GUIDELINES TO THE PREPARATION OF AN ENVIRONMENTAL IMPACT STATEMENT

FOR SABINA SILVER CORPORATION'S HACKETT RIVER PROJECT

NIRB FILE NO. 08MN006

APRIL 7, 2009

NUNAVUT IMPACT REVIEW BOARD
P.O. Box 1360
Cambridge Bay, NU X0B 0C0
Telephone: (867) 983-4600
Fax: (867) 983-2594
E-mail: info@nirb.ca

GLOSSARY

This glossary is provided for the Proponent's greater certainty; the onus is on the Proponent to request clarification from the NIRB on any term it feels has not been made clear. Please note that, where possible, a reference has been provided for each of the terms below.

Albedo	The whiteness, or degree of reflection of incident light from an object or material (Theodore *et. al* 1997).
Bioaccumulation	The process in which certain pollutants gather in living tissue (Theodore *et. al* 1997).
Biodiversity	The diversity of plant and animal life in a particular habitat or ecosystem.
Borrow pit	Excavated areas used to provide low quality fill for construction activities such as roadbed building and landscaping. Fill of this type is usually removed from a nearby borrow pit and then compacted on the site as a base for other construction (DIAND 1999).
Commissioner's lands	Lands administered by a municipality in Nunavut, or by the Government of Nunavut.
Concentrate	A product containing a valuable mineral or metal and from which most of the waste material has been removed (INAC 2007).
Cumulative effects	The impact on the environment that results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions (Tilleman 2005). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.
Delta	A deposit of sediment, usually triangular in shape, at the mouth of a river, stream or tidal inlet.
Ecosystem	A functional unit consisting of all living organisms (plants, animals and microbes) in a given area, and all the nonliving physical and chemical factors of their environment linked together through nutrient cycling and energy flow. An ecosystem can include humans and be of any size, but it always functions as an integrated unit. Ecosystems are commonly described according to the major type of vegetation, *e.g.* forest ecosystems or grassland ecosystems (Tilleman 2005).
Esker	A ridge of sand and gravel deposited by a receding glacier.

Fines	The portion of a powder composed of particles [of rock, mineral or sediment] which are smaller than a specified size (Theodore *et. al* 1997).
Greenhouse Gases (GHGs)	Greenhouse gases (GHGs) are gases in the atmosphere that trap energy from the sun. Naturally occurring GHGs include water vapour, ozone, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) (EC 2008a). In the current context, GHGs of interest may include: carbon dioxide (CO_2) methane (CH_4), nitrous oxide (N_2O), sulphur hexafluoride (SF_6), perfluorocarbons (PFCs) and hydrofluorocarbons (HFCs).
Harvest	The reduction of wildlife into possession, and includes hunting, trapping, fishing, as defined in the *Fisheries Act*, netting, egging, picking, collecting, gathering, spearing, killing, capturing or taking by any means (GC and TFN 1993).
Inuit	Aboriginal peoples of northern Canada and Greenland. In the context of Nunavut, for the purpose of these Guidelines, meaning those people to whom NLCA Beneficiary status is ascribed.
Inuit Owned Lands	Means (a) those lands that vest in the DIO [Designated Inuit Organization] as Inuit Owned Lands pursuant to Section 19.3.1 [of the NLCA], and (b) any lands that are vested in, acquired by or re-acquired by the DIO as Inuit Owned Lands from time to time pursuant to the [NLCA], so long as they maintain such status pursuant to the [NLCA] (GC and TFN 1993).
Local Study Area	That area where there exists the reasonable potential for immediate impacts due to project activities, ongoing normal activities, or to possible abnormal operating conditions.
Mitigation	Actions taken for the purpose of reducing the negative impacts on the environment of a particular land use or activity (Tilleman 2005). Actions may include considerations in design, construction, schedule, and restorative measures. Mitigation may also include restitution for any damage to the environment caused by a land use or activity through replacement, restoration, compensation, or any other means.
Nunavummiut	Residents of Nunavut.
Nunavut Land Claims Agreement (NLCA)	The "Agreement Between the Inuit of the Settlement Area and Her Majesty the Queen in Right of Canada", including its preamble and schedules, and any amendments to that agreement made pursuant to it (Tilleman 2005).
Ore	A mineral or aggregate containing a precious or useful substance in a quantity and form that makes its extraction/mining profitable.

Overburden	Material that must be removed to allow access to an ore body, particularly in a surface mining operation.
Permafrost	A permanently frozen layer of soil or subsoil, or even bedrock (INAC 2007).
Post-closure	The period of time following the shut-down of a mine or other facility, during which monitoring of its effects should be continued.
Potentially affected communities	A community or communities with the potential to be impacted, either positively or negatively, by a proposed project or development. Such communities may be defined physical entities or comprised of dispersed populations in the area of influence of a development or project.
Precautionary Principle	Where 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 (United Nations 1972).
Proponent	The organization, company, or department planning to undertake a proposal (Tilleman 2005).
Quarries	Are any sites used for the extraction of building products or construction material from bedrock, such as limestone, shale, sandstone, or granite. Quarries may also be used as to manufacture crushed rock or other specific types of aggregate (DIAND 1999).
Reasonably foreseeable future development	Projects or activities that are currently under regulatory review or those that will be submitted for regulatory review in the near future, as determined by the existence of a proposed project description, letter of intent, or any regulatory application filed with an authorizing agency (NIRB 2007).
Regional Study Area	The area within which there is the potential for indirect or cumulative biophysical and socio-economic effects.
Rock glacier	Boulders and fine material cemented by ice about a meter below the surface.
Rock heave	The movement of rocks as a result of freezing and thawing.
Sacred site	A place on the land created or used by Inuit spiritual leaders in the past for religious ceremonies, such as: a platform or formation leading to an "altar"; a hill, mountain, stone, boulder, river, lake, or Inukshuk designated as a sacred site; an offering place where people might plead for good fortune and well-being, often found along the coast, but also

	inland; a place where an unusual event might have happened, or an event that led to a death or a story of survival; a place known to Elders in legend where a significant story occurred (Ittarnisalirijiit Katimajiit 1996).
Scoping	A process that pinpoints significant issues requiring study and analysis. This process aims to identify those components of the biophysical and/or socio-economic environment that may be impacted by the project and for which there is public concern (NIRB 2008b).
Significant environmental effects	Either: (1) any irreversible damage to biological, commercial, or agricultural resources of importance to society, (2) any reversible damage to biological, commercial, or agricultural resources of importance to society if the damage persists beyond a single year, or (3) any known or reasonably anticipated loss of members of an endangered or threatened species. Endangered or threatened species are those species identified as such in accordance with the *Endangered Species Act*, as amended (Tilleman 2005).
Sustainable Development	Economic growth and activities that do not deplete or degrade the environmental resources on which present and future economic growth depend (Tilleman 2005).
Tailings	The residues of raw materials or waste separated out during the processing of mineral ores (Theodore *et. al* 1997).
Talik	Permanently unfrozen ground in regions of permafrost. Usually applies to a layer that lies above the permafrost but below the active layer.
Thermal stability	The degree to which something, such as permafrost, has the capacity to remain at the same temperature over time.
Transboundary impacts	Environmental effects which occur across provincial, territorial, or international boundaries (NIRB 2007).
Transportation corridor	The general routing for an area containing a road (winter or permanent), a pipeline, transmission line or any combination of the three, within Nunavut but outside community boundaries (NPC 2000). In the current context, routings or tracts utilized for regular marine shipping activities are also considered to be transportation corridors.
Valued Ecosystem Components (VECs)	Those aspects of the environment considered to be of vital importance to a particular region or community, including: a) Resources that are either legally, politically, publically, or professionally recognized as important, such as parks, land selections, and historical sites; b) Resources that have ecological importance; and

c) Resources that have social importance (NIRB 2007).

Valued Socio-Economic Components (VSECs)	Those aspects of the socio-economic environment considered to be of vital importance to a particular region or community, including components relating to the local economy, health, demographics, traditional way of life, cultural well-being, social life, archaeological resources, existing services and infrastructure, and community and local government organizations (NIRB 2007).
Waste rock	All rock materials, except ore and tailings that are produced as a result of mining operations.
Water crossing	An area used for the purpose of crossing a water body. Water crossings may consist of naturally occurring areas, or installed structures such as pipelines, bridges, culverts, or roads, etc.

LIST OF ACRONYMS

BIPR	- Bathurst Inlet Port and Road
CEA	- Cumulative Effects Assessment
DPA	- Development Partnership Agreement
DEIS	- Draft Environmental Impact Statement
EC	- Environment Canada
EIS	- Environmental Impact Statement
EMP	- Environmental Management Plan
FEIS	- Final Environmental Impact Statement
GN	- Government of Nunavut
GNWT	- Government of Northwest Territories
HC	- Health Canada
KIA	- Kitikmeot Inuit Association
INAC	- Indian and Northern Affairs Canada
LSA	- Local Study Area
NIRB	- Nunavut Impact Review Board
NLCA	- Nunavut Land Claims Agreement
NPC	- Nunavut Planning Commission
NWB	- Nunavut Water Board
NSA	- Nunavut Settlement Area
RSA	- Regional Study Area
TMF	- Tailings Management Facility
VEC	- Valued Ecosystem Components
VSEC	- Valued Socio-economic Components

NOTES

(1) The terms “impact” and “effect” are used interchangeably in the present text.
(2) The terms “EIS” and “DEIS” are used interchangeably in the present text.

TABLE OF CONTENTS

GLOSSARY……. I

LIST OF ACRONYMS VI

NOTES…… VII

1.0 INTRODUCTION 1

1.1 PURPOSE OF THE GUIDELINES 1

1.2 ENVIRONMENTAL ASSESSMENT AND REGULATORY PROCESS 1

1.3 PREPARATION AND REVIEW OF THE EIS 2

1.4 REASSESSMENT OF THE GUIDELINES 2

2.0 GUIDING PRINCIPLES 3

2.1 NIRB MANDATE UNDER ARTICLE 12 OF THE NLCA 3

2.2 COOPERATION WITH THE NUNAVUT WATER BOARD 3

2.3 SUSTAINABLE DEVELOPMENT 4

2.4 TRADITIONAL KNOWLEDGE 4

3.0 SCOPE OF THE NIRB ASSESSMENT 5

3.1 NLCA – SECTIONS 12.5.2 AND 12.5.5 5

3.2 GENERAL EIS PRINCIPLES 6

3.3 HACKETT RIVER PROJECT COMPONENTS 6

3.4 SCOPING LIST 9

4.0 PROJECT DEFINITION 9

5.0 EIS OVERVIEW 10

5.1 PRESENTATION OF THE EIS 10

5.2 CONFORMITY 10

5.3 LENGTH 10

5.4 FORMAT 11

5.5 DATA PRESENTATION 12

5.6 SUMMARIES 12

5.6.1 Executive Summary 12

5.6.2 Popular Summary (in English, Inuktitut, and Inuinnaqtun) 12

5.7 TRANSLATION 13

6.0 ENVIRONMENTAL IMPACT STATEMENT CONTENT GUIDELINES 13

6.1 PROPONENT INFORMATION 13
6.2 REGULATORY CONTEXT 14
6.3 REGIONAL CONTEXT 14
6.4 SPATIAL BOUNDARIES 14
6.5 TEMPORAL BOUNDARIES 15
6.6 LAND TENURE 16
6.7 ANALYSIS OF NEED AND PURPOSE 16
6.8 METHODOLOGY 17
6.9 PUBLIC CONSULTATION 17
6.10 TRADITIONAL KNOWLEDGE 18
6.11 DATA ACQUISITION, METHODOLOGY AND DOCUMENTATION 18
6.12 DATA ANALYSIS AND REPORTING 18
6.13 DETAILED PROJECT PROPOSAL DESCRIPTION 19
6.13.1 Alternatives Assessment 19
6.13.2 Project Components and Activities 20
6.14 PROJECT DESIGN 27
6.15 PROJECT SCHEDULE 27
6.15.1 Potential Project Impediments 27
6.15.2 Future Development 27
6.16 BASELINE INFORMATION – BIOPHYSICAL AND SOCIO-ECONOMIC ENVIRONMENTS 28
6.16.1 Valued Ecosystem Components and Valued Socio-economic Components 28
6.16.2 Biophysical Environment 30
6.16.3 Socio-Economic and Human Environment 34
6.17 APPROACH TO THE ASSESSMENT AND MITIGATION OF IMPACTS 35
6.17.1 Impact Assessment Methodology 36
6.17.2 Cumulative Effects 36
6.17.3 Transboundary Impacts 37
6.17.4 Significance of Impacts 38
6.17.5 Indicators and Criteria 39
6.17.6 Impacts of the Environment on the Project 39
6.18 ASSESSMENT AND MITIGATION OF IMPACTS 39
6.18.1 Impacts of Project Components and Activities 39
6.18.2 Physical and Biological Impacts 43
6.18.3 Socio-Economic Impacts 47
6.18.4 Cumulative Effects Assessment 49
6.18.5 Residual Impacts 50
6.19 ENVIRONMENTAL MANAGEMENT AND MITIGATION 50
6.19.1 Overview 50
6.19.2 Management Plans 51
6.19.3 Management of Impacts on the Physical Environment 53

6.19.4 Management of Impacts on the Socio-economic and Human Environment..... 54

6.20 RISK ASSESSMENT AND EMERGENCY RESPONSE PLAN 57

6.21 MONITORING, EVALUATION, AND MANAGEMENT 57

6.21.1 Overview 57

6.22 CLOSURE AND RECLAMATION 58

6.23 CONCLUSION AND RECOMMENDATIONS 59

6.24 LIST OF CONSULTANTS AND ORGANIZATIONS 59

7.0 LITERATURE CITED 60

APPENDICES…. 64

APPENDIX A: THE NUNAVUT IMPACT REVIEW BOARD'S MINIMUM EIS REQUIREMENTS 65

APPENDIX B: DRAFT EIS DELIVERY ADDRESSES 67

APPENDIX C: THE NUNAVUT WATER BOARD'S DRAFT MINING AND MILLING UNDERTAKING SUPPLEMENTAL INFORMATION GUIDELINE FOR MINE DEVELOPMENT 68

1.0 INTRODUCTION

1.1 PURPOSE OF THE GUIDELINES

The present Guidelines are issued for the preparation of a draft Environmental Impact Statement (EIS) for the Hackett River Project by Sabina Silver Corporation (the Proponent). An EIS is a documented evaluation of the project proposal, providing detailed information regarding the proposal's environmental and socio-economic impacts (NIRB 2006). An EIS is designed to serve as the means of assessing the environmental impact of project proposals, rather than to justify decisions already made (NIRB 2006). The EIS must be a stand-alone document that allows the reader to understand the Project and its likelihood to cause significant environmental effects.

