Section 2.2](#))
- Inuit Qaujimaningit, Inuit Qaujimajatuqangit, Traditional, and Community Knowledge (see [Section 2.3](#)) must be included.
- A precautionary approach should be taken, particularly where there is uncertainty about potential impacts of the Project (see [Section 2.4](#)).
- As per the principle of sustainable development (see [Section 2.5](#)) and Article 12, Section 12.2.5 of the *Nunavut Agreement* and s. 23(1) of the *NuPPAA*, in reviewing a project the NIRB shall aim to protect and promote the existing and future well-being of the residents and communities of Nunavut.

The NIRB will consider the need for, alternatives to, and alternative means of carrying out the Project in assessing the justification for any significant environmental and socio-economic effects identified, and in formulating its recommendations to the responsible Minister(s). In complying with the specific direction that follows, the Proponent is expected to prepare an IS that provides sufficient information and evidence in accordance with principles stated above.

## 2.2 Public Participation

Public participation is a central objective of the NIRB review process. Meaningful public participation requires the Review to address concerns of the general public and Nunavummiut regarding the anticipated or potential environmental effects of the Project. In preparing its IS, the Proponent is required to engage potentially affected communities, residents, Inuit Organizations, Indigenous groups, and other governments or other organizations, including where relevant, adjacent jurisdictions outside of the Nunavut Settlement Area. The Proponent should refer to the NIRB's *Guide 6b: A Proponent's Guide to Conducting Public Consultation for the NIRB Environmental Assessment Process* ([NIRB, 2006a](#)) when preparing to consult with the general public. Public participation and engagement is required when:

- Identifying current and historical patterns of land and resource use;
- Acquiring Inuit Qaujimaningit, Inuit Qaujimajatuqangit, Traditional, and Community Knowledge;
- Identifying valued ecosystem components and valued socio-economic components;
- Evaluating the significance of potential impacts;
- Deciding upon mitigating measures; and

- Identifying and implementing monitoring measures, including post-project audits.

The Proponent must provide the highlights within the IS of the public engagement process undertaken by the Proponent to ensure that all parties involved have a clear understanding of the Project and its potential effects. The IS should include the methods used, the results, and the ways in which the proponent intends to address the concerns identified.

### **2.3 Inuit Qaujimaningit, Inuit Qaujimajatuqangit, Traditional, and Community Knowledge**

As required under Article 12, Section 12.5.2 of the *Nunavut Agreement* and s. 101(3) of the *NuPPAA*, the Proponent must include a discussion of all Inuit Qaujimaningit, Inuit Qaujimajatuqangit, Traditional and Community Knowledge acquired and considered in the preparation of the IS. The term Inuit Qaujimaningit is meant to encompass Inuit traditional knowledge (and variations thereof or Inuit Qaujimajatuqangit), local and community-based knowledge, as well as Inuit epistemology as it relates to Inuit Societal Values and Inuit Knowledge (both traditional and contemporary). Inuit Qaujimaningit is rooted in the daily life of Inuit people and represents experience acquired over thousands of years of direct human contact with the environment. Inuit Qaujimajatuqangit refers to traditional values, beliefs, principles and experience regarding the environment ([Ellis, 2005](#); [Hansen and VanFleet, 2003](#); [Thorpe et al., 2001](#); [Usher, 2000](#); [QIA, 2009](#); [Wenzel, 1999](#); [White, 2006](#)).

With its emphasis on personal observation, collective experience and oral transmission over many generations, Inuit Qaujimaningit provides factual information on such matters as ecosystem function, social and economic well-being, and explanations of these facts and causal relations among them. In this regard, Inuit Qaujimaningit plays a significant role in NIRB assessments by contributing to the development of accurate baseline information; comparing predictions of effects with past experience; and assisting in the assessment of the magnitude of projected effects ([Usher, 2000](#)).

The Proponent is required to incorporate Inuit Qaujimaningit, Inuit Qaujimajatuqangit, Traditional and Community Knowledge into its IS. The NIRB understands that the availability of such information may be limited by obligations of confidentiality and other ethical obligations that may be attached to such information, but expects the Proponent to take reasonable measures to access this type of information for incorporation into the IS.

### **2.4 Precautionary Principle**

The NIRB's Review process is designed to assess projects in a careful and precautionary manner and to ensure that projects do not cause significant adverse environmental effects. Principle 15 of the 1992 Rio Declaration on Environment and Development states that "[w]here there are threats of serious or irreversible damage; lack of full scientific certainty must not be used as a reason for postponing cost-effective measures to prevent environmental degradation" ([UNCED, 1992](#)). When the precautionary principle applies, it is the Proponent who bears the burden of proof to show that despite this uncertainty, the potential for adverse environmental impacts can be mitigated or reversed. To demonstrate the application of the precautionary principle to the Project, the Proponent must include information to:



- Demonstrate that the Project is examined in a manner consistent with the precautionary principle in order to ensure that they do not cause serious or irreversible damage to the environment;
- Outline the assumptions made about the effects of the Project and the approaches to minimize these effects, including assumptions that are developed where scientific uncertainty exists;
- Identify any follow-up and monitoring activities planned, particularly in areas where scientific uncertainty exists in the prediction of effects; and
- Present public views on the acceptability of these effects.

The Canadian Privy Council Office's *A Framework for the Application of Precaution in Science-based Decision Making About Risk* (PCO, 2003) sets out guiding principles for the application of the precautionary principle to science-based decision-making that should be considered by the Proponent in the development of the IS and the Project.

## 2.5 Sustainable Development

Sustainable development is defined as development that “*meets the needs of the present without compromising the ability of future generations to meet their own needs*” (UN, 1987). The central task of environmental impact assessment is to contribute to sustainable development by safeguarding the sustainability of valued components (VCs) in the face of development that might compromise that sustainability (Duinker and Greig, 2006). Promotion of the principle of sustainable development is fundamental to the NIRB's primary objectives laid out in Section 12.2.5 of the *Nunavut Agreement* and s. 23 of the *NuPPAA*.

These guidelines are based upon three factors that the NIRB considers directly associated with sustainable development. These factors are:

- 1) The extent to which biological diversity is affected by the Project;
- 2) The capacity of renewable and non-renewable resources that are likely to be significantly affected by the Project to meet the needs of the present and those of future generations; and
- 3) The “precautionary principle” (as outlined above).

The NIRB interprets progress towards sustainable development as meeting the following goals where possible:

- 1) Preservation of ecosystem integrity, including the capability of natural systems (local and regional) to maintain their structure and functions and to support biological diversity;
- 2) Respect for intergenerational equity. That is, the right of future generations to the sustainable use of renewable and non-renewable resources depends on our commitment to those resources today; and
- 3) The attainment of durable social and economic benefits, particularly in Nunavut.

The Proponent's IS should clearly demonstrate how the Project meets these three goals.

### **3.0 SCOPE OF THE NIRB ASSESSMENT**

As set out in ss. 99(1)(a) and 99(1)(b) of the *NuPPAA*, the first step in the Review requires that the NIRB determine the scope of the project proposal, as well as the scope of the assessment. The scope of the NIRB's assessment for a project proposal is based on the requirements of Section 12.5.2 of the *Nunavut Agreement* and s. 101(3) of the *NuPPAA*, the project proposal submitted by the Proponent, and any direction provided by the Minister to the NIRB under s. 96(1) of the *NuPPAA*.

The scope of the Project is defined in relation to the project proposal received by the NIRB from the Proponent, and must include any work or activity identified in the project proposal, as well as any other work or activity that the Board considers sufficiently related to the project. The Board may also exclude any work or activity from the scope that it considers insufficiently related to the project. If the NIRB determines that an inclusion or exclusion to scope of the Project should be made, the Board would consult with the Proponent and would amend the scope after considering any comments the Proponent may provide. If the Board adds to the scope of the Project the Board would not proceed with the Review until the Nunavut Planning Commission and the responsible Minister(s) have had an opportunity to again exercise their powers and perform their duties or functions in relation to the Project as rescope.

The scope of the assessment determines the expectations of the process based on significant issues related to the Project, defining the components of the biophysical and/or socio-economic environment that could be impacted by the Project and for which there is public concern. This scope confirms which valued ecosystemic and socio-economic components must be considered to determine the potential for impacts associated with the project proposal through all planned project stages of the development, and which the Proponent will be required to examine within its IS.

### **4.0 PREPARATION AND REVIEW OF THE IMPACT STATEMENT**

#### **4.1 Guidance**

In preparing the IS, the Proponent must follow the Standard IS Guidelines closely, while paying attention to the requirements of the *Nunavut Agreement* and the *NuPPAA*, the General EIS Principles as described in the NIRB's *Guide 7: Guide to the Preparation of Environmental Impact Statements* ([NIRB, 2006b](#)) and any additional specific project guidance provided by the NIRB based on the information contained within the Project Description.

Furthermore, the Proponent should note that directions regarding the IS format are a submission requirement of the NIRB. A detailed discussion of the IS format requirements may be found in [Section 5.0](#) of this document.

The Standard IS Guidelines are intended to facilitate the Proponent's development of an IS, the NIRB has endeavoured to make this document as comprehensive as possible to identify the majority of information requirements for the entire NIRB review process and increase certainty of expectations by all parties. It is however, recognized that some of the information requested may not be available for the initial IS submission to the NIRB. When the Proponent identifies

that specific information will not be available for the submission of its initial IS, the Proponent shall include a scheduled timeline for the provision of the requested information within the IS or to the NIRB separately. If the initial IS submission is incomplete, the NIRB will consider the initial IS submission to be a *draft* IS document, recognizing that the level of information requested or available will evolve and develop as the Review progresses from the *draft* IS submission to a *Final* IS submission.

The Proponent is also encouraged to consult with the NIRB and, if applicable, other regulatory authorities, during the planning and development of the IS and supporting documents.

## **4.2 Study Strategy and Methodology**

It is the NIRB's expectation that the Proponent will focus its discussions on key issues, and will provide a level of detail appropriately weighted to the importance of the issue being analyzed. Except where specified by the NIRB, the Proponent has the discretion to select the most appropriate methods to compile and present data, information and analysis in the IS as long as the methods are transparent, justifiable and replicable.

It is the sole responsibility of the Proponent to prepare an IS that includes sufficient baseline data and analysis for a complete assessment of the anticipated impacts of the Project. The IS should be concise and should focus on the assessment of significant ecosystemic and socio-economic impacts. The Proponent must explain and justify methods used to predict impacts of the project on each valued ecosystem component (VECs) and each valued socio-economic components (VSECs) (collectively the Valued Components (VCs)). The information presented must be substantiated; in particular, the Proponent must describe how the VCs were identified and what methods were used to predict and assess the project's potential adverse environmental effects on these components. The value of a component not only relates to its role in the ecosystem, but also to the value that humans place on it. The culture and way of life of the people using the area affected by the project may be considered VCs themselves. The IS will also explain and justify methods used to identify mitigation measures and follow-up program elements.