1.2 ENVIRONMENTAL ASSESSMENT AND REGULATORY PROCESS

The Hackett River Project is subject to the environmental review and related licensing and permitting processes established by Part 5 of the *Nunavut Land Claims Agreement* (NLCA) (GC and TFN 1993). In correspondence dated September 4, 2008, the Minister of Indian and Northern Affairs Canada (the Minister) provided specific direction to the NIRB regarding the Part 5 Review of the Hackett River Project, pursuant to Section 12.5.1 of the NLCA:

> *"Sabina intends on utilizing significant components of the proposed Bathurst Inlet Port and Road project which is currently being reviewed by the* [Nunavut Impact Review] *Board under Part 5 of Article 12 of the Agreement. However, Sabina has also indicated in its project description that in the absence of the Bathurst Inlet Port and Road, it would construct its own all-weather road to Bathurst Inlet, and construct a deep-water port at Bathurst Inlet.*
> *This suggests that major components may be added at some point during the review of the Hackett River Project proposal. Should this happen, the Board will need to ensure that all additional components are thoroughly assessed as part of the Board's current Part 5 review. This may necessitate modifications to the Board's review process to ensure that a detailed assessment of the entire project is completed…*
> *Irrespective of whether modifications are made to the Project, it will be important for the Board to conduct a thorough assessment of cumulative impacts given the development pressures facing the West Kitikmeot Region of Nunavut."* (INAC 2008)

The Draft Environmental Impact Statement (DEIS) developed in accordance with these Guidelines will serve as the basis for the Nunavut Impact Review Board's (NIRB or Board) review of the Project and will enable the Board and any interested party to understand and assess the potential adverse and beneficial biophysical environmental and socio-economic effects that are related to the Project.

The NIRB has developed these EIS Guidelines based on the information contained within the January 2008 *Hackett River Project Proposal* submitted by the Proponent and on the NIRB's Public Scoping process. The scoping period began in September 2008 and continued through to the conclusion of the NIRB's Public Scoping process on November 14, 2008. During the scoping period, the NIRB reviewed with the public the January 2008 *Hackett River Project Proposal* prepared by the Proponent and the NIRB's environmental assessment process. Additionally during

this period, the NIRB solicited and received oral and written comments from individual members of the public, government, and representatives of various groups regarding the issues to be included in the environmental review. A Public Scoping Report was developed following the NIRB's Scoping of the Hackett River Project, taking into account all comments received regarding the Project (NIRB 2008a).

1.3 PREPARATION AND REVIEW OF THE EIS

Upon receipt of these *draft* EIS Guidelines, the Proponent is required to prepare and submit to the NIRB an EIS that meets the requirements as specified herein. It is the sole responsibility of the Proponent to prepare a complete DEIS that includes sufficient baseline data and analyses for a complete assessment of the anticipated impacts of the Project. The EIS should be concise and should focus on the assessment of significant environmental effects.

The NIRB shall conduct an internal review of the material presented in the Proponent's submission of an EIS to determine whether the document conforms to these Guidelines (conformity review). The guideline conformity review is focused on identifying whether any information requested in the Guidelines or in the NIRB's Minimum EIS Requirements (Appendix A) has been omitted from the EIS. Guideline conformity review is a presence or absence analysis; it is not intended to evaluate the quality of the information presented, although the NIRB may point out significant deficiencies encountered. Should any omissions be identified, the Proponent is responsible for submitting supplementary information and may be required to revise and resubmit the DEIS.

Following a positive conformity determination by the NIRB and acceptance of the EIS submission, the NIRB will distribute the EIS to the NIRB panel, Inuit organizations, community stakeholders, regulatory bodies, technical advisors, and other interested parties for review. The technical review period involves a more detailed review of the EIS than the guideline conformity review, and is intended to analyze the quality of the information presented by the Proponent. A technical review of an EIS comprises the following:

- Determination of whether Parties agree/disagree with the conclusions in the EIS regarding the alternatives assessment, environmental impacts, proposed mitigation, significance of impacts, and monitoring measures – and reasons to support the determination;
- Determination of whether or not conclusions in the EIS are supported by the analysis – and reasons to support the determination;
- Determination of whether appropriate methodology was utilised in the EIS to develop conclusions – and reasons to support the determination, along with any proposed alternative methodologies which may be more appropriate (if applicable);
- Assessment of the quality and presentation of the information in the EIS; and
- Any comments regarding additional information which would be useful in assessing impacts – and reasons to support any comments made.

1.4 REASSESSMENT OF THE GUIDELINES

The NIRB reserves the right at any time, having given reasonable notice to the Proponent, to reassess these Guidelines and to update and amend them accordingly to allow for consideration to changes in the Project description, baseline information, relevant technological advances, or changes in the regulatory and/or regional environments.

2.0 GUIDING PRINCIPLES

2.1 NIRB MANDATE UNDER ARTICLE 12 OF THE NLCA

According to the NIRB's NLCA mandate as found in Article 12.2.5, the following principles should be followed in the preparation of the DEIS:

- An Ecosystem based approach must be adopted for the review - In order to gain an adequate understanding of the effects of the Project, an ecosystem-based approach must be adopted 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, such as the Project's potential to affect economic development within the region, must be included in the review - Members of the community constitute a critical part of the environment, and their concerns relating to the Project need to be to be assessed by the NIRB. As such, adverse and beneficial effects of the Project on members of the community with respect to health, recreation, and other aspects of social well-being need to be addressed in the EIS, in order to ensure a culturally holistic understanding of the Project's effects.
- An understanding of past and potential future environmental, economic, and social trends in the West Kitikmeot Region of Nunavut, and how the Project will influence these trends is required - The inclusion of a time perspective, from the early planning of the Project through to its operation and possible closure over the next two decades (20 years), is important in order to provide the NIRB with a full understanding of the cumulative environmental effects of the Project in combination with other past, present and reasonably foreseeable projects.
- The well-being of residents of Canada outside the Nunavut Settlement Area must be taken into account – Significant transboundary bio-physical and socio-economic effects directly related to this Project must be included in the EIS in order to ensure the NIRB's assessment of the well-being of Canadians outside of the Nunavut Settlement Area.

As documented in the NIRB's Minimum EIS Requirements (Appendix A), the NIRB will consider the need for, alternatives to, and alternative means of, carrying out the Project in assessing the justifiability of any significant environmental and socio-economic effects identified, and in formulating its recommendations to the responsible Ministers.

2.2 COOPERATION WITH THE NUNAVUT WATER BOARD

At the Proponent's request, and to facilitate a timely regulatory process, the NIRB has appended the Nunavut Water Board's (NWB) *Draft Mining and Milling Undertaking Supplemental Information Guideline for Mine Development* to the current EIS Guidelines (Appendix B). The inclusion of the NWB Guideline is meant to facilitate cooperation between the respective Boards, pursuant to Section 13.6.1 of the NLCA which states:

> *"The NPC, NIRB and the NWB shall co-operate and co-ordinate their efforts in the review, screening and processing of water applications to ensure they are dealt with in a timely fashion."* (GC & TFN 1993)

The Proponent shall note however, that the DEIS submission must be a complete and stand-alone document, independent of references to the *draft* Water License Application for the information which is required by these Guidelines.

2.3 SUSTAINABLE DEVELOPMENT

Promotion of the Principle of Sustainable Development, or development that meets the needs of the present without compromising the ability of future generations to meet their own needs, is a fundamental purpose of environmental assessment, particularly owing to the fact that the NIRB's original mandate is ecosystem-based. These EIS 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, which can be explained to mean, if there are threats of serious or irreversible damage, that a lack of full scientific certainty must not be used as a reason for postponing cost-effective measures to prevent environmental degradation (United Nations 1972). This precautionary principle has since been incorporated into several pieces of Canadian legislation including the *Canada National Marine Areas Conservation Act* (2002), the *Oceans Act* (1999), and the *Canadian Environmental Protection Act* (1999).

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

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

The NIRB requests that the Proponent demonstrate how the Project meets these three goals as noted above.

2.4 TRADITIONAL KNOWLEDGE

Traditional Knowledge (synonymous with Traditional Ecological Knowledge in the current context), which is rooted in the traditional life of Inuit and Aboriginal people, has an important contribution to make to an environmental assessment. This knowledge represents experience acquired over thousands of years of direct human contact with the environment (Berkes 1993) and is rooted in personal observation, collective experience and oral transmission over many generations. Traditional Knowledge relating to factual information on such matters as ecosystem function, social and economic well-being, and explanations of these facts and casual relations among them, enhances the development of adequate baseline information, identification of key issues, prediction of the effects,

and assessment of their significance, all of which are essential to the EIS and its review. The Proponent should refer to Subsection 6.10 for further information regarding the inclusion of Traditional Knowledge within the EIS.

Traditional Knowledge can be obtained with the cooperation of other concerned parties. The Proponent must incorporate into the EIS the Traditional Knowledge to which it has access or that it may reasonably be expected to acquire through appropriate due diligence, in keeping with appropriate ethical standards and without breaching obligations of confidentiality.

3.0 SCOPE OF THE NIRB ASSESSMENT

Based on the information contained within the Project Description and the NIRB's requirements for the Proponent's development of an Environmental Impact Statement, the following subsections comprise the focus and scope of the NIRB review. In preparing the DEIS, the Proponent must follow these guidelines closely, while paying specific attention to the requirements of the NLCA, the NIRB's Minimum EIS Requirements (Appendix A), and General EIS Principles as listed below. In addition, the Proponent should note that directions regarding EIS Format are a further submission requirement of the NIRB. A discussion of EIS Format requirements may be found in Subsection 5.4.

3.1 NLCA – SECTIONS 12.5.2 AND 12.5.5

Where appropriate, the Proponent's EIS for the Hackett River Project shall contain information with respect to the following:

a) Project description, including the purpose and need for the project;
b) Anticipated ecosystemic and socio-economic impacts of the project;
c) Anticipated effects of the environment on the project;
d) Steps which the Proponent proposes to take including any contingency plans, to avoid and mitigate adverse impacts;
e) Steps which the Proponent proposes to take to optimize benefits of the Project, with specific consideration being given to expressed community and regional preferences as to benefits;
f) Steps which the Proponent proposes to take to compensate interests adversely affected by the Project;
g) The monitoring program that the Proponent proposes to establish with respect to ecosystemic and socio-economic impacts;
h) The interests in land and waters which the Proponent has secured, or seeks to secure;
i) Options for implementing the proposal; and
j) Any other matters that NIRB considers relevant.

Furthermore, when reviewing any project proposal, the NLCA directs the NIRB to take into account all matters that are relevant to its mandate, including the following:

a) Whether the project would enhance and protect the existing and future well-being of the residents and communities of the Nunavut Settlement Area, taking into account the interests of other Canadians;

b) Whether the project would unduly prejudice the ecosystemic integrity of the Nunavut Settlement Area;
c) Whether the proposal reflects the priorities and values of the residents of the Nunavut Settlement Area;
d) Steps which the proponent proposes to take, or that should be taken, to compensate interests adversely affected by the project;
e) Posting of performance bonds;
f) The monitoring program that the proponent proposes to establish, or that should be established for ecosystemic and socio-economic impacts; and
g) Steps which the proponent proposes to take, or that should be taken, to restore ecosystemic integrity following project abandonment.

3.2 GENERAL EIS PRINCIPLES

In order to fulfill the requirements set forth in section 12.5.2 of the NLCA, the Proponent must consider the following when preparing an EIS:

a) The EIS shall flow logically and be written in plain language;
b) Impacts shall be discussed in proportion to their significance;
c) The EIS Main Document shall be concise, no longer than 150 pages, numbered, and double-spaced. The EIS Main Document shall reference supporting documentation where additional information and baseline data can be found;
d) The EIS shall contain a concordance table directing reviewers to the location (document, section, and page number) where specific information addressing the guidelines and the NIRB's Minimum EIS requirements can be found;
e) The EIS shall state how alternatives which were considered in it and decisions based upon it, will or will not achieve the requirements of Article 12 and other environmental laws and policies that apply to the Project;
f) The range of alternatives discussed in the EIS shall fall within the NIRB's mandate and encompass options considered by the ultimate decision-making agency;
g) Neither Proponents nor Governments shall commit resources prejudging selection of alternatives before making a final decision; and
h) The EIS shall serve as the means of assessing the environmental impact of project proposals, rather than justifying decisions already made.

3.3 HACKETT RIVER PROJECT COMPONENTS

The following is a description of the physical works and activities or undertakings that constitute the Hackett River project proposal. This list is based upon the Proponent's January 2008 Project Proposal and findings which resulted from the scoping period. These components and/or activities have the potential to cause significant adverse effects on the ecosystem, wildlife, or Inuit harvesting activities; they may have significant adverse socio-economic effects on northerners; and the Project may cause significant public concern. For these reasons, the following components are included within the scope of the project.

a) **BIPR Infrastructure** (to be constructed as part of the proposed BIPR Project)**:**
    i. **Bathurst Inlet Port**, utilization of infrastructure including:

Berth for loading and unloading ocean going vessels; dock and associated dredging activities; fuel unloading facilities, terminal pipelines, tank farm, and dispensing systems; general cargo short-term and long-term laydown areas; general cargo handling of mobile equipment including cranes, forklifts and reach trucks; administration and maintenance offices; camp facilities and services, including accommodations and airstrip; desalination plant; site roads; waste and wastewater management and disposal systems; power plant.

ii. **All-Weather (BIPR) Road from the Port at Bathurst Inlet to an All-Weather Access Road Connecting with the Hackett River Mine Site,** utilization of infrastructure (northern 80 km of BIPR road) including:
Activities: Transportation and haulage of fuel, dry goods, explosives, wastes, and hazardous materials, equipment, concentrate and other materials; use of the road every day of the year that it is passable (excepting weather, wildlife, and road maintenance); and 9-10 tractor trailer units making four 40 tonne trips per day.

b) **Mobilization and Shipping** including:
Vessel options; routing options; mobilization of equipment and supplies; shipping routes to the east and to the west of Bathurst Inlet; and the shipment of supplies from Hay River, NWT to the Bathurst Inlet port via the MacKenzie River during construction (prior to completion of port facility).

c) **Bathurst Inlet Port**, infrastructure to be constructed and utilized by Sabina, including:
Concentrate truck receiving, unloading, and wash-down facilities; concentrate receiving, conveying, reclaiming, and ship loading systems; concentrate storage facility (capacity of 450,000 tonnes); concentrate dust control system; site run-off collection and treatment systems; explosives storage and handling; ammonium nitrate prill storage and handling; hazardous materials storage and handling; and possibly additional storage for goods to be backhauled to the mine.

d) **All-Weather Access Road connecting the Hackett River Mine Site with the All-Weather (BIPR) Road to the Port at Bathurst Inlet** including:
Routing options; waterway and/or diversion structures; infilling activities; water withdrawal(s) and associated activities; navigable water crossings; stream flow diversions and alternative watercourses; alterations to watercourses; quarrying and borrow source areas; and temporary camp(s) used during the construction of the road.
Activities: Transportation and haulage of fuel, dry goods, explosives, wastes, and hazardous materials, equipment, concentrate and other materials; use of the road every day of the year that it remains passable (weather, wildlife, and road maintenance); and 9-10 tractor trailer units, each making four 40 tonne trips per day.

e) **Hackett River Airstrip**, including:
2000 m airstrip; construction camp; fuel tank farm; diesel generators; freshwater intake; wastewater treatment; all associated navigational aids and infrastructure.
Activity: Capacity to land heavy-lift type aircraft and Boeing 727 type planes. Airstrip will facilitate transport of mine personnel and general freight/supplies. Smaller aircraft will likely fly daily between mine site and Yellowknife.

f) **Hackett River Mine Site**, including:
Open pit and underground mining of deposits for copper, lead, zinc, silver, and gold; exploration activities; mineral processing and milling facilities; power generation and transmission facilities; paste backfill plant; mine site roads and utilities including water crossings (bridges, culverts, spans, etc.); ore storage facilities; backfill stockpile; waste rock and low grade ore storage; tailings management facilities; damming of water bodies; tailings pipeline and emergency catch basins; water, wastewater, and sediment management structures (i.e. ditches and sedimentation ponds); water treatment plant; water supply structures; permanent and/or temporary camp(s); buildings; lay-down area(s); sewage collection and treatment facilities; solid waste management facilities; landfill; land farm; incineration of waste materials; fuel transportation, storage, and dispensing systems; chemical and hazardous materials transportation, handling, and storage; lake and pit de-watering; quarrying and borrow sources; work force; stream flow diversions and alternative watercourses; alterations to watercourses; explosives transportation, storage, mixing, and dispensing systems and magazines and support facilities to be included in a "licensed factory" to be located at the mine site as defined by the *Explosives Act.*

g) **Borrow Sources**, including:
Quarries, gravel pits, and waste rock piles; equipment and activities related to stripping, excavation, and crushing of aggregate; stockpiles; access roads; and waste rock and debris; and blasting activities.

h) **Alternatives Assessment and Project Component Options –**
   i. Sabina Access Road and Port

      Components of Port to include:
      Dock and associated dredging activities; berth and equipment for loading and unloading ocean going vessels; fuel unloading facilities; terminal pipelines; tank farm and dispensing systems; concentrate storage facility (capacity of 450,000 tonnes); explosives storage and handling; ammonium nitrate prill storage and handling; hazardous materials storage and handling; general cargo short-term and long-term lay down areas; general cargo handling of mobile equipment including cranes, forklifts, and reach trucks; administration and maintenance offices; camp facilities and services; accommodations and airstrip; desalinization plant; site roads; waste and wastewater management and disposal systems; power plant. Please note that, should Sabina build their own port at Bathurst Inlet, activities outlined in Subsection 3.3 (a, i) and (c) may also be included with the port components built by Sabina. The Proponent shall clearly indicate all Sabina built components and/or activities to be included in the alternatives assessment.

      Components of Road to include:
      Earthmoving, excavation, and grading activities; quarrying and borrow source areas; water withdrawal(s) and associated activities; water crossings; streamflow diversions and alternative watercourses; alterations to watercourses; and temporary camp(s) used to construct the road. Please note also, that should Sabina build their own all weather access road from Bathurst Inlet to the Hackett River mine site, activities outlined in Subsection 3.3 (a, ii) and (d) may also be included with the road components built by

Sabina. The Proponent shall clearly indicate all Sabina built components and/or activities to be included in the alternatives assessment.

3.4 SCOPING LIST

The scope of the environmental assessment is intended to address the potential ecosystemic and socio-economic impacts of the Project components listed in Subsection 3.3 above, considering both a spatial and a temporal scale. As such, the scoping list and resulting analysis shall address the effects of the construction, operation, modification, decommissioning, abandonment, and reclamation of each of the Project components on each of the factors listed below.

a) The assessment of alternatives to BIPR infrastructure (Sabina-built port and road);
b) Cumulative effects of the Project in relation to other projects in the region;
c) Transboundary effects;
d) Terrestrial environment, including:
    - Ecological health;
    - Landforms and soils; and
    - Permafrost management
e) Freshwater and marine environment, including :
    - Ecological health
    - Hydrology (including water quantity) and hydrogeology;
    - Groundwater quality;
    - Surface water and sediment quality; and
    - Marine water and sediment quality
f) Atmosphere, including climate change, air quality, and noise factors;
g) Vegetation;
h) Wildlife, including species at risk and wildlife habitat;
i) Migratory birds and habitat;
j) Fish and other aquatic organisms, including:
    - Marine aquatic organisms, fish, and habitat;
    - Marine mammals and marine habitat;
    - Freshwater aquatic organisms (including fish as defined in the *Fisheries Act*) and habitat;
k) Socio-economic factors including:
    - Human health;
    - Archaeological and palaeontological resources; and
    - Traditional Knowledge
l) Emergency response;
m) Hazardous materials management;
n) Accidents and malfunctions;
o) Closure and reclamation; and
p) Monitoring programs (environmental and socio-economic components) and post-project analysis (PPA).

4.0 PROJECT DEFINITION

The Proponent shall compile a description of all Project infrastructure and ancillary facilities, in addition to all activities and undertakings that are to be considered in the environmental review of the Project. This description shall include all those components and activities identified in Subsection 3.3, and shall be updated to include any changes to the project description made since the 2008 Project proposal submission and Public Scoping sessions, bringing any such changes clearly to the attention of readers. The Proponent shall also include in its definition of the Project, any alternatives to BIPR related infrastructure, in accordance with direction from the Minister (INAC 2008).

Where specific codes of practice, guidelines and policies apply to items to be addressed, those documents must be cited and may be included as appendices to the EIS.

5.0 EIS OVERVIEW

5.1 PRESENTATION OF THE EIS

The Proponent shall provide an EIS that is complete, including scientific works and the Proponent's sectoral studies, and all other sources of information, including Traditional Knowledge. All scientific and sectoral studies shall be rendered current and shall be numbered and dated prior to their submission for examination. Maps, other than those used for orientation and context (i.e. used for conceptualization only), shall be contained in a separate volume. The EIS shall, wherever necessary for a full understanding, be supplemented by a series of complementary documents providing technical and scientific support and containing appropriate bibliographic references. The Proponent shall prepare and incorporate into the EIS a complete and detailed annotated bibliography of all studies and reports, including community consultations carried out in relation to the Project, and shall make such studies and reports available.

The EIS shall be made available both electronically on searchable CD-ROM, and in hard copy. The Proponent shall be responsible, where requested, for the delivery of the EIS to regulators and relevant authorities, in addition to those recipients listed in Appendix C.

5.2 CONFORMITY

The Proponent is expected to observe the intent of the Guidelines, which will then lead to the preparation of an EIS. Specific issues or directions described in the Guidelines must be easily identifiable in the EIS. In accordance with the NIRB's *Guide 7: Guide to the Preparation of Environmental Impact Statements* (NIRB 2006), the DEIS shall contain a concordance table directing reviewers to the location (document, section, and page number) where specific information addressing the Guidelines and the NIRB's Minimum EIS Requirements may be found. The Proponent is cautioned that any significant deviation from these Guidelines could result in a negative conformity decision and subsequent requirements for revision. Where any differences in direction are encountered between the NIRB's *Guide 7* and these EIS Guidelines issued under NLCA Section 12.5.2, these Guidelines shall prevail.

5.3 LENGTH

In accordance with the NIRB's *Guide 7: Guide to the Preparation of Environmental Impact Statements* (NIRB 2006), the Proponent's EIS Main Document (i.e. Volume I) shall be concise and not exceed 150 pages without permission from the NIRB. The 150 page limit shall not include: the Title Page, Executive Summary, Popular Summary (in English, Inuinnaqtun, and Inuktitut); Table of Contents; Glossary (in English, Inuinnaqtun, and Inuktitut); Concordance Table; Consultants and Organizations; and References. To ensure the main document within the EIS report remains manageable for reviewers, communities, and the general public, any data of a detailed nature shall be contained in separate volumes as Appendices and Technical Reports submitted in support of the main document.

5.4 FORMAT

The EIS shall be double-spaced**,** and its sections numbered. Subject to any other instructions given by the NIRB, the following format shall be adopted, based on the NIRB's *Guide 7: Guide to the Preparation of Environmental Impact Statements* (NIRB 2006) and adapted as much as possible to the specific circumstances of the Hackett River Project:

- Title page;
- Executive summary;
- Popular summary;
- Table of contents, including: list of tables, list of figures, list of maps, list of acronyms**;**
- Concordance table which lists each of the Guideline requirements and their location within the EIS;
- The Proponent;
- Sustainable development and precautionary principle;
- Regulatory regime;
- Regional context;
- Spatial boundaries;
- Temporal boundaries;
- Land tenure;
- Alternatives, including the "no-go" option;
- Possible impediments to the Project;
- Project justification;
- Public consultation;
- Traditional Knowledge;
- Data acquisition methodology and documentation**,** covering biophysical and socio-economic aspects;
- Data analysis and reporting;
- Detailed project proposal definition;
- Baseline data collection;
- Description of biophysical environment;
- Description of socio-economic environment;
- Impact assessment methodology**,** including determination of impact significance, selection of indicators and criteria, covering biophysical and socio-economic aspects;
- Impact assessment**,** distinguishing biophysical and socio-economic aspects;
- Cumulative effects assessment;
- Environmental management and mitigation;

- Residual impacts;
- Monitoring, evaluation, and management;
- Closure and reclamation;
- Conclusion and recommendations;
- List of consultants and organizations;
- Glossary (in English, Inuktitut, and Inuinnaqtun);
- Literature cited; and
- Appendices.

Further discussion of each of the above items can be found throughout Section 6.0 – Environmental Impact Statement Content Guidelines.

5.5 DATA PRESENTATION

The Proponent shall provide charts, diagrams, aerial and other photographs and maps wherever useful to clarify the text; and specifically, shall include maps or diagrams showing all project related infrastructure and/or activities (e.g., camp sites, drilling activities, port site, mine site, transportation routes including marine shipping and air transport). Where feasible, maps shall be of a common scale and projection to facilitate comparisons. Where included in a separate volume, all charts, diagrams, photographs, and maps must be clearly referenced in the text of the DEIS.

5.6 SUMMARIES

5.6.1 Executive Summary

The Proponent shall prepare an executive summary that describes the key Project elements and key findings of the EIS, 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. Specifically, the executive summary shall provide a summary of the pre-construction, construction, and operational activities upon implementation of the Project. In addition, the executive summary shall focus on items of known or expected public concern and shall focus on 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. The executive summary shall form part of the EIS, but it shall also be made available as a separate document.

5.6.2 Popular Summary (in English, Inuktitut, and Inuinnaqtun)

It is essential to the environmental assessment process that residents of those communities likely to be affected by the Project have an adequate understanding of the proposed Project and any potential impacts to the environment which may result. The Proponent shall therefore prepare a popular summary which has the same general structure and objectives as the executive summary, but is written in non-technical language and includes such things as a glossary and additional explanatory text to assist non-specialists in appreciating the content of the EIS as a whole. Public feedback during the NIRB's scoping of this, and similar projects, has clearly demonstrated the desire for, and usefulness of, clear visual aids as a further tool to supplement community understanding. Therefore, the popular summary of the EIS (in English, Inuktitut, and Inuinnaqtun) shall contain a map of the Project in relation to potentially affected communities, caribou calving grounds and migration routes,

shipping routes, and overland transportation routes, using traditional place names. The Proponent shall further consider presenting the popular summary in hard copy and, if possible, in the form of a video. The popular summary shall form part of the EIS, but it shall also be made available as a separate document.

5.7 TRANSLATION

The popular summary and glossary shall be translated into the local languages and dialects prevalent in the Kitikmeot Region. 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 NLCA.

6.0 ENVIRONMENTAL IMPACT STATEMENT CONTENT GUIDELINES

6.1 PROPONENT INFORMATION

The Proponent shall identify itself and shall 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. It shall present its environmental policy and that of any parent company and shall specify whether and how it applies to all businesses for which it has an operating responsibility, to employees, to contractors, and to suppliers. It 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 experience in exploration, mining, and transportation networks involving marine shipping and all-weather road components, with particular reference to:

- Its record of compliance with governmental policies and regulations pertaining to environmental and socio-economic issues;
- Mine safety, major accidents, and spills and emergencies, including responses;
- Its record in honouring commitments on environmental and socio-economic matters in the event of planned or premature mine closure, whether temporary or permanent, or change of ownership;
- Relations with Aboriginal peoples, including prior experience with Impact and Benefit Agreements if appropriate;
- Operations in Arctic and Sub-arctic regions;
- Its record in incorporating environmental and socio-economic considerations into construction, operations, temporary closure, final closure, and post-closure;
- Corrective actions undertaken in the past, distinguishing between those taken voluntarily and those taken at the insistence of a third party; and
- The provision of security to ensure payment of compensation in the event of accidents.