The IS will document how scientific, engineering, Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional and community knowledge were used to reach conclusions. Assumptions must be clearly identified and justified. All data, models and studies should be documented such that the analyses are transparent and reproducible. All data collection methods must be specified. The uncertainty, reliability and sensitivity of models used to reach conclusions must be indicated. The sections in the IS regarding the existing environment and the potential adverse environmental effects predictions and assessment must be prepared, using best available information and methods, to the highest standards in the relevant subject area. All conclusions must be substantiated.

The IS will identify all significant gaps in knowledge and understanding related to key conclusions, and the steps to be taken by the Proponent to address these gaps. Where the conclusions drawn from scientific, engineering and technical knowledge are inconsistent with the conclusions drawn from Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional and community knowledge, the IS will contain a balanced presentation of the issues and a statement of the Proponent's conclusions.

Omissions in the Standard IS Guidelines and any project-specific guidelines issued by the NIRB cannot be used to justify any inadequacies in the IS. The IS must be a stand-alone document that allows the reader to understand the Project and its likelihood to cause significant ecosystemic or socio-economic effects.

### **4.3 Use of Existing Information**

In preparing the IS, the NIRB expects the Proponent will utilize available and pertinent results of surveys and studies completed in the Project region by other developers, government agencies, organizations, institutions, regional authorities and individual researchers. For example, lessons have been learned at previous and/or currently active projects in Nunavut (e.g., the Meadowbank Gold Mine project, the Jericho Diamond Mine project, Doris North Gold Mine Project) and the Proponent should incorporate these lessons. When using existing information to meet the requirements of various sections of the Standard IS Guidelines, the Proponent should include the information directly in the IS with clear reference indicating the source of information (i.e., document, section, and page numbers).

The Proponent must explain the relevance and application of existing information in the IS, including highlighting data gaps and potential limitations and discuss how limitations in existing information might affect the ability to draw reliable conclusions in the assessment.

## PART II – THE IMPACT STATEMENT

Part II of this document provides specific instructions for the content of each section in the IS. The IS as a whole must reflect the guiding principles in Part I of the Standard IS Guidelines.

### 5.0 GUIDANCE ON THE CONTENT AND PRESENTATION OF THE IMPACT STATEMENT

#### 5.1 Content

The IS shall contain, at a minimum, the following information as outlined in Article 12, Section 12.5.2 of the *Nunavut Agreement* and s. 101(3) of the *NuPPAA*:

- (a) a description of the project, the purpose of, and need for, the project;
- (b) the anticipated effects of the environment on the project, including effects associated with natural phenomena, such as meteorological and seismological activity, and climate change;
- (c) the anticipated ecosystemic and socioeconomic impacts of the project, including those arising from the effects referred to in paragraph (b);
- (d) the measures proposed by the proponent to
  - i) avoid and mitigate adverse ecosystemic and socio-economic impacts, including contingency plans,
  - ii) optimize the benefits of the project, with specific consideration given to expressed community and regional preferences in regard to benefits,
  - iii) compensate persons whose interests are adversely affected by the project, and
  - iv) restore ecosystemic integrity after the permanent closure of the project;
- (e) any monitoring program of the project's ecosystemic and socio-economic impacts that the proponent proposes to establish;
- (f) the interests in land and waters that the proponent has acquired or seeks to acquire;
- (g) options for carrying out the project that are technically and economically feasible and the anticipated ecosystemic and socio-economic impacts of those options; and
- (h) any other type of information relating to a matter within the Board's jurisdiction that the Board considers relevant in the circumstances.

#### 5.2 Concordance Table

The IS shall contain a table of concordance that cross references the information presented in the IS (document, section, and page number) with the information requirements identified in the Standard IS Guidelines and any applicable project-specific IS guidelines. The basis of the concordance table shall be the factors as listed in [Section 8.1.1](#). The Proponent is advised to consult with the NIRB if the IS will deviate in a substantive way from the direction given in the guidelines.

### 5.3 Presentation

The IS should be written in clear, precise language and include the following:

- A summary of the IS (referred to as the IS main document);
- A glossary of technical words, acronyms and abbreviations;
- As appropriate, charts, diagrams, tables, maps, and photographs to clarify the text;
- Drawings that clearly convey the various components of the Project;
- Maps presented in a consistent and clearly identified datum and at appropriate and clearly identified scales to allow for comparison and overlay of mapped features;
- An index to the IS that references locations in the text by volume, section, sub-section and page of all key subjects;
- Separate Appendices (cross-referenced in the main IS document) that provide detailed studies (including all relevant and supporting data and methodologies);
- A list of all tables, figures, and photographs; and
- A complete list of supporting literature and references.

For clarity and ease of reference, the IS should be presented in the same order as the Standard IS Guidelines unless otherwise noted by the NIRB within project-specific guidelines, or where current best-practices provide an appropriate alternative.

For purposes of brevity and to avoid repetition, cross-referencing within the IS is preferred. The IS may make reference to the information that has already been presented in other sections of the document, rather than repeating it.

The Proponent will provide copies of the IS and its summaries for distribution in hard copy and in an unlocked, indexed and fully searchable PDF format, as directed by the NIRB. The Proponent shall be responsible, where requested, for the delivery of the IS to regulators and relevant authorities. As the NIRB is required to make the IS available to the public for review, for purposes of uploading and distribution, individual file sizes should be no larger than 10 MB (using only low resolution images). If the Proponent determines that certain files are better presented with higher resolution, then these files can be submitted to the NIRB; however, such files may only be distributed by the NIRB to the public upon request.

### 5.4 Translation

For efficiency, the Proponent shall prepare the main document and the summary of each thematic volume of the IS in both of Canada's official languages (French and English) and in Inuktitut (and Inuinnaqtun for Projects within the Kitikmeot Region of Nunavut). Maps shall indicate common and accepted place-names usually referred to by the local populations in their own language, in addition to their official toponyms, especially where traditional Inuit place-names have been made official through the process outlined in Section 33.9 of the *Nunavut Agreement*.

## 5.5 Main Document of the Impact Statement

The proponent will prepare a summary of the IS in all languages as described in [Section 5.4](#) and provide it to the NIRB at the same time as the IS. The main document will include the following:

- A concise description of all key components of the project and related activities;
- A summary of the consultation conducted with affected communities, residents, Inuit Organizations, Indigenous groups, and other governments or other organizations, including where relevant, adjacent jurisdictions outside of the Nunavut Settlement Area. The summary should include the issues raised and the proponent's responses;
- An overview of expected changes to the environment
- An overview of the key environmental effects of the project and proposed technically and economically feasible mitigation measures; and
- The proponent's conclusions on the residual environmental effects of the project after taking mitigation measures into account and the significance of those effects.

The main document should be structured as follows:

1. Executive and Popular Summaries
2. Introduction and environmental assessment context
3. Project overview
4. Scope of project and assessment
5. Alternative means of carrying out the project
6. Public consultation
7. Summary of environmental effects assessment for each VC, including:
  - description of the baseline;
  - anticipated changes to the environment;
  - anticipated effects;
  - mitigation measures;
  - significance of residual effects
8. Follow-up and monitoring programs proposed

The main document will have sufficient details for the reader to learn and understand the project, potential environmental effects, mitigation measures, and the significance of the residual effects. The main document will include key maps illustrating the project location and key project components.

## **5.6 Summaries**

The IS shall include both an executive summary and popular summary as described below:

### **5.6.1 Executive Summary**

The Executive summary should include the following:

- A summary of all key components of the Project and related activities;
- A summary of the key environmental effects of the project and proposed technically and economically feasible mitigation measures with particular reference to the overall conclusions of the assessment, and a clear rationale relating those conclusions to the predicted impacts and the measures proposed to address them;
- Summary on items of known or expected public concern and the significant potential impacts of the Project and the methods proposed to address them. It shall also address outstanding issues and the strategies proposed to address them; and
- The Proponent's conclusions on the residual environmental effects of the project after taking mitigation measures into account and the significance of those effects.

The summary shall form part of the IS, but it shall also be made available as a separate document and should be presented in English, French, Inuktitut (and Inuinnaqtun for Projects within the Kitikmeot Region of Nunavut). The summary will have sufficient details for the reader to learn and understand the Project, potential environmental effects, mitigation measures, the significance of the residual effects and follow-up program.

### **5.6.2 Popular Summary**

The Popular Summary shall have the same general structure and objectives as the Executive Summary, but it shall be written in non-technical language and shall include a glossary and additional explanatory text to assist non-specialists in appreciating the content of the IS as a whole. Maps indicating major project components including shipping and ground transportation route(s), and the potentially affected communities should be included, and should be presented in English, French, Inuktitut (and Inuinnaqtun for Projects within the Kitikmeot Region of Nunavut). The Popular Summary shall form part of the IS, but it shall also be made available as a separate document.

## **6.0 INTRODUCTORY SECTIONS OF THE IMPACT STATEMENT**

### **6.1 Project Overview**

The IS will describe key project components and associated activities, scheduling details, the timing of each phase of the project and other key features. If the Project is a part of a phased sequence of projects, the IS will outline the larger context.

The overview is to identify the Project's key components, rather than providing a detailed description, which will follow in [Section 7.0](#) of this document.



## 6.2 Project Location

The IS will contain a concise description of the geographical setting in which the project will take place. This description will focus on those aspects of the project and its setting that are important in order to understand the potential environmental effects of the project. The description will address the natural and human elements of the environment as well as explain the interrelationships between the biophysical environment and people and communities. The following information will be included:

- The Universal Transverse Mercator (UTM) coordinates of the main project site;
- Current land use in the area and the relationship of the project facilities and components with any Crown land, Inuit Owned Land, and Commissioner's land;
- The environmental significance and value of the geographical setting in which the project will take place and the surrounding area;
- Environmentally sensitive areas, such as national and territorial parks, ecological reserves, habitats of federally listed species at risk (Schedule 1 of *Species at Risk Act*) and other sensitive areas;
- Local communities; and,
- Land Tenure (see [Section 6.2.1](#)).

The IS will provide expanded description and mapping of the project location, including each of the project components as outlined in [Section 7.0](#) of this document. Maps of the project's location at an appropriate scale will accompany the text. The location map should include the boundaries of the proposed site including UTM coordinates, the major existing infrastructure, adjacent land uses and any important environmental features. In addition, site plans/sketches and photographs showing project location, site features and the intended location of project components will be included.

### 6.2.1 Land Tenure

The Proponent shall delineate on a map of suitable scale the legal boundaries of any areas to which it will acquire rights through lease or other tenure arrangements, including Crown land, Inuit Owned Land, and Commissioner's land. It shall further describe those areas by providing such information as, but not limited to, site coordinates, land size, file numbers, start and end dates, fees, name of right holder, and any post-authorization amendments and/or renewals.

The Proponent shall also provide information on existing tenures, licences, permits or other authorizations that would be potentially impacted by the Project and provide a record on consultations with holders of such tenures, permits, or authorizations.