The Proponent shall identify and describe any obligations or requirements that it must meet to post a bond or other form 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**.**

If the Proponent does not have prior experience in exploration, mining, or transportation networks involving marine and all-weather road components particularly for this region, it shall explain the safeguards that it intends to put in place to compensate for that lack.

6.2 REGULATORY CONTEXT

The Proponent shall present its understanding of the regulatory regime in which it would be operating by identifying all relevant federal, territorial, and local environmental and socio-economic standards, laws, regulations, policies, and fiscal regimes relating to Project approval, construction, operations, monitoring, and closure. This includes the NLCA, *the Mine Site Reclamation Policy for Nunavut* (INAC 2002), the *Fisheries Act* (Department of Justice Canada 1985), and the *Metal Mining Effluent Regulations* (EC 2002), among others. It shall further explain how such requirements would be met and what specific governmental permits and approvals would be required, and also shall indicate where possible, when each required approval will be sought. A list of currently held permits and licences, including dates of issue and expiry, shall be appended.

The Proponent should also include a discussion of the 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), providing relevant non-confidential details of its relationship to the GN and the fuel-rebate program to demonstrate an understanding of the program.

6.3 REGIONAL CONTEXT

The Proponent shall describe in general terms the regional biophysical and socio-economic environments of the West Kitikmeot 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.

6.4 SPATIAL BOUNDARIES

The spatial boundaries of the Project (and its components) must be determined on the basis of its potential impacts on the particular biophysical or social phenomenon being addressed. The Proponent must consider, but shall not be limited to, the following criteria in establishing spatial bounds for the Project:

a) The physical extent of project activities;
b) The extent of ecosystems potentially affected by the Project;
c) The extent to which traditional land use and Inuit and Aboriginal harvesting could potentially be affected by the Project; and
d) The size, nature and location of past, present, and reasonably foreseeable projects and activities which could interact with the items listed above.

The EIS shall define the spatial boundaries of the maximum area potentially affected by the Project and any alternatives being considered, based on the boundaries for each individual type of impact, and taking into account an analysis of the migratory nature of wildlife (where applicable), and such impact pathways as pollutant transport and accumulation mechanisms. 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 effects, and cumulative effects, of the project. For example, the spatial boundaries for archaeological studies related to burial grounds in the Project area might reasonably be expected to differ from those for studies on migration of the Dolphin & Union caribou herd.

The boundaries for the assessment of socio-economic impacts shall be based on an analysis of the socio-economic effects directly and indirectly associated with the Project. In all cases, priority focus shall be directed to potential impacts within Nunavut, but the EIS shall also take consider any potential impacts outside Nunavut, wherever there is reason to anticipate that they might occur. The EIS must contain a justification and rationale for all boundaries and scales chosen.

The following general spatial boundaries are suggested:

- *Local Study Area (LSA)*: the Local Study Area shall be defined as that area where there exists the reasonable potential for immediate impacts due to project activities, ongoing normal activities, or to possible abnormal operating conditions. The Local Study Area includes the Project facilities, buildings and infrastructure, and all areas proposed for Project activities (i.e. port site, road route, shipping route(s), etc).

- *Regional Study Area (RSA)*: the Regional Study Area shall be defined as the area within which there exists the potential for direct, indirect, and/or cumulative biophysical and socio-economic effects. This area includes lands, communities, and portions of Nunavut and other regions of Canada that may be relevant to the assessment of any wider-spread effects of the Project. The Proponent is advised to duly consider the transboundary implications of impacts to identified VECs/VSECs, including, but not limited to: caribou, grizzly bear, migratory birds, and employment opportunities.

The LSAs and RSAs may vary between disciplines and between VECs/VSECs, as they represent the likely distribution of Project effects on individual VECs/VSECs.

6.5 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 that will be used in predicting change; and the temporal variability and periodicity that characterize the predicted impacts (Whitney and Maclaren 1985). 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 of the predictive capability of the various disciplines at play. The EIS shall determine the temporal boundaries separately for the construction, operations, temporary closure, final closure, and post-closure periods, and also for any exploration work to be undertaken in conjunction with the Project. The closure period covers decommissioning, abandonment, and reclamation; post-closure covers the period after the mine has

been decommissioned and the site 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 and on the methods of closure.

The Proponent shall also where applicable, consider the temporal bounds of Project alternatives under assessment, noting where they differ from those for the preferred option.

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 RSA. 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 EIS 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 that, over the past 50 years, the western Arctic has experienced a warming trend accompanied by increased annual precipitation and increases in the magnitude and frequency of extreme weather events (CEAA 2000). There may be no immediate danger of permafrost degradation, but the Proponent must incorporate that possibility into the design of Project components where applicable.

6.6 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, to include Crown land, Inuit Owned Land, and Commissioner's land. It shall further describe those areas by providing such information as file numbers, start and end dates, fees, name of right holder, renewals, etc.

6.7 ANALYSIS OF NEED AND PURPOSE

The following points must be addressed in discussing the need for and purpose of the Project:

a) Possible mine and/or community re-supply implications of the Project (i.e. interruption of services, barge and ship fleet ownership, etc.);
b) An assessment of the longer term strategic implications of the Project, and how it may affect or lend to the transportation networks (existing and proposed) in Nunavut and in the Northwest Territories;
c) Identification of past, current and potential future users of the LSA, RSA, and project infrastructure in both Nunavut and the Northwest Territories, including commercial, government, public, and private;
d) General feasibility from an economic perspective, including how this Project will benefit the West Kitikmeot communities of Cambridge Bay, Kugluktuk, Bathurst Inlet, Umingmaktok, Gjoa Haven, Kugaaruk, and Taloyoak;
e) Analysis of community support for and in opposition to the Project, including identified potential impacts and benefits, and a description of how the Proponent has sought input from a broad range of socio-economic groups; and,
f) How the Project will provide a net economic benefit to Nunavut and Canada as a whole.

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.

6.8 METHODOLOGY

In describing methodology, the Proponent shall explain how it used scientific, engineering, Traditional, community, and other knowledge to reach its conclusions. Any assumptions shall be clearly identified and justified. 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 be indicated. All conclusions shall be substantiated.

The Proponent shall, to the extent possible, consider other available information, including knowledge on what types of data other project proponents, governments, and other researchers are collecting and have collected, in making choices with respect to the types of data it will collect for Project-specific monitoring programs as well as any regional monitoring initiatives it will participate in.

The EIS shall identify all significant gaps of knowledge and understanding where they are relevant to key conclusions presented in the EIS. The steps taken by the Proponent to address these gaps shall also be identified. Where the conclusions drawn from scientific and technical knowledge are inconsistent with the conclusions drawn from community and/or Traditional Knowledge, the EIS shall contain a balanced presentation of the issues and a statement of the Proponent's conclusions.

6.9 PUBLIC CONSULTATION

Public consultation is required when:

- Identifying current and historical patterns of land- and resource-use;
- Identifying VECs and VSECs;
- Determining criteria for evaluating the significance of potential impacts;
- Deciding upon mitigating measures;
- Formulating compensation packages; and
- Identifying and implementing monitoring measures, including post-project audits.

The Proponent should also note that, throughout the environmental assessment of the Project, commenting Parties have requested that clarity be provided to the communities regarding the proposed Project, especially with regard to the utilisation of a Sabina built alternative to the proposed BIPR infrastructure.

The Proponent shall explain where, how, why, and with whom it conducted public consultation, documenting its efforts to inform participants of the ways the information they supplied was or will be used. It shall demonstrate an understanding of the rights, interests, values, aspirations, and concerns of the potentially affected communities, with particular reference to those emanating from the NLCA; and shall recognize and respect those rights, interests, values, aspirations, and concerns in planning and executing the Project. Moreover, the Proponent shall explain the results of the

consultation process, how the consultation process has influenced its decisions, and how it intends to address the unresolved concerns expressed.

6.10 TRADITIONAL KNOWLEDGE

The Proponent shall present and justify its definition of Traditional Knowledge in the Kitikmeot Region and shall explain the methodology used to collect it, including the format and location of meetings, the types of background information provided at meetings, the level of community participation, the design of studies on Traditional Knowledge, and the selection process for participants in such studies, and shall summarize what kinds of Traditional Knowledge were collected. The Proponent shall indicate whether special efforts were made to collect Traditional Knowledge from Inuit Elders, women, or harvesters familiar with the Project area.

The Proponent shall discuss how it weighted and incorporated Traditional Knowledge in baseline data collection, impact prediction, and significance assessment, and the development of mitigation and monitoring programmes. It shall explain how it integrated Traditional Knowledge and popular science, including the manner in which it reconciled any apparent discrepancies between the two. Any assumptions shall be identified and justified. Furthermore, the Proponent shall describe any other past or current Traditional Knowledge studies in which it has participated or played a supporting role.

The Proponent shall outline its program to pursue the collection of Traditional Knowledge and to integrate it into ongoing baseline data collection, mitigation, and monitoring programs, and shall describe the roles and responsibilities of all concerned individuals and organizations in collecting, analyzing, interpreting, and synthesizing data, including Traditional Knowledge.

In providing the above information, the Proponent is encouraged to consult with the Kitikmeot Inuit Association regarding its methodologies, analysis, and potential sharing of any Traditional Knowledge, noting that the Kitikmeot Inuit Association may have certain expectations with respect to, for instance, protocols for the collection, access, and use of information.

6.11 DATA ACQUISITION, METHODOLOGY AND DOCUMENTATION

The Proponent shall specify and justify all sampling methods and statistical processes employed in both the biophysical and social context. The reliability and scope of the results, the possibility of reproducing the analyses, and quality control of laboratory analyses shall be analyzed critically. All data based on environmental sampling necessarily involve some variability, which must be determined to assess the reliability and scope of the data. The EIS shall provide a dispersion or variability coefficient (variance, standard deviation, confidence interval, etc.) and indicate the size of the sample used for all data obtained from environmental sampling. Similarly, when using mathematical models, the Proponent shall indicate the assumptions employed, the prototype used, the accuracy, and the inherent limits of interpretation.

6.12 DATA ANALYSIS AND REPORTING

Wherever the Proponent makes use of qualitative criteria to compare various design and development options, to describe the environment, or to assess impacts, each of these criteria shall be

defined, their relative importance stated, and the differences between the categories (e.g. desirable, acceptable, unacceptable) indicated. The Proponent shall justify the classification of each criterion.

The Proponent shall support all analyses, interpretations of results, and conclusions with a review of the relevant literature, providing all references required and indicating the public availability of all works consulted. Any contribution based on Traditional Knowledge shall also be specified and sources identified, subject to any concerns relating to ownership or confidentiality.

The Proponent shall provide clear statements regarding the availability, relevance, and quality of the data.

6.13 DETAILED PROJECT PROPOSAL DESCRIPTION

The description should address all phases of the Project in sufficient detail to allow the Proponent and NIRB to: (a) assess the potential adverse and beneficial biophysical and socio-economic effects related to the Project, and (b) to address public concerns about the Project. The Proponent must describe all Project phases, including pre-construction, construction, operation, and decommissioning.

The Proponent should summarize the Project in terms of:

a) History of the Project development;
b) Purpose;
c) Location, including maps which delineate all aspects of the Project in proximity to communities in the Kitikmeot Region (and Nunavut, where relevant);
d) Scale (spatial and temporal);
e) Components;
f) Activities; and
g) Approximate scheduling and costs.

6.13.1 Alternatives Assessment

Alternatives assessment is an important component of Project planning, design, and management, and shall include an analysis of the "no-go" option. The Proponent shall provide evidence of any alternatives assessment completed, including analyses of: alternative ways of carrying out the Project, alternatives to Project components or activities (especially with respect to the selection of a tailings management facility); and any different locations or timings for Project activities or components that might have differing environmental or socio-economic effects. In assessing alternative tailings management facilities, the Proponent shall demonstrate it has considered Environment Canada's *Draft Guidelines for the Assessment of Alternatives for Tailings Storage for Metal Mining Projects Proposing to use Natural, Fish-bearing Water Bodies as Tailings Impoundment Areas* (EC 2008b).

As directed by the Minister (INAC 2008), the Proponent shall completely describe the nature of its reliance upon certain aspects of the BIPR infrastructure, and where a decision is not made regarding the utilization of this infrastructure (i.e. BIPR vs. Sabina built road and port), the Proponent shall complete and include within the EIS, a parallel assessment of full extent for any alternatives assessed

with respect to this infrastructure, in the manner as would be expected for the preferred option. Should the Proponent wish to confirm one preferred option over another, this preference shall be formally submitted to the NIRB for consideration and possible amendment to the EIS Guidelines.

The Proponent shall provide a detailed alternatives assessment for the all-weather road from the port at Bathurst Inlet to the Hackett River site (in the absence of BIPR infrastructure), and shall further, assess the ownership regime for the road and consider the potential for other users of such facilities in the future (public users, other development proponents, etc). The Proponent shall also examine alternative options to aid in the transportation of materials, for instance, alternative port sites and/or road options.

In each case, the Proponent shall give the reasons for selecting the preferred alternative and for rejecting the others, including economic and technical analyses of each. Potential adverse and beneficial biophysical and socio-economic effects should be identified for each feasible alternative, and given to a level of detail which is sufficient to allow the NIRB and the public to compare the preferred with any other alternatives. The Proponent shall also ensure the assessment of alternatives considers the potential for cumulative effects associated with each. This may require, where applicable, the inclusion of such documentation which may be required by regulatory agencies when considering potential impacts of the Project components or activities. The Proponent is encouraged to consult with regulatory agencies to ensure the information requirements of each agency are fulfilled early in the process where possible (i.e. through the submission of the DEIS).

6.13.2 Project Components and Activities

The Proponent shall describe Project components and activities, distinguishing where appropriate between the exploration, construction, operations and closure phases, including where applicable:

- Exploratory work;
- Mineral resources (geology, geochemistry, drilling, and bulk sampling);
- Site preparation and clearing, and site plan;
- Earth works;
- Blasting, including a description of the types and quantities of explosives that will be used;
- Roads, and airfields;
- Work force requirements, including training required to maximize employment of Nunavummiut;
- Air, marine, and land transportation of workers and materials, with estimates of traffic types and frequencies, and which provides transportation routes for each as well;
- Use, transportation, handling, approximate quantities, and storage methods for fuel, hazardous materials, concrete, and aggregates;
- Housing, including demands on infrastructure in any communities providing access to the Project;
- Camp(s) or other on-site accommodation facilities;
- Water supply and sewage- and waste-handling/treatment/disposal facilities (including plans to meet potable water requirements in camps);
- Water retention dykes and natural drainage diversions;
- Water diversions, intakes, and outlets;
- Power generation and transmission facilities;

- Off-site facilities related to expediting, transport, and storage of materials, including fuels, waste, and fixed housing, and transport facilities;
- Pits and quarries, including ore-removal methods;
- Open pit and underground mining methods;
- Milling operations;
- Processing operations;
- Stockpiling of ore, overburden and waste rock;
- Tailings/processed ore handling/treatment/disposal;
- Effluents and emissions;
- Marine and ocean-going activity, including marine shipping plans;
- Site rehabilitation;
- Project life expectancy; and
- Alternatives as they pertain to each of the above.

The Proponent shall give a rationale for the selection of Project components and activities, with specific consideration given to industry best practices.

The Proponent shall specifically address the following in describing Project components and activities:

6.13.2.1 Geology/Mineralogy of the Ore Deposit and Mining Methods

The Proponent shall characterize the ore from the Hackett River sites, including where appropriate:

a) Location, including detailed maps of the mine area;
b) Resource assumptions**;**
c) Mineralogy**;**
d) The type of deposit and associated bedrock (including faulting or fracturing);
e) Identification of the ore deposit material, dimensions, and location;
f) The lithologies and mineral associations found in the region**;**
g) The average extraction rate(s) and the amount of ore to be processed daily and the expected amount of ore to be extracted each year; and
h) A Mine Management Plan indicating the sequence of development for all of the open pit and underground mines (and components therein).

The proposed characteristics of the mine shall be described, bearing in mind the need to control hazards, such as rockfalls.

Many of the foregoing items can be described in the context of a mine management plan.

6.13.2.2 Ore Recovery Plant, Extraction, and Concentration

The Proponent shall describe:

a) The proposed recovery plant, including processing capacity and methods;
b) The location of the recovery plant and the site-selection criteria, the differing processing stages, and the different compounds emitted to the environment during ore processing, and the related quantities, concentrations, and dispersion paths after emission; and

c) The location of the ore storage pads and plans to control and, if necessary, treat, water run-off and seepage.

6.13.2.3 Tailings Management Facility

The Proponent shall:

a) Describe the processed ore (tailings) containment and management plan, including a comprehensive description of the proposed process, structures, and operations. The Proponent shall include a contingency plan in the event that discharges from the containment area do not meet licensing criteria;
b) Describe the tailings composition**,** including the size and quantities of fines and their predicted settling characteristics, the supernatant, and anticipated water quality, providing data on the quantity and quality of material to be disposed of, and describing conservation and recycling options;
c) Present a chemical stability analysis;
d) Discuss how geotechnical factors, including permafrost, clay slippage and pooling, the seasonal seepage conditions of sand, and water and ice in pores, were considered in the design and selection of the structures to contain the tailings. It shall also discuss the stability of the structures, including, if applicable, the question of talik zones; and in the design and selection of the structures to contain the tailings;
e) Describe methods of controlling and monitoring groundwater seepage from the tailings management facility and any other containment areas, and the capacity to cope with storms, floods, and other intermittent natural events, using a return period that is adequately conservative (e.g., 1/100 years), including a review of similar operations elsewhere, applicable modelling information, and the results of research on the long-term stability of the underlying permafrost and frozen materials.

6.13.2.4 Overburden and Waste Rock Disposal

The Proponent shall:

a) Provide a plan for overburden and waste rock handling, including the design and location of the storage sites, describing the options for each. The Proponent shall include a review of similar operations elsewhere, applicable modelling information, and the results of research on the long-term thermal stability of the underlying permafrost and frozen materials;
b) Describe the physical and chemical stability of the types of materials to be stored and those to be used for containment construction with regard to the long-term acid-generation and metal-leaching potential of the waste rock, bearing in mind the latest monitoring results from mines nearby or at least in the same general region, and present a water management plan;
c) Explain the relationship between the timing of acid generation and permafrost encapsulation and cold temperatures, where possible in reference to the region in which the Project will take place;
d) Describe and assess the physical and chemical characteristics of seepage and runoff from the waste rock piles**,** and describe appropriate control measures. The potential for "rock glacier" phenomena**;** and
e) Describe in qualitative and quantitative terms the chemistry of frozen groundwater from joints and fractures in the waste rock disposal area.

6.13.2.5 Water Supply and Management

The Proponent shall:

a) Present a water balance and provide a water management plan for the mine, processing facilities, stockpile and containment areas, and infrastructure. The water management plan shall address, at a minimum: the on-site use and distribution (methods and plans) of waters, water storage (including location), water treatment (including water containing nitrate residues from explosives), final discharge to the environment, alteration of drainage patterns, diversions (including ditches and dikes), and water conservation and recycling measures;
b) Water balance estimates for, and possible locations of, the water supply source(s) to be utilized;
c) Include estimates of mine water volumes and all potential uses of the mine water;
d) Plans for the potential de-watering of lakes and mine pits, including information about de-watering methods, specifying the volumes to be pumped, the areas that may be affected, any fish salvage programs to be employed, the quantities of bottom sediment requiring disposal, and the disposal methods. With regard to mine pits, discuss projected mine inflow volumes and quality, considering seepage into the pits, pit water quality, and seepage from retention dykes;
e) For general water supply and management, address the issue of discharge or seepage of water;
f) Methods used to calculate the above volumes;
g) Describe the facilities for washing bulk trucks and other equipment, as well as any treatment of water used for washing vehicles/equipment; and
h) Describe how melt water, particularly with high metal content and/or hydrocarbons will be managed.

6.13.2.6 Borrow Pits and Quarry Sites

The Proponent shall:

a) Provide mapping at a scale of 1:5,000 for all sites that are to be used for borrow pits or quarries, noting which are located on or near eskers, and delineating Crown lands and Inuit Owned Lands on all maps of borrow pits and quarries;
b) Provide an estimation of the quantities that will be extracted from quarry sites;
c) Describe access routes to those sites;
d) Discuss the acid rock drainage (ARD) and metal leaching (ML) potential of quarried materials;
e) Provide quarry management plans describing proposed operations; and
f) Outline its proposed methods for handling massive ice, and plans to manage water released by the thawing of permafrost and ground ice.

6.13.2.7 All-Weather Road(s) and Associated Water Crossings

The Proponent shall describe in detail and include relevant maps and drawings which illustrate:

a) How the selected route(s) may correspond to the needs of other developers and of Nunavummiut, paying particular mind to any public consultation undertaken with respect to the proposed routing, specifically as it may relate to Traditional land or resource use;
b) The proposed construction of the all-weather road(s), including lay down areas, temporary camps, and on-site and off-site roads and alternative routes, paying particular attention to water crossings, diversions of watercourses, and, where applicable, any features designed with caribou migration in use;
c) The quantities and types of materials required for construction and maintenance, including a discussion of the possibility to utilize materials with acid rock drainage potential;
d) Construction and maintenance methods for all site roads, frequency of use, road width, and dust-suppression methods;
e) A detailed description (including location) of all water crossings and any temporary works related to water crossings associated with the all-weather road(s);
f) The types and numbers of vehicles to be used to transport materials and concentrate along the all-weather access route(s), including the total number of trips expected daily and seasonally, the allowable and expected speeds, and best estimates of load weights (full and empty, if applicable);
g) Accident/incident reporting;
h) Wildlife impact mitigation procedures and/or structures; and
i) Site reclamation.

6.13.2.8 Airport and Aircraft Landing Facilities

The Proponent shall describe:

a) Any and all airport and aircraft landing facilities;
b) Whether the airport will maintain a private, registered, or certified designation;
c) The duration, frequency, and extent of use of airport and aircraft landing facilities;
d) Estimates of the volume of goods and number of passengers to be frequenting the airport and aircraft landing facilities, on a daily and seasonal basis;
e) The airport and aircraft landing infrastructure characteristics, service roads, fuel storage, de-icing and containment systems, methods of dust suppression, drinking and waste water disposal systems and solid waste management plans;
f) Construction methods; and
g) Accident/incident response reporting.

6.13.2.9 Facilities at Bathurst Inlet

The Proponent shall provide a thorough description of all facilities it intends to construct at the port site at Bathurst Inlet, where not detailed in any other part of Subsection 6.13.2 of these Guidelines (i.e. discussion of concentrate storage facility, proposed navigational aids, including a detailed description of the aids, the number of aids proposed, dimensions, and specific locations).

Furthermore, the Proponent shall clearly identify those facilities associated with, and to be constructed by, the BIPR Project, but which the Proponent intends to utilize, as per their January 2008 Project Description.

The descriptions shall include a discussion of the duration, frequency, and extent of usage for all facilities at Bathurst Inlet.

In assessing the Sabina-built alternative to the proposed BIPR port at Bathurst Inlet, the EIS shall include the following:

a) How the selected port site corresponds to the needs of other developers and residents of the West Kitikmeot region;
b) Proposed construction and operation;
c) Cargo and container handling and storage;
d) Maintenance of appropriate water depths and related dredging activities;
e) Ship to ship transfers;
f) The quantities and types of materials required for port facilities construction and maintenance;
g) Potable water supply; including water treatment technology, the location of the facility and point of supply, the volume needed and the chemical composition and discharge of any by-products of the treatment process;
h) Spill response plans; and
i) Accident/incident response reporting.

6.13.2.10 Hazardous Materials Handling, Storage, and Transfer

The Proponent shall describe:

a) The location and characteristics of fuel and explosives storage infrastructure and systems, including the explosives factory;
b) Handling and containment methods;
c) The types and quantities of fuel, explosives, and any other hazardous materials required for the duration of the Project;
d) Methods of fuel transfer and transportation from source(s) to, and around site;
e) Security measures to be implemented, if applicable;
f) Accident/incident response reporting;
g) Spill response training;
h) Spill contingency plans and oil pollution prevention/emergency plans; and
i) The location of spill kits on site.

6.13.2.11 Waste (Domestic and Hazardous) Management

The Proponent shall describe:

a) Plans for sewage treatment and disposal, including the technology to be employed, the location of the facilities and any point(s) of discharge, and the volumes and chemical composition of the effluent;
b) Plans for the handling, storage, transportation, treatment, and disposal of solid wastes, sewage sludge, and contaminated soils;
c) The hazardous waste management plan, including a description of the types and volumes of hazardous wastes to be used or produced by all Project activities;

d) Storage and disposal methods and destinations for each type of hazardous waste, including disposal of containers used to transport or store hazardous materials;
e) Accident/incident response reporting;
f) Spill response training; and
g) The location of spill kits on site.

The Proponent is encouraged to include the above information in the form of a table which also cross-references any other section of the DEIS which may provide further information about each type of waste generated by the Project, the locations of waste deposition, and methods of collection, treatment, discharge, etc.

6.13.2.12 Marine Shipping

The Proponent shall provide a detailed assessment of the proposed shipping route(s) and activities including:

a) A detailed description of the proposed shipping route(s);
b) A general description of the vessels that will be accessing the port site and operating along the shipping route(s);
c) The proposed timeframe for shipping season(s) through each of the proposed routes;
d) Potential for ice breaking during shipping season (note that this would include the planned shipping season);
e) All activities/works that would have to be undertaken to make a Sabina-built port accessible for ships (i.e. installation of ground- or sea- based navigational aids in areas of Bathurst Inlet, and seismic surveys to improve quality of available mapping);
f) Potential ship waste disposal while docked at the port;
g) Potential third parties responsible for ensuring safe shipping beyond the immediate port site;
h) The sources of fuel that will be shipped to the Sabina built port, including, where applicable, measures Sabina will take to ensure any fuel of international sourcing will conform to Canadian regulations;
i) The identification of all wildlife species present along shipping routes, paying particular attention to marine mammals, migratory birds, and any Species at Risk along these route(s);
j) Special management areas, Areas of Concern, or other areas designated as having importance to Nunavummiut, wildlife/habitat located along the route(s); and
k) A discussion of the shipment of any and all materials to be transported via the route(s), paying particular attention to any hazardous wastes or other materials.

6.13.2.13 Power

The Proponent shall describe:

a) Any studies into sources of power other than diesel generators that it conducted;
b) The location of the power house relative to prevailing winds and other infrastructure (e.g., camp accommodations);
c) Utility corridors, including transmission lines;
d) All diesel power generation facilities, including sources, volumes and transportation of fuel, transfer points, and equipment and facilities for emergency clean-up;

e) The energy balance for the proposed Project, including strategies for optimization and conservation;
f) The anticipated types and quantities of emissions to the atmosphere; and
g) Accident/incident management and reporting.

6.14 PROJECT DESIGN

General Project design issues discussed in the EIS shall include:

a) An explanation of how the environment has influenced the design of the Project. This should include, but is not limited to, geographical, geological, meteorological, and oceanographic conditions;
b) Global climate change. The discussion must describe and assess, on the basis of current knowledge, how the potential for climate change (global warming) could affect permafrost and soils with high ice content, as well as marine ice flow regimes, and the long-term impacts of such changes on the Project;
c) An explanation of how public consultation and Traditional Knowledge have influenced the design of the Project;
d) A discussion of how design, engineering, and management plans are consistent with the maintenance of eco-systemic integrity focusing on such things as water crossings, marine habitat, and wildlife habitat;
e) A demonstration of how the Proponent has applied the Precautionary Principle in its Project design and management;
f) How socio-economic conditions have influenced the Project design (how have work rotations, pace of construction, employment policy, etc. been designed to meet local preferences and capacity); and
g) An explanation of how the goal of minimizing environmental impacts across all VECs has influenced Project design.

All assumptions underlying design features shall be explicitly stated.

6.15 PROJECT SCHEDULE

The Proponent shall provide current information on the Project's status in addition to the proposed schedule for each phase of Project development (construction, operations, closure, and post-closure).

6.15.1 Potential Project Impediments

The Proponent shall identify those conditions that might impair the fulfillment of the Proponent's plans and commitments regarding the Project. In keeping with direction provided by the Minister (INAC 2008), the Proponent shall give significant consideration to the complex relationship between the Hackett River and BIPR projects. This discussion shall consider how a delay in the implementation of the process for BIPR may impede the progress or alter the development of, the Hackett River Project.