### 6.3 Proponent Information

The Proponent shall identify itself and explain current and proposed ownership of rights and interests in the Project, operational arrangements, and corporate and management structures. It shall specify the mechanisms used to ensure that corporate policies are respected. The Proponent shall present its environmental policy and shall specify whether and how it applies to all businesses for which it has an operating responsibility, to employees, to contractors, to subcontractors and to suppliers. This policy shall also describe its reporting systems. Furthermore, the Proponent shall provide complete contact information, including telephone and fax numbers, postal and email addresses, and shall include, where necessary, separate addresses for corporate and operations (or other relevant) offices.

The Proponent shall describe its past and/or present experience in the activities being proposed for the Project (e.g., exploration, open-pit and underground mining), and with transportation networks involving air shipping, marine shipping, and winter and all-weather road components. The Proponent should reference:

- Its record of compliance with governmental policies and regulations pertaining to environmental and socio-economic issues in past operations;
- Its record of safety, major accidents, spills and emergencies, and corresponding responses;
- Its record in honouring commitments on environmental and socio-economic matters in the event of planned or premature Project closure, whether temporary or permanent, or due to change of ownership;
- Its relations with Indigenous peoples, including prior experience with any Impact and Benefits Agreements if appropriate;
- Its history of operations in Arctic and Sub-arctic regions;
- Its record in incorporating environmental and socio-economic considerations into construction, operations, maintenance, temporary closure (care and maintenance), final closure (decommission and reclamation), and post-closure; and
- Corrective actions it has undertaken in the past, distinguishing between those taken voluntarily and those taken at the insistence of a third party.

The Proponent shall identify and describe any obligations or requirements that it must meet to post a bond or other forms of financial security to ensure payment of compensation in the event of accidents that directly or indirectly result in major damage by the Project to the environment, as well as to cover the cost of planned or premature closure, whether temporary or permanent. The Proponent shall provide information on the current status of Project financing, and financial preparedness to meet the requirements for reclamation and security should the Project proceed.

If the Proponent does not have prior experience in exploration, mining, or transportation networks, particularly for Nunavut or Northern Canada, discussion should include how the experience will be obtained (e.g., other northern projects) and it shall explain the safeguards that it intends to put in place to compensate for the lack of prior experience.

## **6.4 Regulatory Regime**

The Proponent shall present its understanding of the regulatory regime in which it would be operating by identifying the requirements of all relevant federal, territorial, and local environmental and socio-economic standards, laws, regulations, policies, guidelines and fiscal regimes relating to Project approval, construction, operations, maintenance and monitoring, temporary closure (care & maintenance), final closure (decommission & reclamation), and post-closure activities. This section should also explain how the requirements would be met and what specific governmental permits and approvals would be required. A list of currently held and required permits and licences, including dates of issue and expiry (as applicable), shall be appended. Requirements imposed by Article 12 of the *Nunavut Agreement* may be excluded from this discussion.

The Proponent should also include a discussion of any steps it proposes to take to ensure it meets its Project related tax obligations (including fuel and payroll taxes) with the Government of Nunavut (GN). The Proponent should, if applicable, also provide any relevant non-confidential information regarding its relationship with the GN in terms of the optional fuel-rebate program.

## **6.5 Regional Context**

The Proponent shall describe in general terms the regional biophysical and socio-economic environments of the region and Nunavut as a whole, including: ecological land classifications; ecological processes and relationships; the location of other base and precious metal finds and other existing and potential developments; and current and future land use plans.

## **7.0 PROJECT COMPONENTS AND ACTIVITIES**

The following sections contain explicit requirements for the IS with regard to Project components and all activities associated with each project component through the life of the Project.

### **7.1 Project Design**

General Project design information discussed in the IS shall include:

- An explanation of how the biophysical environment has influenced the design of the Project. This should include consideration of relevant geographical, geological, meteorological, hydrological, and oceanographic conditions. This discussion should also include current land use activities;
- A discussion on how the potential for climate change effects on the Project has influenced the design, planning and management of the Project components and activities;
- A discussion of how design, engineering, and management plans will maintain/enhance the existing ecosystemic integrity, focusing on wildlife habitats, including freshwater habitat, marine habitat, and terrestrial habitat;

- A discussion of how the Proponent has applied the precautionary principle in its Project planning, design and management;
- A discussion of how potential impacts to workers and the public under both normal operations and potential accident and malfunction situations have influenced the design of the Project;
- A discussion of how potential impacts to wildlife (e.g., caribou, polar bears, peregrine falcons, etc.) have influenced the design of the Project especially indicating methods to minimize impacts to wildlife, including the geographical location of project components;
- A discussion of how regional socio-economic conditions have influenced the Project design. For example, how local preferences and labour capacity, have influenced the design of work rotations, pace of construction, and employment policy;
- A discussion of how project design, particularly project infrastructure and site preparation, has been influenced by the distribution of archaeological resources and sites used for harvesting of wildlife and quarrying of soapstone;
- A discussion of how public consultation and Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge have influenced the planning and design of the Project; and
- The considerations for future development.

All assumptions underlying design features which are relevant to environmental assessment should be explicitly stated.

## **7.2 Analysis of Need and Purpose**

The IS will describe the need for, and purpose of the Project by providing the rationale for the Project, explaining the background, the problems or opportunities that the Project is intended to satisfy and the stated objectives from the perspective of the Proponent. The following points must also be addressed in the discussion:

- General feasibility from an economic perspective, including how the Project will benefit communities in Nunavut, either directly or indirectly;
- An assessment of the longer term strategic implications of the Project, and how it may affect or contribute to transportation and other infrastructure networks (existing and proposed) in Nunavut;
- Identification of past, current and potential future users of the local study area (LSA), regional study area (RSA), and project infrastructure, including commercial, government, public, and private; and
- An analysis of the overall net benefit of the Project in terms of Nunavut, and of Canada as a whole, which includes considerations in addition to the economic contributions of the Project.

Discussions addressing the above points shall be supported by an analysis of the positive and negative social and economic effects on existing industries, markets, and communities over the

life of the Project. This analysis should also indicate the distribution and magnitude of benefits and/or losses to specific socio-economic groups in the relevant study area.

### **7.3 Scope of the Project**

As outlined in Section 3.0, the scope of the project shall be defined to reflect the project proposal received by the NIRB from the Proponent, and must include any work or activity identified in the project proposal, as well as any other work or activity that the Board considers sufficiently related to the Project. The NIRB may also exclude any work or activity from the scope that it considers insufficiently related to the Project.

The Proponent will consider all phases, components, activities and works identified in the scope of the Project as part of the effects assessment.

#### **7.3.1 Detailed Project Proposal Description**

The Proponent shall describe the Project components and all activities associated with each in a systematic way. The description shall encompass all phases of development in sufficient detail to allow the Proponent to predict potential adverse environmental effects and address public concerns about the Project including:

- site preparation
- construction;
- operations, including any potential modifications and/or expansions that may be required during the operations phase to reflect exploration results;
- maintenance;
- temporary closure (care and maintenance);
- final closure (decommission and reclamation); and
- post closure activities.

The description must include an approximate timeline for each Project component and all activities associated with each component, if applicable. The description should also include changes that would occur in the vicinity as a consequence of the Project activities. Where specific codes of practice, guidelines and policies apply, especially if involving thresholds and quantitative limits to be applied, these documents must be cited and may even be included as appendices to the IS.

For greater clarity, the detailed description of Project components and activities, where appropriate, should cross-reference the impact assessment, environmental management and overall development plan sections of the IS.

For each review, the NIRB may provide additional specific guidance on the project components and associated activities that are described within the project proposal, based on the NIRB's public scoping process and on any directions provided by the Minister as per Article 12, Section 12.5.1 of the *Nunavut Agreement* and s. 96 of the *NuPPAA*. For an example of the level of information generally expected by the NIRB, the Proponent is well-advised to review previously released NIRB EIS Guidelines ([NIRB, 2009](#); [NIRB, 2011](#)).

### **7.3.2 Project Phases**

The Proponent is required to present an overall development plan that describes the Project development phases [site preparation, construction, operation, maintenance, any potential modifications, temporary closure (care and maintenance), final closure (decommission and reclamation) and post-closure], relevant timeframes, works and undertakings associated with each of these phases. The plan must include consideration for temporary closure, or care and maintenance recognizing that operations may come to an unforeseen pause. The Proponent should also clarify all associated monitoring and/or mitigation plans to be implemented in each of the identified phases to eliminate or minimize adverse effects that might occur at various project stages for each Project element.

### **7.4 Future Development**

The Proponent shall evaluate any foreseeable expansions of the current Project, the needs of required infrastructure, and associated ecosystemic and socio-economic impacts. The Proponent shall also evaluate the potential for development of additional ore deposits in the Project area in accordance with previous and current exploration activities. Such an evaluation should be based on the Proponent's business strategic plan for the Project, other predictions and the development realized by projects of a similar nature.

In addition, the Proponent shall discuss how any foreseeable future development scenarios have been taken into consideration when designing the infrastructure and ancillary utilities for the Project. The Proponent's assessment of cumulative impacts of the Project shall also include the future development scenarios as outlined above.

### **7.5 Alternatives**

The IS shall include an explicit analysis of all alternative means of carrying out the Project components or activities, including a "no-go" alternative, the identification and application of criteria used to determine the technical feasibility and economic viability of the alternatives to the Project (e.g., transportation, natural, social, economic and cultural environment). This analysis must be done to a level of detail which is sufficient to allow the NIRB and the public to compare the Project with the alternatives in terms of the economic costs and the environmental, social and economic impacts and benefits. The Proponent must include reasons for selection of the Project as the preferred alternative, and the reasons for rejection of other alternatives. Through the course of its alternative assessment, if the preferred alternative changes, the Proponent should consult with the NIRB to determine whether this proposed change would result in a change to the scope of the Project under Review.

The assessment of alternatives should demonstrate:

- The assessment of economic viability for each alternative has considered vulnerability of the arctic ecosystem, as well as the potential for extension of the life of the Project;
- The criteria used to evaluate alternative means reflects the potential concern for both the short-term (during construction and operations) and long-term (after decommissioning and reclamation) physical-chemical stability and environmental impacts of the Project;

- The requirements of [Section 8.6.3](#) of this document, particularly the potential for cumulative impacts on the marine ecosystem and on traditional harvesting activities have been considered;
- Baseline data, valued components, and assessment boundaries have been considered; and
- As indicated in the public consultation section ([Section 8.2](#)), public opinions and preferences have been taken into consideration as a criterion in the assessment of all the alternative options, including a discussion of how public consultations by the Proponent have influenced the Project planning, and how public preferences have been considered by the Proponent in determining the preferred project alternatives.

Additional guidance on information requirements for the IS may be included here when project-specific IS Guidelines are developed and issued for a project under Review pursuant to Section 12.5.2 of the *Nunavut Agreement* and s. 101(1) of the *NuPPAA*.