6.15.2 Future Development

The Proponent shall evaluate, indicating the associated level of uncertainty, the potential for exploration and development of additional ores at the Project site, as well as any foreseeable expansions of the Project infrastructure, and shall consider the associated impacts. Such an evaluation should follow logically from the stated purpose of the Project, the Proponent's business plan, and the development scenarios realized by projects of a similar nature.

The Proponent shall also consider whether proceeding with the Project, including any associated access infrastructure proposed as part of the preferred option or as part of an alternative assessment, might stimulate other development projects, either exploration, mining, or other, in the region. This may include an assessment of the proposed all-weather road from Bathurst Inlet south to the Hackett River access road junction, or a Sabina built alternative access route – and the possibility for the expansions of these road options to other areas of the West Kitikmeot or the Northwest Territories.

The assessment of future development as outlined above shall also be represented through the Proponent's assessment of cumulative impacts, as directed by the Minister (INAC 2008).

6.16 BASELINE INFORMATION – BIOPHYSICAL AND SOCIO-ECONOMIC ENVIRONMENTS

This section of the EIS shall provide a baseline description of the existing physical, biological, and socio-economic environments including processes, their interrelations and interactions, and the variability in these components, processes, and interactions over time scales appropriate to each. The Proponent's description of the existing environments must be in sufficient detail to permit the identification, assessment, and determination of the significance of potentially adverse and beneficial impacts that may be caused by the Project. It should also be at a level and scale of detail that enables readers to understand the material presented.

The EIS shall present a sufficient temporal scale to baseline data, in order to permit the identification of natural fluctuations**,** trends, and cyclical and other recurrent phenomena. Further, the Proponent shall provide an explanation of and justification for, the temporal scales chosen. The EIS shall also evaluate the degree to which the baseline data characterize ecosystems that are relatively free of impacts and shall specify, where relevant, the sources of prior impacts where those can be identified with reasonable confidence**,** so as to assist in evaluating the thresholds of ecosystem components.

In preparing baseline data, the NIRB expects the Proponent will rely upon the use of existing information related to the project and the environment. When relying on existing information to meet the requirements of various sections of the EIS guidelines, the Proponent must either include the information directly in the EIS or clearly direct (e.g. through cross-referencing) the NIRB to where it may obtain the information. When relying on existing information, the Proponent must also comment on how representative the data are, clearly separate factual lines of evidence from inference, and state any limitations on the inferences or conclusions that can be drawn from them.

6.16.1 Valued Ecosystem Components and Valued Socio-economic Components

Baseline information should include, but not necessarily be limited to, those VECs and VSECs, processes, and interactions that are likely to be impacted by the Project, either directly, indirectly, or cumulatively. If relevant, the location of these VECs/VSECs should be indicated on maps or charts. The Proponent shall provide justification for its choice of VECs/VSECs, clearly stating from where

their value is derived and the reasons why, including social, economic, recreational, and aesthetic considerations. The Proponent should also indicate the specific geographical areas or ecosystems that may be implicated as part of the particular concerns, and their relation to the broader regional environment and economy.

The Proponent shall explain and justify the methods used to predict potential adverse and beneficial impacts of the Project on the VECs and VSECs, on the interactions among these components, and on the relations of these components with the environment. In particular, the Proponent must validate the selected VECs and VSECs, particularly those VECs and VSECs that will be used to assess the significance of Project component interactions, through consultation with a representative sample of the affected communities. Any uncertainties in this validation must be documented. To this end, the NIRB suggests that the Proponent seek community, government, and Traditional input regarding the identification of the VECs and VSECs to be discussed in the EIS. The Proponent is also encouraged to consult with the Kitikmeot Socio-Economic Monitoring Committee in preparing the list of VSECs and indicators which will be used to establish the baseline socio-economic environment for future monitoring efforts.

The EIS must expressly identify those components of the Project that may be expected to interact in adverse or beneficial ways with the VECs and VSECs.

Components may be grouped into the following categories:

a) Components related to construction and operation of the Project;
b) Components related to the eco-systemic effects of the Project; and
c) Components related to developments induced by the Project, and which will occur in the reasonably foreseeable future.

The following list of VECs and VSECs related to the Project were identified through Public Scoping conducted by the NIRB and shall be factored into the Proponent's assessment. This list is not meant to be exhaustive, but rather shall give the Proponent an appropriate beginning point for the identification of relevant VECs and VSECs.

6.16.1.1 Valued Ecosystem Components

- Terrestrial environment, including landforms and soil;
- Freshwater and marine environments, including surface water quality, lake de-watering, and the potential for icebreaking;
- Air quality, including impacts from noise and dust;
- Vegetation;
- Wildlife and habitat, including marine mammals and organisms, grizzly bear, musk-oxen, fox, wolverine, and wolf;
- Caribou, including:
    - Habitat, particularly calving grounds, migration corridors, paths, and water crossings;
    - Migration and distribution; and
    - Behaviour, at individual and herd levels.
- Migratory birds, including nesting areas;
- Freshwater fish and other aquatic organisms;
- Climate change;

- General environmental quality, especially relating to spills and other malfunctions;
- Cumulative impacts;
- Transboundary impacts;
- Alternatives assessment; and
- Abandonment and restoration.

6.16.1.2 Valued Socio-economic Components

- Inuit and Aboriginal harvesting;
- Traditional place names;
- Land access, especially relating to proposed road from Bathurst Inlet to mine site;
- Use of historical Traditional Knowledge;
- Traditional hunting grounds;
- Education and training;
- Employment opportunities and the sustainability of such employment;
- Public consultation and participation:
  - Potential for marine monitors;
  - Inclusion of Elders and Youth; and
  - Ongoing throughout duration of Project life.
- Archaeological resources;
- Human resources policies, especially relating to human health and safety, drug and alcohol policies;
- Country food consumption;
- Local food security;
- Local economy and community livelihoods;
- IIBA negotiations;
- Royalties; and
- Posting of security bonds.

6.16.2 Biophysical Environment

The Proponent shall describe the components of the physical and biological environments and the processes affecting them as they exist presently within the RSA and LSA where appropriate. In describing the physical and biological environment, the Proponent shall take an ecosystem approach which takes into account both scientific and community knowledge and perspectives regarding ecosystem health and integrity. The Proponent shall explain and justify the indicators used to measure ecosystem integrity. These indicators should be related to Project monitoring and follow-up activities.

The Proponent shall provide information on the functioning and stability of the biophysical environment in the LSA and RSA. The Proponent shall describe the components of the biophysical environment and the processes affecting them as they exist without the Project. This will serve as a baseline against which the potential impacts of the Project can be measured and also to justify the Proponent's selection of VECs. Baseline data shall be presented regarding such components as:

6.16.2.1 Terrestrial Environment

a) Special, sensitive, or unique geological or landform features (including inventory of wetlands

and their function in the Local Study Area);
b) Shoreline conditions along shipping route(s);
c) Existing or proposed protected areas, special management areas, and conservation areas, such as those proposed by caribou co-management boards, land use plans, or territorial or federal agencies;
d) Bedrock lithology, morphology, and structures;
e) Geomorphology and soils (excluding eskers);
f) Permafrost (including areas of discontinuous permafrost, high ice-content soils, ice lenses, thaw-sensitive slopes, talik zones, and stream banks);
g) Evidence of the potential for ground and rock instability (e.g., slumping, landslides, and potential slippage planes);
h) Hydrology/limnology (e.g., lakes and streams, lake sediment geochemistry, recharge zones, flood zones, ice formation, and melt patterns);
i) Fluvial geomorphology and stability of stream and river crossings;
j) Sediment and soil quality and quantity;
k) Air quality and noise levels;
l) Sites of palaeontological or palaeobotanical significance; and
m) Current climatic conditions and foreseeable future trends, bearing in mind the final paragraph of Section 6.5.

6.16.2.2 Freshwater and Marine Environment

a) Hydrology (e.g. water quality and quantity streams, watershed boundaries, surface water flow, subsurface water movement, flood zones, ice formation, and melt patterns);
b) Surface and groundwater quality in project area (describe physical, chemical, and biological characteristics);
c) The identification of all fish species in watercourses and water bodies that are directly and/or indirectly affected by the project;
d) Physical and chemical properties of sediment in freshwater and marine water bodies, particularly in the vicinity of the proposed port;
e) Substrate characteristics for areas of fish habitat;
f) Streams which support overwintering fish or are used by fish as migration routes;
g) Bathymetry for all watercourses and water bodies that could be impacted by any project works or activities (i.e. dewatering, water withdrawal, infill, water crossings, port site);
h) Ice conditions along shipping route(s) (using Traditional Knowledge as well as scientific studies);
i) Tidal range and normal mean low and high tides at the port site;
j) Predicted climate change and its possible effect on freshwater quantity and quality, and on the timing of ice formation in the future (terrestrial water bodies and along proposed shipping route(s));
k) Sensitive habitat areas in RSA, including shipping route(s);
l) Coastal and sea bottom stability; and
m) Marine currents, waves, storm surges, and long shore processes at port and along shipping route(s).

6.16.2.3 Meteorology

a) Meteorology and climate data relevant to the Local Study Area. The data should reflect daily

and seasonal fluctuations;
b) Wind speed and direction; and
c) Consideration of predicted climate change and related changes in mean and extreme environmental parameters such as air temperature, precipitation, storms, etc.

6.16.2.4 Air Quality and Noise

a) Air quality and noise data relevant to the Local Study Area - levels should reflect daily and seasonal fluctuations.

6.16.2.5 Vegetation

a) Sensitive, uncommon, or unique plants or plant communities;
b) Ecological zone, including ecozones, and ecoregions, or other appropriate ecological areas;
c) The local and regional presence of species/communities;
d) The health of these species/communities and their contaminant loadings;
e) Rare or regionally unique species or species assemblages, including species with federal, territorial, regional, or locally designated status (e.g., vulnerable, threatened, endangered, extirpated, of special concern – as designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or other agencies) or cultural status;
f) Species that perform particularly significant ecological functions;
g) Species that are valuable for cultural reasons known to the Inuit; and
h) Any other issues identified through public consultation.

6.16.2.6 Wildlife

a) The local and regional presence of species populations;
b) The relative trends in seasonal/annual abundance, and distribution of these species populations;
c) The health of these species populations and their contaminant loadings;
d) The seasonal and annual trends in range or habitat use, movements, and population of these species;
e) The migratory patterns and routes of these species and the corresponding sensitive periods when the routes cross habitats affected by the Project;
f) Significant habitats for these species, such as eskers, calving and rearing areas, denning sites and staging areas, and such special locations as salt licks, water crossings, and insect relief habitats;
g) Wildlife management areas or similar areas for these species;
h) Habitats of any rare or regionally unique species or species with federal, territorial, regional, or locally designated status (e.g., vulnerable, threatened, endangered, extirpated, of special concern) or cultural status;
i) Timing and extent of the following caribou herds in the Regional and Local Study Areas (including areas of potential mine development or exploration related to the Project, and all shipping routes):
    - Ahiak (Queen Maud) herd
    - Bathurst herd
    - Dolphin & Union herd
    - Peary herd

j) Identified effects of climate change to migratory species such as caribou;
k) Distributions of wildlife found in region, with seasonal designations given to density and occurrence;
l) Polar bear, caribou, and marine mammal distribution during shipping season and habitat along shipping route(s);
m) Species that perform particularly significant ecological functions;
n) Description and evaluation of biodiversity in Local Study Area; and
o) Any other issues relating to these species identified through public consultation.

6.16.2.7 Birds

a) The local and regional occurrence of species populations;
b) The relative seasonal/annual abundance and distribution of these species populations;
c) The health of these species populations and their contaminant loadings (where desktop information is available regarding contaminant loadings);
d) The seasonal and annual trends in range or habitat use, movements, and population status of these species;
e) The migratory patterns and routes of these species and the corresponding sensitive periods when the routes cross habitats affected by the Project;
f) Significant habitats for these species, such as breeding, nesting, brood-rearing, and moulting sites and staging areas for raptors, waterfowl, and other avifauna;
g) Established or proposed sanctuaries, refuges, or similar areas for these species;
h) Habitats of any rare or regionally unique species or species with federal, territorial, regional, or locally designated status (e.g., vulnerable, threatened, endangered, extirpated, of special concern) or cultural status;
i) Critical terrestrial and marine migratory bird sites along the shipping route (EC 2004; Latour et *al.* 2008), including those which may be affected by marine spills as a result of current and/or wind patterns;
j) Species that perform particularly significant ecological functions; and
k) Any other issues relating to these species identified through public consultation.

6.16.2.8 Fish and Other Aquatic Organisms

a) Periphyton, phytoplankton, zooplankton, benthos, other marine and freshwater aquatic organisms and fish;
b) The local and regional occurrence of freshwater aquatic organisms and fish species populations;
c) The relative seasonal and annual trends in abundance and distribution of these freshwater aquatic organisms and fish species populations, and the trophic status of the water bodies in question;
d) Stream and lake bottom substrates and littoral zones, including aquatic and riparian vegetation;
e) Affected watercourses, including depths, widths, and maximum and minimum flows;
f) The health of these freshwater aquatic organisms and fish species populations and their contaminant loadings;
g) The migratory patterns and routes of these freshwater aquatic organisms and fish species where relevant, identifying preferred corridors, and the corresponding sensitive periods when the routes cross habitats affected by the Project;

h) Habitat areas for these freshwater aquatic organisms and fish species, including spawning, nursery, feeding, and over-wintering areas, and any sensitive periods for each of the habitat areas;
i) Management or other protected areas for these freshwater aquatic organisms and fish species;
j) Habitats of any rare or regionally or locally unique freshwater aquatic organisms or fish species or freshwater aquatic organisms and/or fish species with federal, territorial, regional, or locally designated status (e.g., vulnerable, threatened, endangered, extirpated, of special concern) or cultural status;
k) Freshwater aquatic organisms or fish species that perform particularly significant ecological functions; and
l) Any other issues relating to these freshwater aquatic organisms and fish species identified through public consultation.