## **7.6 Economic and Employment Information**

In order to understand the context of the Project, the IS shall include a description of the economic and employment aspects of the Project, including:

- Capital costs, estimated operating costs, including closure costs and the total expected revenues (current market values);
- The number of person years of work, broken down by life cycle stage;
- The number and types of jobs and required skills (using a recognized classification system) including training requirements for each position;
- Contracting and procurement information including, if known, a breakdown of the number and types of jobs that will be done by contractors and what the contractor obligations to employees will be;
- Estimation of the number of jobs to be created directly and indirectly by the Project, with consideration of local business and supplying contracting;
- Worker housing situations including number of workers expected to be residing onsite or in workers' camp(s), on-site services and facilities for workers, transportation to work and proposed work schedule;
- Discussion of the commuting arrangements for local hired workers, especially those who live in the communities without proposed direct air transport to the Project site(s) and how the Proponent plans to support the fly-in/fly-out workforce with in-community liaison workers;
- Expectations and perceptions to employment at the Project by the residents in the Project RSA; and
- Information on benefits that might be expected by employees and whether these benefits will extend to contractor employees (e.g., training, skill enhancement, cultural support, wellness program).

## 8.0 IMPACT ASSESSMENT METHODOLOGY

### 8.1 Scope of the Environmental Assessment

#### 8.1.1 Factors to be considered

Scoping establishes the environmental assessment parameters and focuses the assessment on relevant issues and concerns. The environmental assessment of the designated project in support of the Board's Review of the Project must address the following factors, as listed in s. 103(1) of the *NuPPAA*:

- (a) the purpose of the project and the need for the project;
- (b) whether, and to what extent, the project would protect and enhance the existing and future well-being of the residents and communities of the designated area, taking into account the interests of other Canadians;
- (c) whether the project reflects the priorities and values of the residents of the designated area;
- (d) the anticipated effects of the environment on the project, including effects associated with natural phenomena, such as meteorological and seismological activity, and climate change;
- (e) the anticipated ecosystemic and socioeconomic impacts of the project, including those arising from the effects referred to in paragraph (d);
- (f) the cumulative ecosystemic and socioeconomic impacts that could result from the impacts of the project combined with those of any other project that has been carried out, is being carried out or is likely to be carried out;
- (g) whether the impacts referred to in paragraphs (e) and (f) would unduly prejudice the ecosystemic integrity of the designated area;
- (h) the measures, including those proposed by the proponent, that should be taken to
  - i) avoid and mitigate adverse ecosystemic and socio-economic impacts, including contingency plans,
  - ii) optimize the benefits of the project, with specific consideration given to expressed community and regional preferences in regard to benefits,
  - iii) compensate persons whose interests are adversely affected by the project, and
  - iv) restore ecosystemic integrity after the permanent closure of the project;
- (i) the significance of the impacts referred to in paragraphs (e) and (f), taking into account the measures referred to in paragraph (h);
- (j) the capacity of renewable resources that are likely to be significantly affected by the project to meet the existing and future needs of the residents of the designated area;
- (k) any monitoring program of the project's ecosystemic and socio-economic impacts that should be established, including one proposed by the proponent;



- (l) the interests in land and waters that the proponent has acquired or seeks to acquire;
- (m) the options for carrying out the project that are technically and economically feasible and the anticipated ecosystemic and socioeconomic impacts of such options;
- (n) the posting of performance bonds;
- (o) the particular issues or concerns identified under subsection 96(1); and
- (p) any other matter within the Board's jurisdiction that, in its opinion, should be considered.

## **8.1.2 Scope of Factors**

### ***8.1.2.1 Valued Ecosystem and Socio-economic Components***

As noted in [Section 4.2](#) of these Standard IS Guidelines, the IS should include those valued ecosystem components (VECs) and valued socio-economic components (VSECs) (collectively the Valued Components (VCs)), processes, and interactions between the VECs and VSECs that are likely to be affected by the Project and those identified in these Standard Guidelines. If relevant, the location of these VCs should be indicated on maps or charts, indicating to whom these components are valued and the reasons why, in terms of ecosystemic, social, economic, recreational, tourism, aesthetic or other considerations. The Proponent should also indicate the specific geographical areas or ecosystems that are of particular concern, and their relation to the broader regional environment and economy.

The NIRB has identified the following list of biophysical and socio-economic components that are typically relevant to mining projects in Nunavut. The Proponent should consider this list in the selection of the VCs. This list is; however, not comprehensive nor exhaustive, and provides an appropriate starting point only for the Proponent's identification of relevant VECs and VSECs.

#### **Valued Ecosystem Components**

- Air quality;
- Climate and Meteorology;
- Noise and vibration;
- Terrestrial environment, including terrestrial ecology, geomorphology/landforms and soils;
- Permafrost and ground stability;
- Geology (including geochemistry);
- Hydrology (including water quantity) and hydrogeology;
- Groundwater and surface water quality;
- Sediment quality;
- Freshwater aquatic environment, including aquatic ecology, aquatic biota (including representative fish as defined in the Fisheries Act, aquatic macrophytes, benthic invertebrates, and other aquatic organisms) and habitat;

- Vegetation;
- Terrestrial wildlife and wildlife habitat, including representative terrestrial mammals (i.e., caribou, muskoxen, wolverine, grizzly bears, wolves and less conspicuous species that may be maximally exposed to contaminants and the habitat, migration, and behaviour of these species) and wildlife migration routes and water crossings;
- Birds including raptors, migratory birds and seabirds, and their habitat;
- Marine environment, including marine ecology, marine water and sediment quality, marine biota including fish, and marine habitat;
- Marine wildlife; and
- Species at Risk

### **Valued Socio-Economic Components**

- Economic development and opportunities;
- Employment;
- Education and training;
- Contracting and business opportunities;
- Benefits, royalties and taxation;
- Population demographics;
- Traditional activity and knowledge including harvesting, land use, food security, language, cultural and commercial harvesting;
- Non-traditional land use and resource use;
- Cultural, archaeological and palaeontological resources;
- Individual and community wellness, including family and community cohesion;
- Community infrastructure; public services and housing;
- Governance and leadership; and
- Health and safety including worker and public safety.

The Proponent shall explain and justify methods used to predict potential adverse and beneficial effects of the Project on each VEC and VSEC, the interactions among these components, and the relations of these components with the environment. In particular, the Proponent must describe how the VCs were selected and what methods were used to predict and assess the adverse environmental effects of the Project on these components. The value of a component should be considered not only in relation to its role in the ecosystem as a VEC, but also the value placed on that component by humans for traditional use and cultural connection as a VSEC. This should be considered not only for components of the environment but also the land directly affected by the Project. The Proponent shall provide a rationale for the selection of communities and relevant studies for which baseline data has been provided.

The Proponent should also validate the choice of VCs, especially those VCs that will be used to assess the significance of Project component interactions, through consultation with the potentially affected communities, government agencies, and other parties, and through incorporation of Inuit Qaujimaningit. All VCs used in the assessment should have clearly identified indicators or measurable parameters that provide a means to characterize a change in the VEC or VSEC as outlined in [Section 8.6.5](#).

The Proponent is expected to identify the components and activities of the Project that are anticipated to interact in adverse or beneficial ways with the selected VCs. These components/activities could be grouped into the following categories:

- Components and activities related to construction, operation, temporary closure, final closure (decommission and reclamation) and post-closure of the Project; and
- Components and activities induced by the Project development, which will occur in the reasonably foreseeable future.

Additional guidance on VC for the IS may be provided here when project-specific IS Guidelines are developed and issued for a project under Review pursuant to Section 12.5.2 of the *Nunavut Agreement* and s. 101(1) of the *NuPPAA*.

#### **8.1.2.2 Assessment Boundaries**

##### **Spatial Boundaries**

The IS shall define the spatial boundaries of the maximum area potentially affected by the Project, based on the boundaries for each individual type of impact. The spatial and temporal boundaries used in the environmental assessment may vary depending on the VC and will be considered separately for each component. The Proponent is encouraged to consult with the NIRB, federal and provincial government departments and agencies, local government and regional Inuit association, and take into account public comments when defining the spatial boundaries used in the IS.

The IS will describe the spatial boundaries, including local and regional study areas, of each VC used to assess the potential adverse environmental effects of the Project and provide a rationale for each boundary. The spatial boundaries of the assessment of the Project shall be determined based on the following criteria:

- The physical extent of project activities, including transportation routes;
- The extent of terrestrial and aquatic ecosystems and habitat potentially affected by the Project, taking into account factors such as watersheds, and the migratory and/or life cycle of wildlife species;
- Ecological flows and pathways (e.g., with respect to pollutant transport, bioaccumulation, noise);
- The communities potentially directly or indirectly affected by the Project;
- The extent to which traditional and contemporary land use (past, present and future) and other harvesting could potentially be affected by the Project;

- The size, nature and location of past, present, and reasonably foreseeable projects and activities which could interact with the items listed above; and
- Potential ecosystemic or socio-economic impacts outside of Nunavut.

The following general spatial boundaries are suggested:

- **Site study area:** The site study area is the project footprint (i.e., where project activities would be undertaken including the Project's proposed facilities, buildings and infrastructure, transportation corridors, access roads, shipping routes).
- **Local Study Area (LSA):** the local study area is that area inclusive of, and beyond the site study area, where there exists the reasonable potential for immediate impacts due to project activities from any phase of the project, ongoing normal activities, or to possible abnormal operating conditions. The geographic boundary will depend on the factor being considered (e.g., a local study area defined for the aquatic environment will differ from that defined for the atmospheric environment).
- **Regional Study Area (RSA):** the regional study area is the area within which there exists the potential for direct, indirect biophysical and socio-economic effects of the Project that may interact with the effects of other projects, resulting in the potential for cumulative effects. The geographic boundaries for the regional study areas are also specific to the factor being considered and the area includes lands, communities, and portions of Nunavut and other regions of Canada that may be relevant to the assessment of wider-spread effects of the Project. The Proponent is advised to duly consider the transboundary implications of impacts to identified VCs as a result of air transportation and marine shipping (if applicable) for the Project.

The IS must contain a justification and rationale for all spatial boundaries and scales chosen. The LSAs and RSAs may vary between disciplines and between VCs, as they represent the likely distribution of Project effects on individual VCs. For example, a local study area defined for the aquatic environment will differ from that defined for the atmospheric environment, which will differ from that defined for archaeological studies. The Proponent is not required to provide a comprehensive baseline description of the environment at each of the above scales but must provide sufficient detail to address the relevant environmental and cumulative effects of the Project.

### **Temporal Boundaries**

Like spatial boundaries, temporal boundaries may vary with, among other things, the type of impact being considered and with seasonal changes. The establishment of temporal boundaries has two aspects: the time-horizon used to predict changes, and the temporal variability and periodicity that characterize the predicted impacts. The time-horizon used for predicting change must be a function of the anticipated duration of the Project; including the final closure and post-closure phases, the predicted impacts, and the predictive capability of the various disciplines at play.