6.16.3 Socio-Economic and Human Environment

The EIS shall provide information on the functioning and stability of the socio-economic environment in the RSA. The EIS shall also describe the components of the socio-economic environment and the processes affecting them as they exist without the Project. This will serve as a baseline against which the potential impacts of the Project can be measured and also to justify the Proponent's selection of VSECs. Baseline data shall be presented for each of the communities in the Kitikmeot Region (where relevant) regarding such components as:

a) Human health, defined broadly to include mental health and well-being, and individual and family well-being, where family well-being can be represented using a description of the prevalent representative household social structure in terms of:
    i. The prevalent composition of the household (number of family/kin relations co-existing, generations in the household);
    ii. A description of the gender roles within the household;
    iii. The prevalent division of household labour based upon existing gender roles;
    iv. The dominant consumption patterns of the household;
    v. Household access to credit;
    vi. Sharing or division of resources within the household; and
    vii. Methods of household decision making.
b) Community well-being, including information about the capacity, availability, and affordability, where relevant, of local services and infrastructure (i.e. housing, training, education, day care services, health care, etc.);
c) Population demographics;
d) Traditional Knowledge (TK) studies and information regarding culture and relationship to the land;
e) Recreational, traditional, or historical uses (navigational or otherwise) of water bodies to potentially be de-watered. The proponent shall provide evidence of public consultation, giving specific evidence to support and justify findings with regard to this issue;
f) Archaeological, cultural, heritage, and burial sites, as well as sites identified by Elders as being sacred or spiritual places. Each site shall be described and delineated on a map, where confidentiality agreements permit for the disclosure of such information;
g) Local and Regional land and resource use including traditional, subsistence, and other uses, national parks and similar areas;
h) Local and Regional economy; distinguishing between traditional and wage economies;

i) Existing employment, education, training and services (i.e. infrastructure) including a description of current rates/trends/patterns;
j) Interactions between socio-economic and biophysical environments; and
k) Any other components identified through public consultation.

The Proponent shall provide a rationale for the selection of communities and relevant reference studies for which baseline data are provided. 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.

Whenever relevant and appropriate, data shall be disaggregated by age, gender, and ethnic affiliation. The foregoing is not to suggest that the Proponent is responsible for the current socio-economic situation of the Kitikmeot Region or of Nunavut, or that it is expected to resolve any problems that are identified. Nevertheless, a proper understanding of the structure and functioning of the potentially affected societies is needed in order to identify the potential of the Project to affect them, 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.

Where the Proponent uses particular indicators to measure baseline information and subsequent impacts related to the proposed project, those indicators selected must be adequate to address all types of foreseeable impacts, including cumulative and residual impacts. In addition, the EIS shall clearly identify and justify the Proponent's selection of indicators.

6.16.3.1 Traditional Knowledge

In providing baseline information as it relates to Traditional Knowledge, the EIS shall include, at a minimum, a discussion of:

a) Traditional place names for important areas in the LSA;
b) Historic and current land and water use of Inuit in the LSA, including traditional and/or historic navigation along any waters directly affected by the project;
c) Information on the LSA area regarding culture and relationship to the land; and
d) Traditional Knowledge collected for any biotic components which are listed as VECs for the purpose of the Review.

6.17 APPROACH TO THE ASSESSMENT AND MITIGATION OF IMPACTS

The analysis of the biophysical and socio-economic effects should describe: the effect considered, the significance of the effect and justification for that determination, how the effect fits into a cumulative effects analysis and the measures proposed to mitigate those significant effects. The EIS should, to the extent possible, avoid repetition by identifying the potential adverse environmental effects, the Project components or activities with potential to cause the effect, the proposed mitigation measures, and the potential for residual effects in the same discussion.

The EIS shall provide a comprehensive analysis of the effects of the Project on the biophysical and socio-economic environments with respect to the elements and functions which may be lost or enhanced, where, how much, for how long, and with what overall effect. The EIS shall also provide

an analysis of the short and long-term effects, indicating the sensitivity of the function, integrity, and health of the environments to these predicted effects.

The EIS shall pay particular attention to the geographical scale of anticipated impacts, by characterising them as appropriate in or at the:

1) Local Study Area, Regional Study Area, and/or territorial levels;
2) Traditional and/or local land use areas; and
3) Ecosystem level (e.g., watershed, and wetlands).

The Proponent shall employ a matrix or a comparable tool that highlights interactions between the components of the Project and those of the relevant ecosystems, especially VECs and VSECs.

The consequences of each predicted impact for the functioning and integrity of its ecosystem must be considered in addition to the consequences for the VEC or VSEC in question. Furthermore, for all proposed mitigation measures, the Proponent shall provide a clear process for their selection, and a discussion providing for their justification.

6.17.1 Impact Assessment Methodology

The Proponent shall explain and justify the methods used for impact prediction, which can include mathematical or mechanical modeling, previous experience, statistical modeling (e.g., variance and correlation analyses), the analysis of sequential series, expert opinion, the prediction of tendencies, and Traditional Knowledge.

All studies used in the prediction of impacts must be specified, a database organized, the original authors identified, and the studies made public. All statements based on public consultation shall be justified and the sources and methodology specified. The choice of methodologies and interpretation of results shall be justified in light of current theories, knowledge, and standards.

The Proponent shall assess the direct, indirect, short-term, and long-term impacts of the Project on the biophysical and socio-economic environments, and the interactions between them, focusing on the anticipated response of the VECs and VSECs. It shall also assess the degree of uncertainty associated with each predicted effect. Where the potential for cumulative effects is identified, a discussion must be provided related to the CEA outlined in Subsection 6.18.4 of these Guidelines.

The Proponent shall identify potential impacts separately for each Project phase, including exploration. It shall also assess the potential impacts arising from accidental events and malfunctions.

6.17.2 Cumulative Effects

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 result from individually minor but collectively significant actions taking place over a period of time.

A regional approach to CEA allows for assessment of the project impacts in relations to other activities in the region, taking into account the scale at which projects are likely to have a significant impact, and offers a more proactive approach that accounts for environmental values and considers projects in reference to objectives of environmental quality (NIRB 1997).

CEA done well demands the explicit creation of alternative development scenarios and analysis of potential cumulative effects associated with each one (Greig *et. al* 2002). Therefore, the Proponent shall ensure its CEA clearly addresses the alternatives presented under Subsection 6.13.1 of these Guidelines. Furthermore, in keeping with direction from the Minister pursuant to Section 12.5.1 of the NLCA, the Proponent shall conduct a thorough assessment of cumulative impacts as they relate to the Project. Therefore, the Proponent shall also include in its CEA discussion, a comprehensive analysis of alternative Project scenarios as they relate to the cumulative effects assessment (INAC 2008).

Effective CEA requires the application of a strategic approach, one specifically designed to identify and predict the likelihood and significance of potential cumulative effects (Baxter *et al* 2001). The Proponent shall also consider then, that while project impacts themselves may be determined to be insignificant, the potential for the cumulative effects of such impacts must still be evaluated.

The Proponent shall determine which events or activities have affected or are likely to affect the same VECs/VSECs or ecosystems as the Project. The Proponent shall then predict the impacts of the Project in combination with those of the other past, present, and reasonably foreseeable future developments, using the most appropriate methodology on a case-by-case basis that is capable of incorporating all of the relevant impacts. The term "reasonably foreseeable future development" is defined to mean: projects or activities that are currently under regulatory review or those that will be submitted for regulatory review in the near future, as determined by the existence of a project description in the possession of a government department or agency. Furthermore, this definition necessarily includes a requirement for the reasonable projection of development to more advanced activities for those projects which have been permitted to proceed. Nevertheless, where less precise information about a possible development exists, the Proponent shall refer to it and shall offer its opinion on whether it might need to be taken into account at a later date (i.e. The EIS may consider, as a factor in the cumulative effects assessment, the potential for an additional mine development within the Project RSA during the lifetime of the Hackett River Project).

The Proponent shall describe and justify all assumptions, models, information limitations and associated levels of uncertainty. It shall also explain its approach to handling the uncertainty associated with CEA.

6.17.3 Transboundary Impacts

Transboundary impacts, for the purpose of the current Guidelines, are defined as those effects which occur across municipal, provincial, territorial, or international boundaries and which may occur outside of the Nunavut Settlement Area.

The Proponent shall give due consideration to transboundary impacts, including the effects of the Project outside Nunavut and the interactions between the effects of the Project and the effects of projects located outside Nunavut. In addition, 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.

All VSECs and VECs identified by the Proponent which may have the potential to contribute to transboundary impacts, shall be assessed in the EIS, with specific consideration to the potential for transboundary impacts associated with marine shipping, caribou, marine mammals, and migratory birds. In addition, the potential for transboundary impacts related to cumulative effects associated with this Project shall be clearly defined.

6.17.4 Significance of Impacts

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 environmental assessment to be documented in an EIS. The determination of significance shall take into account the following attributes of each impact:

- Magnitude;
- Geographic extent;
- Timing;
- Duration;
- Frequency;
- Reversibility;
- Probability of occurrence;
- Nature of impact (i.e. positive/beneficial vs. negative/adverse)
- Effect on ecosystem function and integrity;
- The effect on the capacity of resources to meet present and future needs; and
- The value attached to the impacted VEC or VSEC by those who identified them.

The Proponent shall provide opportunities for concerned communities, as well as other individuals and organizations, to provide their views in defining impact significance. The Proponent shall describe how it will ascertain the significance that different intervenors assign to each impact and how it will proceed if different intervenors 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, taking into consideration and avoiding duplication of, the information provided above.

The dynamic change of ecosystems and their components must also be considered in determining impact significance. The significance of an effect on an ecosystem component can, therefore, change through time and can vary according to the "state of health" of the ecosystem or the component at the time of the impact. The Proponent shall therefore further evaluate the significance of potential impacts in the light of data on the dynamism and the current “state of health” of ecosystems and their components and societies and their predictable evolution in light of global climate change. Consistent with the ecosystem approach required above, the Proponent shall strive to 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.

Any terms used to describe the significance of impacts, such as "low", "medium", or "high", must be clearly defined, and, wherever possible, in quantitative terms.

6.17.5 Indicators and Criteria

The Proponent shall identify the indicators and/or 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 and technical experts. Furthermore, in its discussion of indicators, the Proponent shall emphasize the linkage between those indicators chosen and the relevant VECs or VSECs, thereby addressing any concerns identified through community consultation.

In every case where a potential impact or an area of uncertainty is identified, the Proponent must give a clear commitment in the appropriate section of the EIS as to how it will address it. The Proponent must clearly distinguish the impacts at each stage of the Project, including temporary closure, final closure and post-closure.

6.17.6 Impacts of the Environment on the Project

The Proponent shall discuss the potential impacts of the environment on the Project, considering such things as seismicity, severe weather events, sea ice conditions, and global climate change. The discussion must specifically describe and assess how the potential for climate change (global warming) could affect permafrost and soils with high ice content and the long-term impacts of such changes on Project infrastructure, particularly the tailings management facility and waste rock piles.

Longer-term effects of climate change must also be discussed up to the projected abandonment phase of the project. The sensitivity of the project to long-term climate variability and effects must be identified and discussed. The Canadian Environmental Assessment Agency Procedural Guide, "*Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners*" (CEAA 2003) provides guidance for incorporating climate change considerations in an environmental assessment.

6.18 ASSESSMENT AND MITIGATION OF IMPACTS

In its assessment and mitigation of impacts identified throughout Subsection 6.18, the Proponent shall adhere to the approach to impact assessment and mitigation as outlined in Subsection 6.17 above.

6.18.1 Impacts of Project Components and Activities

6.18.1.1 Marine, Air and Ground Transportation

The Proponent shall assess the potential impacts, including those resulting from interactions with wildlife, relating to air and road traffic, taking into account the type, frequency, and timing of traffic, particularly low-flying fixed- and rotary-wing aircraft, noise levels, and, in the case of road traffic, the impacts of water crossings especially with regard to fish and fish habitat. The Proponent shall also include a description of the proposed mitigation structures planned for the protection of caribou,

fish and fish habitat as they may pertain to all-weather access roads, associated water crossings, and any other transportation activities.

The Proponent shall assess the potential impacts of all marine shipping activities proposed to occur within the Nunavut Settlement Area, especially as these impacts relate to wildlife, wildlife habitat, and the marine ecosystem in general. This assessment should include Bathurst Inlet in addition to the proposed shipping routes to the east and west of Bathurst Inlet.

The Proponent shall also consider the potential introduction of exotic and invasive species resulting from marine shipping (i.e. from ballast water or other sources).

6.18.1.2 Sewage and Solid Waste Management

The Proponent shall assess the potential impacts caused by the management of solid waste and sewage**,** identifying whether either might act as an attractant to certain species of wildlife. The analysis shall consider the challenges encountered by comparable mining operations in treating and disposing of sewage and solid waste in a northern ecosystem, as well as the nutrient levels, biological oxygen demand, and winter oxygen levels of any receiving water bodies.

6.18.1.3 Hazardous Materials Management

The Proponent shall assess the potential impacts associated with the transportation, handling, storage, usage, and disposal of hazardous materials, including explosives and hydrocarbons. The analysis shall include the potential impacts to water quality from blasting residues, and the possibility that some such materials may act as attractants to some species of wildlife.

6.18.1.4 Exploration Program

The Proponent shall assess the potential impacts of any exploration activities associated with the Project.

6.18.1.5 Open Pit and Underground Mining

The Proponent shall assess the potential impacts of open pit and underground mining, taking into account the following:

a) The permeability of mine rock (including the open pits);
b) The immediate and downstream effects of de-watering the pits and other areas including lakes, on fish and fish habitat, other aquatic organisms, and water circulation;
c) Plans for managing pit water and groundwater seepage into the pits;
d) Salinity and general characterization of groundwater;
e) Permafrost intrusion and winter operations**;**
f) The effects on receiving water bodies of water pumped from the pits, to include the consideration for the possibility of materials with acid rock drainage and/or metal leaching potential;
g) Any effects of exposure to air or water on ore; and

h) The impacts of blasting on air and water quality, with particular reference to wastewater containing nitrites or nitrates from explosives.

6.18.1.6 Tailings Management Facility

The Proponent shall assess the potential impacts of the processed ore containment area(s), taking into account:

a) Design, location, and capacity;
b) The permeability of the impoundment structure(s) and the effectiveness of seepage containment, paying specific attention to the permeability of faults occurring within or around the TMF;
c) The design and location of any pipelines;
d) The technique and plans for filling the facility(s), including rate, timing, frequency, and a discussion of winter operations;
e) The characteristics and toxicity of the tailings, including fines and supernatant; and
f) Details of effluent treatment and discharge.