The IS shall determine the temporal boundaries separately for the construction, operation, maintenance, temporary closure (care and maintenance), final closure (decommission and

reclamation) and post-closure periods, including planned exploration to be undertaken in conjunction with the Project. The temporary closure period (or care and maintenance) covers the period of untimely closure of the Project and includes care and maintenance activities; the final closure period covers decommissioning, and reclamation activities; and the post-closure period covers the period after the Project has been decommissioned and abandoned, and the site has been reclaimed and returned as much as possible to its natural state. The temporal boundaries of the post-closure period may encompass many years, depending on the site, the type of Project and the methods of closure. The Proponent shall also consider where applicable, the temporal bounds of Project alternatives under assessment, noting where they differ from those for the preferred option. As is the case for the determination of spatial boundaries, the temporal boundaries must indicate the range of appropriate scales at which particular baseline descriptions and the assessment of environmental effects are presented.

For all temporal boundaries, the IS shall give a rationale and justification for the boundaries chosen, including a description of any consultation with members of the public or technical experts. In doing so, the Proponent shall recognize the potential influence of climate change. For example, there may be no immediate danger of permafrost degradation, but the Proponent must incorporate the future possibility of this risk into the design of project components where applicable. The Proponent shall give due consideration to traditional and contemporary land use and occupancy (past, present, and future), in addition to other factors to be considered in its determination of temporal boundaries for the Project.

## **8.2 Public Consultation**

As identified in [Section 2.2](#) of this document, the Proponent shall provide highlights of any public consultation and/or engagement undertaken and planned for the future as part of the IS designed to address concerns of the general public regarding the anticipated or potential environmental effects of the Project. The IS shall describe efforts made to distribute project information, as well as discuss information and materials distributed during public consultations. The IS will indicate the methods used, where the consultation was held, the persons and organizations consulted, and how communication was facilitated with the public through accommodating regional languages/dialects; not only through translation but through live interpretation at community/public meetings.

A summary of key dialogues and identified issue areas from pre-consultation and consultation activities, along with any commitments made by the Proponent to communities during these discussions must be presented in the IS.

The IS must include a listing of concerns identified during consultations and discuss the extent to which information from consultation activities was incorporated into the design of the Project as well as in the IS. The IS will provide a summary of key issues raised related to the Project and its potential environmental effects, as well as describe any outstanding issues and ways to the Proponent proposes to address them. Specifically, the Proponent's IS consultations should:

- Continue to provide up-to-date information describing the Project to the public, particularly residents of communities likely to be most affected by the Project;

- Involve the public in determining how best to deliver that information, i.e., the types of information required, translation and interpreting needs, timing of consultation, different formats, the possible need for community meetings; and
- Explain the findings documented within the IS in a clear direct manner to make the issues understood by as wide an audience as possible.

### **8.3 Inuit Qaujimaningit, Inuit Qaujimajatuqangit, Traditional, and Community Knowledge**

The Proponent shall, with reference to [Section 2.3](#), present and justify its definition of Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge and shall explain the methodology used to collect this information including:

- Format and location of meetings;
- Description of background information provided at meetings;
- Level of community participation and composition of participants;
- Design of studies on Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge;
- Selection process for participants in such studies, including participants outside the Nunavut Settlement Area;
- Types of Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge collected; and
- Associated issues related to the storage and ownership related to Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge.

The Proponent shall summarize what kinds of Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge were collected and describe the roles and responsibilities of all concerned individuals and organizations in collecting, analyzing, interpreting and synthesizing this data. The Proponent shall also indicate whether special efforts were made to collect Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge from Inuit Elders, women or special groups, or harvesters familiar with the Project area.

In all sections of the IS, the Proponent shall discuss how it weighed and incorporated Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge in areas such as baseline data collection, impact prediction, significance assessment, and the development of mitigation and monitoring programs. It shall explain how it integrated Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge and popular science, including the manner in which it reconciled any apparent discrepancies between the two. The Proponent shall also include a discussion on how it dealt with discrepancies within Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge (variation between individuals) and include incidences where Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge is being used to address gaps in currently available scientific data.

## 8.4 Description of the Environment and Baseline Information

The IS will include a description of the environment, including the components of the existing environment and environmental processes, their interrelations and interactions as well as the variability in these components, processes and interactions over time scales appropriate to the IS. The IS should include descriptions of existing conditions for all selected VCs. In characterizing the environmental effects of the project, the proponent will consider the current baseline environment and environmental trends within the project area, including Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge in relation to the existing biophysical and socio-economic environments relevant to the assessment of potential impacts from the Project for all proposed phases. The description of the existing baseline and the environmental trends should include a consideration of past projects and activities carried out by the Proponent and/or others within the regional study area.

The Proponent shall explain methodologies for baseline data collection and analyses, evaluation of the adequacy of data, confidence levels associated with baseline data, and identification of significant gaps in knowledge and understanding. The associated uncertainties and the steps to be taken to fill information gaps should be discussed. The Proponent should consider other available information containing baseline data related to the Project region, including a review of published literature, technical scientific reports, and peer-reviewed scientific literature to present a complete picture of baseline conditions.

To identify natural fluctuations and trends including cyclical and other recurrent phenomena, the Proponent shall collect baseline data to reflect sufficient time, depth and geographic broadness of both temporal and spatial scale (e.g., populations and distributions of wildlife VECs are known to fluctuate in cyclic trends over extensive time periods and geographic ranges). In order to understand the natural ecological conditions and the potential impacts from the Project on these conditions, the Proponent should consider the design of all biophysical environmental monitoring programs to ensure that the baseline data required is useful in understanding the relationship between the natural ecological conditions and the potential Project impacts on these conditions.

Finally, the Proponent shall make any linkages explicit and describe the trade-offs. For example, deficiencies in baseline data increase uncertainties in the prediction of potential impacts, and consequently may require an intensification of corresponding monitoring and mitigation programs ([Section 10.3](#)), and follow up and adaptive plans ([Section 10.7](#)).

Additional guidance on information requirements for the IS will be included here when project-specific IS Guidelines are developed and issued for a project under Review pursuant to Section 12.5.2 of the *Nunavut Agreement* and s. 101(1) of the *NuPPAA*.

## 8.5 Study Strategy and Methodology

In describing the study methodologies, the Proponent shall explain how scientific, engineering, Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional, community, and any other knowledge was used to construct its studies and reach its conclusions. Any assumptions shall be identified and justified, and all conclusions presented shall be substantiated by the Proponent. All data,

models, and studies must be documented so that the analyses are transparent and reproducible. All data collection methods shall be specified, and the uncertainty, reliability and sensitivity of methods and models used to reach conclusions shall also be indicated.

To support the main conclusions presented in its IS, the Proponent shall broadly identify significant gaps of knowledge and understanding, the steps taken by the Proponent to address these gaps, and how these gaps impacted those conclusions.

### **8.5.1 Acquisition Methodology and Documentation**

The Proponent shall specify and justify all sampling protocols and statistical processes employed in both the biophysical and social contexts. The scope and reliability of the results, the possibility of reproducing the analyses, and quality control of laboratory analyses shall be analyzed. All data that is based on environmental sampling involves some variability, which must be determined in order to assess the scope and reliability of the data. The Proponent shall, for all data obtained from environmental sampling, provide a dispersion or variability coefficient (variance, standard deviation, confidence interval, etc.) and justification for sample size used.

When designing data collection or baseline studies, it is recommended that the Proponent coordinate with ongoing programs with relevant developments, government organizations, regional authorities, and researchers. This recommendation applies to data collected for the Nunavut General Monitoring Program (NGMP), as per Article 12 of the *Nunavut Agreement*, the Proponent's project-specific monitoring programs, as well as any regional monitoring initiatives in which the Proponent currently participates or plans to participate.

### **8.5.2 Data Analysis and Presentation**

Use of quantitative and qualitative criteria to describe the environment, compare various design and development options, or assess impacts, requires each criteria to be defined, their relative importance stated, and the differences between the categories (e.g., desirable, acceptable, unacceptable) indicated and justified. The Proponent shall corroborate all analyses, interpretations of results, and conclusions with a review of relevant literature, providing direct references with an indication of their public availability. Any Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge or community knowledge references shall be indicated and sources identified, or referenced appropriately in cases where Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge or community knowledge ownership or confidentiality concerns exist.

## **8.6 Impact Assessment Approach**

The required impact assessment, including the significance analysis, should describe: the effect considered, the significance of the effect and justification for that determination; and if applicable, how the effect fits into a cumulative effects analysis and transboundary effects analysis. In this assessment, more emphasis should be placed on those significant impacts on the VCs, extending across all the Project phases if applicable. The biophysical elements and socio-economic elements potentially impacted by the Project components, activities and undertakings should be referred to in the categories listed in [Section 9.0](#). Based on the predicted potential



adverse effects, the proposed mitigation measures shall be addressed in the corresponding management plans as listed in [Section 10.0](#).

The impact assessment for each VEC and VSEC can be linked to a list of project components and activities deemed responsible for the potential impacts. Vice versa, a project component or activity can also be linked to various environment elements, in particular VECs and VSECs, on which it might potentially have impacts. A matrix or a comparable tool should be employed to identify all linkages between environmental elements and project components and activities, highlighting those significant interactions between both.

### **8.6.1 Impact Prediction**

The Proponent shall assess the direct, indirect, short-term, and long-term impacts of the Project on the ecosystemic and socio-economic environments, and the interactions between them, focusing on the anticipated response of the VCs. The Proponent shall provide a discussion on how the predicted changes or impacts compare to existing/baseline conditions. The Proponent shall also assess the degree of uncertainty associated with each predicted effect. Where potential cumulative effects are identified, a discussion should be provided related to the cumulative effects assessment as outlined in [Section 8.6.3](#) of these guidelines.

The Proponent shall identify potential impacts resulting from each Project phase, including impacts arising from accidental events and malfunctions, with accepted practices used to draw impact predictions. Predictions shall be presented with appropriate explanations and justification, and the Proponent shall:

- Explain how scientific, engineering, and Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge was used;
- Document and justify study methodologies, including mathematical or numerical modeling and statistical analyses;
- Support analyses, interpretation of results and conclusions with reference to appropriate literature;
- Document assumptions and limitations of data collection and analyses, and describe how uncertainty in impact predictions have been dealt with;
- Specify and reference sources for any contributions based on Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge;
- Identify which studies included the assistance of communities and individuals, who was involved (if the information can be made public), and how participants were selected;
- Identify all proposed mitigation measures and adaptive management strategies, if applicable; and
- Describe or characterize the potential residual effects.

## 8.6.2 Impacts of the Environment on the Project

The Proponent shall discuss the potential impacts of the environment on the Project, considering such factors as:

- Geotechnical hazards (including slope and underground instability, differential or thaw settlement, frost heave, ice scour and seismic activity);
- Unfavourable geological conditions (weak zones and/or faults);
- Permafrost (ground instability related to permafrost thaw and artesian groundwater pressure due to permafrost confinement);
- Severe weather events (extreme precipitation events, flooding, storm surges etc.); and
- Sea ice conditions, sea level trends, subsidence and global climate change.

The discussion on global climate change must describe and assess, on the basis of current knowledge, how potential climate change could affect permafrost and soils with high ice content, the hydrological regime, the groundwater regime, as well as marine ice flow regimes, and the long-term impacts of such changes on Project infrastructure (i.e., water diversions and impoundment structures, waste water treatment structures, fuel and chemical storage areas, solid waste sites, road structures, waste management facilities, etc.). In addition, the Proponent shall identify the Project's sensitivity to changes in specific climate-related parameters ([CEAA, 2003](#)). The discussion on climate change should include:

- Effects of climate on the Project, with a focus on the design and planning of Project components and activities;
- Impacts of extreme meteorological events on the Project, and related considerations for Project design and planning, including, but not limited to, the following: extreme temperature and precipitation events; high winds and waves; ice-ride up and pile-up events; extreme ocean water levels (high and low); and severe fog or white out conditions. Potential changes to the timing of ice formation, active layer thickness, and frequency of storms should also be taken into consideration;
- Design and apply multiple scenarios on impacts assessment, where these scenarios span the range of possible future climates, rather than designing and applying a single “best guess” scenario ([CCDS, 2018](#)). It is recommended that the range of future climates considered by the Proponent up to date scenarios, such as those used in the Arctic Climate Impact Assessment report ([ACIA, 2005](#)) as well as those in the relevant Intergovernmental Panel on Climate Change assessments for polar regions ([IPCC, 2018](#));
- Impacts from climate change on sensitive ecosystem features within the terrestrial and marine ecosystems;
- Predicted effects of climate change on mean and extreme climate parameters, and meteorological phenomena including flooding, storms, etc.
- Potential effects of climate change on permafrost thawing in the Project area, with discussion of the related implications on the stability of project components (e.g., waste

management facilities) and sensitive land features (e.g., Canadian Heritage River, territorial or national park), including waste management facilities; and

- Uncertainties related to climate change predictions, and the related effect on other predictions in the IS, including water quantity and permafrost thawing.

Longer-term effects of climate change must also be discussed up to the projected closure phase of the Project. The sensitivity of the Project to long-term climate variability and effects shall be identified and discussed. The Canadian Environmental Assessment Agency Procedural Guide, “*Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners*” ([CEAA, 2003](#)) should be consulted for guidance as to how climate change considerations should be incorporated into the IS.

### 8.6.3 Cumulative Effects Assessment

A cumulative impact (or effect) can be defined as the impact on the environment that results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions ([Tilleman, 2005](#)). Cumulative impacts can also result from individually minor, but collectively significant, actions taking place over a period of time.

The Proponent is expected to carry out its cumulative effects assessment (CEA) on the basis of the following:

- *A larger spatial boundary (RSA rather than LSA)*: This will enable the Proponent to assess the project impacts in relation to other activities (including other projects and exploration) in the geographical region, and implies that spatial assessment boundaries may cross jurisdictional boundaries for a better understanding of additive and interactive pathways of different types of cumulative effects ([NIRB, 2007](#));
- *A longer temporal scale (as defined in [Section 8.1.2.2](#))*: This will enable the Proponent to consider all activities from past developments into the present time and the reasonably foreseeable future for a more accurate analysis of variability and significant long-term effects;
- *Alternatives analysis*: CEA requires the explicit creation of alternative development scenarios and analysis of potential cumulative effects associated with each option ([Greig et al., 2002](#)). Therefore, the CEA should address the alternatives presented under [Section 7.5](#) of these guidelines;
- *Consideration of effects on the VCs*: The CEA should enable the Proponent to more accurately assess how the interaction of impacts from the various Project components and activities, and those from other past, present and reasonably foreseeable projects (including exploration), might impact in a cumulative fashion on selected VCs; and
- *Evaluation of significance*: The CEA should identify and predict the likelihood and significance of potential cumulative effects, including direct, indirect and residual impacts. The Proponent shall consider and determine the significance of the cumulative effects using the criteria described in [Section 8.6.6](#).

On this basis, the Proponent shall:

- Justify the environmental components that are the focus of the CEA. The Proponent’s assessment should emphasize the cumulative effects for those VCs that could potentially be most affected by the Project;
- Present a justification for the spatial and temporal boundaries for the CEA, (recognizing that these boundaries can vary depending on the VCs assessed). The Proponent shall give due consideration to the potential for cumulative effects that may be transboundary;
- Discuss and justify the choice of projects, components and selected activities for the CEA. These shall include past activities and projects, those currently being carried out and any reasonably foreseeable project or activity. Activities should not be limited to exploration and mining-related activities but include other factors not related to mining (e.g., wildfires, roads/airstrips developed for non-mining activities, etc.); and
- Discuss the mitigation measures that are technically and economically feasible and determine the significance of the cumulative effects. If any impact is identified and verified beyond the Proponent’s sole responsibility or capacity, the Proponent shall make best efforts to identify other responsible parties that may contribute collectively to mitigating the impact.

#### **8.6.4 Transboundary Impacts**

Transboundary impacts, for the purpose of the Standard IS Guidelines, are defined as those effects linked directly to the activities of the Project inside the Nunavut Settlement Area (NSA), which occur across provincial, territorial, international boundaries or may occur outside of the NSA. The Proponent shall give due consideration to the potential for transboundary impacts which may be a result from interactions between the effects of the Project in the NSA, and the effects of projects located outside the NSA. As noted above, the potential for transboundary impacts related to cumulative effects associated with this Project shall also be defined.

Where feasible, the potential for transboundary impacts should be considered for all VCs identified by the Proponent, with specific consideration given to the potential for transboundary impacts associated with marine shipping on marine mammals, migratory birds and seabirds, and their habitat, as well as the large migration range of land mammals such as caribou. Any residual effects which have the potential to occur outside of the NSA shall also be included in the Proponent’s evaluation of transboundary impacts.

Additional guidance on information requirements for the IS may be included here when project-specific IS Guidelines are developed and issued for a project under Review pursuant to Section 12.5.2 of the *Nunavut Agreement* and s. 101(1) of the *NuPPAA*.

#### **8.6.5 Indicators and Criteria**

The Proponent shall identify the indicators and criteria selected for assessing the potential impacts of the Project, including any cumulative and transboundary impacts, and shall justify their selection. In doing so, the Proponent shall describe the role played by consultation with members of the public, Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge and technical experts. In its discussion of indicators, the Proponent shall emphasize the linkage between those indicators and the relevant VCs. The indicators for the

VECs should include sensitivity to contaminants and environmental pathways of exposure and bioaccumulation.

### **8.6.6 Significance Determination**

Impact significance is based on comparing the predicted state of the environment with and without the Project and expressing a judgment as to the importance of the changes identified. Assessing the significance of potential impacts is, arguably, the single most important aspect of an impact statement.

In the process of significance determination, the Proponent is expected to communicate with potentially affected communities, including relevant individuals and organizations to solicit input and incorporate their views regarding the value placed on a VEC or VSEC, as well as associated significance of impacts. The Proponent shall describe how it will determine the significance that different parties assigned to each impact, and how it will proceed if different parties ascribe varying significance to VECs, VSECs or the associated impacts. If it is impossible to attain a consensus on the significance of certain impacts, the Proponent shall present the range of viewpoints expressed and shall present and justify its preference, if any. Finally, the Proponent shall describe the significance it ascribes to each effect, and justify how the significance of the effect was determined.

The dynamic change of ecosystems and their components must also be considered in determining impact significance. The Proponent shall evaluate the significance of potential impacts in the light of data on the current “state of health” of ecosystems and their predictable evolution, while taking into account global climate change. Consistent with the ecosystem approach required above, the Proponent should highlight the interactions within and between ecosystem components in an effort to increase understanding of the dynamism of the ecosystems in question and the nature and severity of the predicted impacts.

The terms used to describe the level of significance, such as "low", "medium", "high", “adverse”, “beneficial”, “positive”, “negative” must be clearly defined, where possible in quantitative terms. The following attributes defined by the NIRB shall be taken into consideration in determining the significance of each impact:

- Direction or nature of impact (i.e., positive/beneficial versus negative/adverse);
- Magnitude and complexity of effects;
- Geographic extent of effects;
- Frequency and/or duration of effects;
- Reversibility or irreversibility of effects; and
- Probability of effects.

In addition, the NIRB considers other relevant attributes in assessing the significance of impact:

- Ecological or socio-economic context/value;
- The environmental sensitivity of the area likely to be affected by the project;

- The historical, cultural and archaeological significance of the geographic area likely to be affected by the project;
- The size of the affected human populations, and the size of the affected wildlife populations and related habitat;
- The extent of the effects of the project on other regional human populations and wildlife populations, including the extent of the effects on Inuit harvesting activities;
- The potential for cumulative adverse effects given past, present and future relevant events;
- Effects on ecosystem function and integrity;
- The effect on the capacity of resources to meet present and future needs;
- The value attached to the impacted VC by those who identified them; and
- The relative sensitivity of a VEC to impacts, e.g. higher sensitivity of species at risk.

### **8.6.7 Certainty**

The Proponent shall also assess the degree of uncertainty or confidence associated with each predicted effect. The level of certainty with predictions is related to limitations in the overall understanding of the ecosystem and limitations in accurately foreseeing future events or conditions. The Proponent shall provide a reasonable description how uncertainties have been dealt with, through elements such as project design, monitoring and contingency plans.

## **9.0 PROJECT ENVIRONMENT AND IMPACT ASSESSMENT**

The IS shall provide a complete analysis of the predicted effects from the Project on the biophysical and socio-economic environments (see [Section 8.0](#)), and will serve as a basis for developing various mitigation and monitoring plans to eliminate and/or minimize the potential impacts from the Project.

### **9.1 Biophysical Environment and Impact Assessment**

The Proponent shall present relevant information pertaining to the biophysical environment and associated processes to be assessed (see [Section 8.4](#)), to serve as a baseline against which the potential impacts of the Project can be measured. Information should be presented in the form of a “Conceptual Site Model” with clear links to ecological and human health risk assessment presented throughout the document. Baseline summaries should also include trends and how the environment is expected to change over the life of the Project.

In describing the biophysical environment, the Proponent shall take an ecosystemic approach that takes into account both scientific and Inuit Qaujimaningit perspectives regarding ecosystem health and integrity.

In its impact assessment, the Proponent should identify and justify the indicators and significance thresholds, and further relate them to Project monitoring and follow-up measures. For each predicted negative impact in this section, associated mitigation measures should be discussed to the extent possible, with references to project design ([Section 7.1](#)) and environmental management systems ([Section 10.0](#)). The Proponent should also include a treatment on the

temporal aspect of when potential impacts on each relevant VEC could reasonably be expected to manifest.

Additional guidance on information requirements for the IS will be included here when project-specific IS Guidelines are developed and issued for a project under Review pursuant to Section 12.5.2 of the *Nunavut Agreement* and s. 101(1) of the *NuPPAA*.

## 9.2 Socio-Economic Environment and Impact Assessment

The Proponent shall present baseline information on the functioning and stability of the socio-economic environment in the RSA (see [Section 8.4](#)), with a corresponding impact assessment covering all Project phases of development [construction, operations, temporary closure, final closure (decommission and reclamation) and post-closure]. The Proponent shall also describe the components of the socio-economic environment and the processes affecting the components as they exist without the Project. This will serve as a baseline against which the potential changes and impacts of the Project can be measured and will also justify the Proponent's selection of VSECs and indicators.

The Proponent shall provide a clear rationale for its selection of communities, the public consultation carried out, and relevant reference studies and reports from which baseline data is collected. The Proponent shall describe the interactions between the socio-economic and biophysical environments, including the roles of the land and wage based economies and the nature of the mixed economy of the North. The Proponent should provide sufficient detail to demonstrate a proper understanding of the structure and functioning of the potentially affected communities that enables the Proponent to identify the potential of the Project to affect these communities, whether positively or negatively, and to ensure that any socio-economic mitigation measures put in place by the Proponent have a reasonable likelihood of attaining their objectives.

Whenever relevant and appropriate, data shall be disaggregated by age, gender, and ethnic affiliation. Socio-economic indicators should be used to present baseline information and subsequently measure impacts related to the Project. The IS shall clearly identify and justify the indicators selected and the indicators chosen must be adequate to address all types of foreseeable impacts, including cumulative and residual impacts. In addition, the Proponent should include predictions regarding when potential impacts on each relevant VSEC could reasonably be expected. Finally, the Proponent is expected to clearly identify limitations and knowledge gaps encountered in its efforts to collect the required information.

Additional guidance on information requirements for the IS will be included here when project-specific IS Guidelines are developed and issued for a project under Review pursuant to Section 12.5.2 of the *Nunavut Agreement* and s. 101(1) of the *NuPPAA*.

## 9.3 Human Health and Environmental Risk Assessment

The Human Health Risk Assessment is to include:

- Predicted sources, quantities and points of release from the project emissions and effluents containing hazardous substances;

- Selection process for hazardous substance constituents of potential concern (COPCs);
- Identification of pathways to human receptors;
- Identification and characterization of human receptors (workers and the public), including maps to delineate their locations and the distances of communities, residences, temporary/seasonal residences, etc. to project sites and related infrastructure;
- Method used to convert hazardous substance exposure and intake by the various human receptors from the various pathways into an exposure or dose (e.g., conversion factors); and
- Criteria used to determine significance of impact (e.g., exposure relative to lifetime cancer risk limit).

The Environmental Risk Assessment is to include:

- Predicted sources, quantities and points of release from the project emissions and effluents containing hazardous substances;
- Selection process for COPCs;
- Identification of pathways to terrestrial and aquatic ecological receptors (VECs);
- Identification and characterization of terrestrial and aquatic ecological receptors;
- Method used to convert hazardous substance exposure and intake by the various ecological receptors from the various pathways into an exposure or dose (e.g., conversion factors); and
- Criteria used to determine significance of impact (e.g., toxicity reference values,).

The Proponent shall include a summary of proposed mitigation measures to prevent or reduce adverse health effects and environmental risks from the project.

#### **9.4 Accident and Malfunctions Assessment**

The assessment of accident and malfunction scenarios that have a reasonable probability of occurring must be provided, and should include the following:

- A description of the source, quantity, mechanism, rate, form and characteristics of contaminants and other materials (physical and chemical) likely to be released to the surrounding environment during the postulated accidents and malfunctions;
- The environmental effects and/or consequences that may result from such accidents and malfunctions; and
- A description of how each potential accident and malfunction would be managed and mitigated, including a description of any contingency, clean-up or restoration work in the surrounding environment that would be required during, or immediately following the incident.

The assessment for conventional accidents and malfunctions should include fire and explosion incidents and demonstrate that the most probable accident and malfunction scenarios are unlikely to cause long-term or residual effects both to persons and the environment, taking into account proposed mitigation measures, such as preventive measures and emergency response capability.



## **10.0 ENVIRONMENTAL MANAGEMENT SYSTEM**

### **10.1 Environmental Management Plan**

An Environmental Management Plan (EMP) provides a systematic approach to consistently managing all environmental affairs for the Proponent, addressing concerns through the allocation of resources, assignment of responsibility and ongoing evaluation of practices, with an aim to improving environmental performance through continual improvement of the management system. The IS should include the Proponent's environmental policy, EMP, operational plans, and associated environmental management system for the Project. The EMP shall address how the Proponent proposes to manage potentially adverse environmental effects throughout the life of the Project.

The Proponent shall discuss the flexibility of the proposed EMP to respond to changes in the mining development plan, the regulatory regime, the biophysical and socio-economic environments, technology, research results, and on-going understanding of Inuit Qaujimaningit, Inuit Qaujimajatuqangit, traditional knowledge and community knowledge. The IS should include discussion of how the results from the EMP will be used to support adaptive environmental management throughout all phases of the Project, and identify threshold/criteria and indicators to trigger management actions in each sub plan.

The EMP shall be comprised of individual monitoring and mitigation plans, specific to various aspects, components, activities and phases of the Project. Although the information requirements of the following sections are intended to be as comprehensive as possible, it is recognized that various items depend on the Proponent's development plans for the Project, which will continue to be refined throughout the Review. While some information required under these plans might not be available for the Proponent's initial IS submission, the Proponent shall include a scheduled timeline relating to stages of the NIRB's review process or the later licensing/regulatory processes when this information will become available (i.e., Technical Meeting, *Final* IS, Final Hearing, and Water Licensing). In addition, the NIRB recognizes that flexibility in the arrangement of the information requested in the following sections may be required and the Proponent may use its judgement in consolidating or arranging the information in the most effective fashion.

In its individual monitoring and mitigation plans, the Proponent shall also assess the likely effectiveness of mitigation measures and associated follow-up mechanisms for adaptive management. The Proponent shall provide a risk assessment of those economic (e.g., the global economy and international markets), or other conditions (e.g., ownership transfer) that might also impair the implementation or effectiveness of proposed mitigation measures or management.

### **10.2 Environmental Protection Plan**

The Proponent shall, based on its impact predictions for identified VECs and VSECs, prepare an Environmental Protection Plan (EPP) in accordance with its EMP prior to commencement of all phases of the Project (site preparation, construction, operation, maintenance, any potential modifications, temporary closure, final closure (decommission and reclamation) and post-closure). The EPP shall be integrated into procedure documents for all phases of the Project that

target the site management staff, the Proponent's occupational health, safety and environmental compliance staff, as well as government departments and agencies tasked with environmental and regulatory compliance monitoring/surveillance. If appropriate, a table of contents and an annotated outline for the EPP should be presented in the IS which addresses the major project activities, permit requirements, mitigation measures and contingency planning in combination with other management plans.

### **10.3 Monitoring and Mitigation Plans**

In accordance with the EMP, the Proponent shall present individual monitoring and mitigation plans, specific to various aspects of the Project and the environment, and to be incorporated into all applicable phases of the Project. In these plans, the Proponent is required to outline how results from monitoring will be used to refine or modify the design and implementation of mitigation measures and management plans.

In the IS, the Proponent should demonstrate how these plans will ensure that:

- The Project is conducted as proposed;
- The predicted adverse environmental effects are promptly mitigated at the earliest possible time;
- The regulatory requirements applicable to the Project will be met; and
- The works, equipment, and facilities connected to the Project are operating properly.

In its monitoring and mitigation plans, the Proponent should specify proposed criteria or thresholds to trigger mitigation measures if monitoring results warrant. These plans should also identify the position of the person responsible for the implementation of mitigation measures, the system of accountability and the phase and component of the Project to which the mitigation measure applies.

Each of the monitoring and mitigation plans shall include:

- Objectives of the monitoring program, and identifying any applicable laws, regulations and/or Acts;
- The VCs to be monitored, with associated parameters and indicators, and selection criteria/thresholds to be compliant with;
- Monitoring of the performance of waste management facilities (e.g., tailings), including physical, geochemical and geotechnical parameters/characteristics;
- Description of the frequency, duration, and geographic extent of monitoring with justification for each, and identification of the personnel who will conduct the monitoring, collect, analyze and interpret data;
- Description of measures taken to protect the monitoring infrastructure from climate change and potential major climate events (e.g., extreme flows);
- Proposed actions in the event that observed results (impacts) differ from those predicted, including a discussion of actions to be taken for observed non-compliance with the law or

regulations, performance targets or with the obligations imposed on contractors by the environmental provisions of their contracts;

- Proposed reporting scheme for monitoring results, including format, reporting intervals, and responsible territorial and federal authorities;
- Evaluation of the efficiency of mitigation measures, and the compliance with Project authorizations;
- Plans for integration of monitoring results with other aspects of the Project, including adjustments for operating procedures and refinement of mitigation measures;
- Procedures/mechanism to assess the effectiveness of monitoring programs, mitigation measures, and adaptive programs for areas disturbed by the Project;
- Discussion of the relationship between monitoring plans and the EMP; and
- Quality assurance and quality control measures to be applied to monitoring programs.

As described in [Section 8.4](#), the Proponent should consider the design of all biophysical environmental monitoring programs to ensure that the baseline data required is useful in understanding the relationship between the natural ecological conditions and the potential Project impacts on these conditions.

In addition, all monitoring plans should be designed so that results from these programs can be coordinated with ongoing regional initiatives or programs with relevant government organizations, or regional authorities.

#### **10.4 Biophysical Environmental Plans**

The Proponent shall present environmental monitoring and management plans developed to eliminate or mitigate potential negative impacts of the Project on the biophysical environment (see [Section 9.1](#) for a discussion on the biophysical environment). The Proponent shall also identify any residual effects after appropriate mitigation measures have been implemented. The plans should be developed to reflect the complete life span of the Project, and contain appropriate monitoring and evaluation techniques (e.g., indicators) that will allow regulators to intervene in a timely and constructive manner.

Additional guidance on information requirements for the IS will be included here when project-specific IS Guidelines are developed and issued for a project under Review pursuant to Section 12.5.2 of the *Nunavut Agreement* and s. 101(1) of the *NuPPAA*.

#### **10.5 Socio-Economic Environmental Plans**

The Proponent shall present plans, policies and programs to minimize potential negative socio-economic effects and to optimize the potential positive effects of the Project on the socio-economic environment (see [Section 9.2](#) for a discussion on the socio-economic environment). These plans should be developed to reflect the complete life span of the Project, and contain appropriate monitoring and evaluation techniques (e.g., indicators) that will allow regulators to intervene in a timely and constructive manner.

The Proponent shall describe its socio-economic monitoring plans and mitigation programs, including how they will identify, manage and mitigate potentially adverse socio-economic impacts and augment positive socio-economic impacts. In consultation with the applicable Regional Socio-Economic Monitoring Committee (SEMC), the Proponent should clearly identify the role it will take in regional monitoring initiatives, including how its monitoring plans will align with those of the Regional SEMC.

In general, it is expected that the Proponent's socio-economic monitoring plans and programs will include human resources, occupational health and safety, community and public involvement, implementation of Inuit impact benefits agreements (IIBA), and if applicable, development partnership agreements. The Proponent shall outline how the predominant language/dialect in the RSA will be incorporated into each respective plan.

Additional guidance on information requirements for the IS will be included here when project-specific IS Guidelines are developed and issued for a project under Review pursuant to Section 12.5.2 of the *Nunavut Agreement* and s. 101(1) of the *NuPPAA*.

## **10.6 Closure and Reclamation Plan**

The Proponent shall develop a preliminary Closure and Reclamation Plan for the Project, which outlines how the various components set out in [Section 7.0](#) will be decommissioned, reclaimed and closed following Project facilities closure. This plan can be preliminary with key issues addressed for the environmental assessment in the NIRB's Review, and greater detail expected in the Nunavut Water Board (NWB) Type "A" Water Licence Application. At a minimum, the plan submitted within the IS should include the following:

- Demonstration that environmental issues associated with the effective closure and reclamation of all Project components have been considered at the earliest possible stage in the Project development process, including influencing the Project design;
- Identifying the Proponent's goals for reclamation of lands potentially affected by the Project;
- Description of reclamation methods, time frames and schedules, including proposed progressive reclamation, research programs, and notice periods to employees and public;
- Description of temporary closure measures and a discussion of at what point a temporary closure should be considered permanent for the purposes of triggering the implementation of the Closure and Reclamation Plan;
- Discussion of research programs to address challenges to reclamation, given the local conditions;
- Considerations for the protection of public health and safety;
- Description of the estimated contaminant and other material (physical and chemical) levels in the environment as well as estimated doses to members of the public after closure and remediation;

- Description of closure and post-closure monitoring of environmental components including, but not limited to, wildlife, vegetation, air quality, landform stability and water quality;
- Discussion about the long-term monitoring and maintenance that may be required once physical and chemical stability of reclaimed areas has been established;
- Discussion of how environmental effects will be reduced or eliminated once the Project ceases operation;
- Discussion regarding re-establishing conditions that will permit the land to return to a similar pre-Project land use;
- Identifying how the Proponent's plans reflect considerations associated with potential acid rock drainage and/or metal leaching potential of rocks, in association with related waste rock and waste management strategies; and
- Any considerations for the restoration the natural aesthetics of the project.

This plan is to be considered a “living” document; with the level of detail to be revised to reflect the progress of the Project as well as changes in technology and/or standards or legislation. Future revisions should also consider input from consultations with communities and other stakeholders on methods to be used, and potential uses for project infrastructure, etc.

#### **10.6.1 Care and Maintenance Plan**

A preliminary Care and Maintenance Plan shall be developed for the Project in conjunction with the Closure and Reclamation Plan, which outlines how the various components set out in [Section 7.0](#) will be treated in the event of a temporary closure or unplanned closure of the Project. The plan can be preliminary with key issues addressed for the environmental assessment in the Review and should include a discussion of the items listed previously in [Section 10.6](#).

### **10.7 Follow-Up and Adaptive Management Plans**

A follow-up plan is a formal, ongoing process to verify the accuracy of the environmental impact(s) predicted in the environmental assessment and permitting stage of the Project, and to determine the effectiveness of proposed mitigation measures. If the Proponent identifies unusual and unforeseen adverse environmental effects, an adjustment to the existing mitigation measures may be required and/or the development of an adaptive plan with new mitigation or compensation measures may be necessary. In order to minimize the likelihood of mitigation failures and to limit the potential severity of consequences if there is such a failure, the Proponent must discuss how information related to the effectiveness of mitigation measures will be analyzed, and how associated adaptive measures will be employed in the environmental management system to address any such failures. The IS should include the following information about the Proponent's follow-up and adaptive management plans:

- The need for such a follow-up and adaptive plan and its objectives;
- How this plan will be structured, including enforcement and penalties for non-compliance;

- Which elements of the monitoring program described in [Section 10.3](#), would be incorporated;
- The mechanisms through which monitoring results will be analysed, and mitigation measures or adaptive plans will be adjusted if necessary;
- How the effectiveness of any new or adjusted mitigation measures will be assessed and verified;
- The roles to be played by the Proponent, regulatory agencies, and others in such a plan, and possible involvement of independent researchers;
- The sources of funding for the plan and reporting; and
- Identification of the quantitative triggers or thresholds that will indicate the need to alter or vary the management plan or mitigation measures.

## **10.8 Significance of Residual Impacts**

The IS shall include an assessment of the significance of residual effects of the Project on the components of the biophysical and human environments after the mitigation measures proposed by the Proponent have been implemented. This analysis of the potential residual effects on the VCs, should enable readers of the IS to clearly understand the consequences of the Project, the degree to which effects on the VCs can be mitigated with the mitigation measures proposed and identifying those effects which cannot be mitigated or compensated for.

The Proponent should include a summary table in this section of its IS, which presents the effects before and after mitigation on the VCs, the mitigation measures applied, and the residual effects have been assessed.

The determination of significance of residual impact shall take into account the attributes of each impact in accordance with the criteria established in [Section 8.6.6](#).

## **11.0 LIST OF CONSULTANTS AND ORGANIZATIONS**

The Proponent shall prepare a list of all the consultants who contributed to the preparation of the IS, including their professional credentials, role and contact information in an appendix to the IS. In addition, the Proponent shall prepare a list of the organizations consulted, including the time, place, and purpose of the consultation; reference materials provided, and contact information for the organization.

## **12.0 CONCLUSION**

The IS should end with a conclusion presenting a summary analysis of the overall projected biophysical and socio-economic impacts, anticipated transboundary and cumulative effects, proposed mitigation measures, and residual impacts. While highlighting the impacts on the region where the Project is being proposed, this conclusion should clearly present the importance of the IS findings to the Nunavut Settlement Area specifically and Canada more generally.

## LITERATURE CITED

- ACIA (Arctic Climate Impact Assessment). 2005. *Arctic Climate Impact Assessment*. Cambridge University Press, 1042p.
- CCDS (Canadian Climate Data Scenario). 2018. *Canadian Climate Data Scenario Website*: <http://climate-scenarios.canada.ca/?page=main>. Accessed January 2018.
- CEAA (Canadian Environmental Assessment Agency). 2003. *Incorporating Climate Change Considerations into Environmental Assessment: General Guidance for Practitioners*. Available at: <http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=A41F45C5-1&toc=hide>. Accessed January 2018.
- Duinker P. and L. Greig. 2006. “The Impotence of Cumulative Effects Assessment in Canada: Ailments and Ideas for Redeployment.” *Environmental Management*, 37(2), 153-161.
- Ellis, S.C. 2005. “Meaningful Consideration? A Review of Traditional Knowledge in Environmental Decision Making.” *Arctic* 58, 1: 66–77.
- Greig L., K. Pawley and P. Duinker. 2002. “Alternative scenarios for future development: an aid to cumulative effects assessment.” *Canadian Environmental Assessment Agency, Research and Development Monograph Series*. Hull, QC. Available at: [http://www.ceaa.gc.ca/015/001/021/index\\_e.htm](http://www.ceaa.gc.ca/015/001/021/index_e.htm).
- Hansen, S., and J.W. VanFleet. 2003. *Traditional Knowledge & Intellectual Property: A Handbook on Issues and Options for Traditional Knowledge Holders in Protecting Their Intellectual Property and Maintaining Biological Diversity*. American Association for the Advance of Science. <http://shr.aas.org/tek/handbook>. Accessed January 2018.
- IPCC (Intergovernmental Panel on Climate Change). 2018. *Intergovernmental Panel on Climate Change Website*: [http://www.ipcc.ch/publications\\_and\\_data/publications\\_and\\_data\\_reports.shtml](http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml). Accessed January 2018.
- NIRB (Nunavut Impact Review Board). 2006a. *Guide 6b: A Proponent’s Guide to Conducting Public Consultation for the NIRB Environmental Assessment Process*. Cambridge Bay, NU: NIRB.
- NIRB (Nunavut Impact Review Board). 2006b. *Guide 7: Guide to the Preparation of Environmental Impact Statements*. Cambridge Bay, NU: NIRB.
- NIRB (Nunavut Impact Review Board). 2007. *Guide 2: Guide to Terminology and Definitions*. Cambridge Bay, NU: NIRB.
- NIRB (Nunavut Impact Review Board). 2009. *Guidelines for the Preparation of an Environmental Impact Statement for Baffinland Iron Mines Corporation’s Mary River Project (NIRB File No. 08MN053)*. November 16, 2009. Cambridge Bay, NU: NIRB.
- NIRB (Nunavut Impact Review Board). 2011. *Guidelines for the Preparation of an Environmental Impact Statement for AREVA Resources Canada Inc.’s Kiggavik Project (NIRB File No.09MN003)*. May 2011. Cambridge Bay, NU: NIRB.
- PCO (Privy Council Office). 2003. *A Framework for the Application of Precaution in Science-based Decision making about Risk*. Privy Council Office.

- QIA (Qikiqtani Inuit Association). 2009. Letter to the NIRB Re: *Draft Guidelines for the Preparation of an Environmental Impact Statement – Baffinland Iron Mines Corporation, Mary River Project*. July 31, 2009.
- Thorpe, N.L., S. Eyegetok, N. Hakongak, and Qitirmiut Elders. 2001. *Tuktu and Nogak Project: A Caribou Chronicle. Final Report to the West Kitikmeot Slave/Study Society*. Ikaluktuuttiak, Nunavut.
- Tilleman W. 2005. *The Dictionary of Environmental Law and Science*. 2<sup>nd</sup> ed. Environmental Law Centre, AB: 437 pp.
- UN (United Nations). 1987. *Report of the World Commission on Environment and Development*. General Assembly Resolution 42/187, 11 December 1987. Retrieved April 12, 2007.
- UNCED (United Nations Conference on Environment and Development). 1992. *Agenda 21: United Nations Conference on Environment and Development, Rio*. June 1992. Rio de Janeiro, United Nations.
- Usher, P. 2000. “Traditional Ecological Knowledge in Environmental Assessment and Management.” *Arctic* 53, 2: 183–93.
- Wenzel, G.W. 1999. “Traditional Ecological Knowledge and Inuit: Reflections on TEK Research and Ethics.” *Arctic* 52, 2: 113–24.
- White, G. 2006. “Cultures in Collision: Traditional Knowledge and Euro-Canadian Governance Processes in Northern Land-Claim Boards.” *Arctic* 59, 4: 401–1.