Typically, questions arise regarding:

- Current and predicted water quality; the discharge point(s) for effluent; and, the extent of the zone(s) of alteration for receiving water quality;
- Microclimate;
- Fish and fish habitat;
- Need for control or retention structures; and
- Anticipated volume of tailings in relation to the storage capacity of the lake.

Particular attention shall be paid to potential impacts on wildlife, including caribou, muskox, and waterfowl.

6.18.1.7 Waste Rock, Ore and Overburden Storage

The Proponent shall assess the potential impacts of the waste rock, ore, and overburden storage, taking into account:

a) The design (height, topography, spatial extent, volume, etc.) and location of the waste rock, ore, and overburden storage sites;
b) The characteristics of materials to be stored;
c) Plans for transporting and handling materials;
d) The characteristics and volumes of seepage, techniques for collecting and disposing of seepage, and the effectiveness of drainage containment;
e) Acid rock drainage;
f) Metal leaching;
g) The metal content of frozen groundwater in the waste rock;
h) Windblown dust;
i) The suitability of the overburden as a substrate for reclamation activities; and
j) The potential for re-vegetation.

Particular attention shall be devoted to the potential for disruption to the movement of wildlife.

6.18.1.8 Processing and Plant Infrastructure

The Proponent shall assess the potential impacts of the processing and plant infrastructure, including**:**

a) Noise from plant operations and transportation to and from the plant**;**
b) Runoff from the plant or stored materials other than those addressed above**;**
c) Sources and disposal of water, specifically with regard to the de-watering of lakes and mine pits;
d) Wastes produced; and
e) Chemicals used.

Particular attention shall be devoted to potential disruptions to the movements of wildlife.

6.18.1.9 Natural Drainage Diversions

The Proponent shall assess the potential impacts of any diversions of natural drainage systems, including tailings dams. This assessment shall include an analysis of any impacts to fish, fish migration, or fish habitat. The analysis must consider the challenges encountered by other mines and comparable operations in constructing drainage diversions (such as melting ice lenses and the resulting nutrient loadings in water bodies), and the potential for mobilizing sediments and disturbing terrain.

Particular attention shall be paid to the impacts on fish, fish habitat, waterfowl, and aquatic mammals resulting from the modification or redirection of natural flows.

6.18.1.10 Power

The Proponent shall assess the potential impacts associated with power production**,** transmission, and distribution.

6.18.1.11 Borrow Pits and Quarry Sites

The Proponent shall assess the potential impacts of borrow pits and quarry sites, including: noise and dust levels, slope stability, thawing of permafrost and ground ice, melt water runoff, and interactions with wildlife.

Further, the Proponent shall describe each borrow pit and quarry site in terms of proximity to water bodies and, considering this proximity, shall assess the potential impacts of borrow pits and quarry sites on fish and fish habitat.

6.18.1.12 Accidents and Malfunctions

The Proponent shall assess the potential impacts of accidents and malfunctions, with specific regard given to the mitigation of such, including those impacts resulting from interactions with wildlife, including worst-case scenarios, and shall evaluate their probability of occurrence. Internal and

external reporting procedures shall also be described. The Proponent should note that management plans are to be presented in Subsection 6.19.3, and shall contain those mitigation measures as outlined in the current section.

6.18.1.13 Temporary Closure, Final Closure, and Reclamation Programs

The Proponent shall assess the potential impacts associated with temporary closure, final closure, and reclamation of the Project, including an analysis of the potential interaction with relevant VSECs as defined through public consultation.

6.18.1.14 Other Site Facilities and Infrastructure

The Proponent shall assess the potential impacts, including those resulting from interactions with wildlife, of all other site facilities and associated infrastructure not detailed in Subsection 6.17.5.

6.18.2 Physical and Biological Impacts

6.18.2.1 Landscape and Terrain

The Proponent shall assess the potential impacts on such factors as terrain stability, permafrost and ground ice (including ground ice in eskers, kames, or deltas used as quarries or borrow pits), ice lenses, seismicity, rock heave, and geochemistry. Attention shall be paid to sites of palaeontological and palaeobotanical significance.

The Proponent shall pay attention to such potential impacts as disturbance to the active layer of permafrost and the resultant ecological effects, permanent changes in the local use of the landscape by wildlife, and permanent aesthetic and physical changes to the landscape. Other potentially important impacts are those on eskers (e.g., by quarrying for granular material) and the resultant effects on wildlife. Eskers are important to wildlife, as they provide migration routes for caribou, offer habitat for small mammals, and are used by carnivores, including Grizzly bears, foxes and wolves, for travelling, denning, and feeding. The Proponent shall also discuss the use of Traditional Knowledge in assessing eskers in relation to both wildlife use and as burial grounds, as studies have shown that eskers are in some areas, the landforms with the greatest archaeological potential (INAC 2001).

6.18.2.2 Water Quality and Quantity

The Proponent shall assess the potential impacts on surface and ground waters. The analysis shall include the impacts on water quality and quantity, rate of flow, catchment areas, and permafrost, in relation to:

a) Site facilities and infrastructure;
b) In-filling and blasting;
c) Collecting and treating wastewater and surface runoff;
d) Mine water;
e) Groundwater seepage;

f) Water management (inputs, outputs, re-use, to include the de-watering of any water bodies and draw-down of water source(s));
g) Contaminant loading and dispersion (including surface runoff and airborne contaminants);
h) Acid rock drainage, metal leaching (including metal leaching from frozen groundwater in the waste rock), and geochemistry;
i) Sedimentation (plumes and dispersion);
j) Changes in water flow caused by water body diversions or other alterations to water bodies;
k) Processed ore containment area operation, discharge, and de-watering;
l) The release of contaminants, including ores, that could affect water quality and/or potable water, and human health; and
m) The contamination of waste rock drainage by residual nitrogen in the form of nitrates or nitrites from ammonium-nitrate-based explosives.

Moreover, the Proponent shall indicate where day-to-day operational problems might occur, particularly regarding runoff control and treatment, and predict the effects of a worst-case scenario in which there is an uncontrolled release of contaminants, including, for example, hydrocarbons or nitrate-contaminated water into the aquatic environment.

The Proponent shall identify water quality objectives from the perspectives of socio-economic/human health and ecological health. For example, the receiving water criteria of the *Canadian Environmental Quality Guidelines* for fresh water and aquatic life for total suspended solids, total arsenic, total copper, and any other relevant metals shall be referred to for comparative purposes (CCME 1999b).

6.18.2.3 Freshwater and Marine

The EIS shall address the following as they relate to potential impacts to freshwater and/or marine ecosystems:

a) Impact on drainage patterns, erosion, and stream flows;
b) Impacts of blasting at port site and quarry sites during construction;
c) Impacts of dredging and related ocean disposal;
d) Impact modeling of ship movements, including direct impacts on migratory birds, species at risk, and marine mammals along shipping routes;
e) Impact of port on marine currents, waves, storm surges, and long shore processes;
f) Modeling of potential marine accidents; and
g) Bilge washing, fuel leaks, and accidental blow-off materials from decks with respect to shipping.

6.18.2.4 Air Quality / Meteorological / Noise

The Proponent shall quantify the gaseous emissions from fuel consumption, air-borne dust from road transportation, blasting and crushing operations, and wind erosion of waste rock dumps and exposed tailings, and shall discuss the possible effects of such activities (e.g., effect on lichen, effects on workers' safety).

The analysis shall also address the following:

a) The atmospheric dispersion of emissions on a local and regional scale, using an established air dispersion model;
b) Atmospheric conversion processes of emissions (e.g., secondary particulates) and linkages between chemicals, the environment, and human health;
c) Potential biological receptors, such as vegetation and wildlife;
d) The potential for the release of any "greenhouse" gases;
e) Microclimates and climate within the Region as affected by the Project during peak traffic and long term;
f) Noise levels, including construction and peak traffic periods; and
g) The effects on plant phenology and wildlife if changing albedo alters the timing or pattern of snow melt.

Relevant indicators may include the *National Ambient Air Quality Objectives* (HC 1999), and the *Guideline for Ambient Air Quality Standards in the Northwest Territories* (GNWT 2002).

6.18.2.5 Vegetation

The Proponent shall assess the following:

a) Local plant communities, including the identification and assessment of species that are of traditional use (e.g., vascular, non-vascular, wetland, and riparian) and the potential for introduction of exotic and invasive species;
b) Plant phenology;
c) Contaminant uptake by vegetation;
d) Airborne dust resulting from road and/or quarry operations;
e) Any rare, endangered, or highly valued species; and
f) Wildlife dependent upon specific habitats or species of vegetation, whether the dependency is seasonal or otherwise.

6.18.2.6 Wildlife

Special consideration shall be given to species listed as vulnerable, endangered, or a species of special concern by COSEWIC; to those species that residents of the Kitikmeot Region record as being vulnerable or endangered locally or regionally; and to species of particular social, cultural, and economic importance, including those for human consumption purposes. Again, the Proponent shall consider all direct, indirect, transboundary, and cumulative effects, and shall also consider shipping activities in its analyses of potential impacts.

The analysis of the potential impacts shall include:

a) Habitat loss or alteration (e.g., fragmentation, connectivity);
b) Mortality (including sport hunting by Project staff and vehicular collisions);
c) Displacement;
d) Disruption of movement (e.g., migration);
e) Home range(s) and carrying capacity of those ranges;
f) Altered inter-specific relationships, including those with humans;
g) Noise or other forms of disturbance on the ground or by aircraft; Bioaccumulation and biomagnification of toxins; and

h) Effects of increased human access to region on wildlife, including fur-bearers (i.e. wolverine, grizzly), caribou, and Fish.

The Proponent shall assess the implications of the above on the overall health of wildlife populations, communities, and ecosystems.

The Proponent shall give special consideration to the following:

6.18.2.6.1 Caribou

The Proponent shall address potential impacts to caribou, including: disruption of movements and migration corridors (due to the mine site, roads, or air traffic, particularly low-level flying by fixed- or rotary-wing aircraft, and also those impacts of early and late season shipping on ice formation in areas where caribou cross); loss or alteration of habitat or calving grounds; deaths or injuries due to collisions with vehicles; disturbance when feeding or resting; and the possibility that caribou may be trapped in the tailings. In addition, the Proponent shall evaluate how the potential effects of the Project could affect caribou harvesting, as well as the potential effects of diverting caribou around the mine site to their energy balance, which, among other things, can affect the quality of the meat harvested and reproductive success of the animals.

Indicators may include: the number of caribou using a specific crossing, calving ground, or winter range; the number of caribou in a herd; physical condition as evidenced by body or marrow fat or other indicators; and the level of contaminants in tissues and organs.

6.18.2.6.2 Grizzly Bear

Grizzly bears are listed as a species of special concern by COSEWIC based on their low densities and productivity. Baseline data shall relate to such topics as movements, habitat use, diet, and den locations. The effects of camp infrastructure, attractant sources, including the possibility of habituation, and human-bear interactions shall be considered. The cumulative effects of habitat loss and of the increased frequency of interactions with humans shall also be considered.

6.18.2.6.3 Musk-Oxen

Potential impacts on musk-oxen may include loss or alteration of habitat**,** collisions with vehicles, and the susceptibility of herds to mine-related sources of disturbance during calving.

6.18.2.6.4 Wolves, Wolverines, and Foxes

Potential impacts may relate to habitat, including denning and other critical areas. Wolverines are listed as a species of special concern by COSEWIC based on their low densities and productivity.

6.18.2.7 Birds

The Proponent shall assess the potential impacts to birds including: loss, alteration, or alienation of habitat such as staging or nesting habitats (e.g. wetlands); disruption of migration routes; disturbance by human activity such as blasting, marine, air, and road transportation; and bioaccumulation.

6.18.2.8 Fish and Aquatic Organisms and Habitats

The analysis of potential impacts on aquatic organisms and habitats shall include:

a) The productive capacity of aquatic ecosystems, with particular reference to species of fish that are important for recreational or subsistence purposes;
b) Water quality, bearing in mind the *Canadian Environmental Quality Guidelines*;
c) Habitat loss, alteration, or alienation;
d) Rare and/or sensitive aquatic organisms and habitats;
e) Mortality (including sport fishing by Project workers); and
f) Noise; including noise from blasting on fish (refer to http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/water-eau/explosives-explosifs/page03_e.asp).

The Proponent shall evaluate potential impacts against Fisheries and Oceans Canada's *No Net Loss Policy* (DFO 1986) as well as the potential applicability of the *Metal Mining Effluent Regulations* (EC 2002).

6.18.3 Socio-Economic Impacts

The Proponent shall assess the potential impacts on socio-economic and cultural components identified through community and public consultation and shall also take into account the following:

a) The health of the workers, their families, and other residents (human health includes physical, psychological, emotional, spiritual, and mental health and wellness);
b) Demographics, such as Project-induced changes in population numbers, migration, and distribution, and the effects of those changes, including interactions between local residents and non-residents;
c) The traditional way of life of the residents of the Region especially their use of the land for economic, cultural, and other purposes, including the Project's contribution, if any, to increased levels of contaminants in traditional foods. The Proponent shall include an assessment of the potential health impacts of consuming traditional foods, should contaminants in traditional food sources increase due to Project-related impacts (including those to hydrology and/or hydrogeology);
d) The cultural well-being of the communities, based on indicators defined in collaboration with the potentially affected communities;
e) The social life of the potentially affected communities, households, family and community stability, problems of substance abuse, crime and violence, including the effects of a major employment base away from the communities;
f) Archaeological, burial, cultural, heritage, and sacred site;
g) Changes in (a) hunting, trapping, or guiding areas; (b) commercial, Nunavummiut, and sport fishing areas; (c) conservation areas, territorial and federal parks, International Biological Program sites, or other ecological reserves or preserves; (d) recreation and tourism areas and recognized scenic areas; (e) the "wilderness experience" (including the potential for compromising the development of protected areas in the region); (f) navigable waters; and (g) industrial and commercial areas. The Proponent shall pay particular attention to local perceptions of the preceding effects;

h) The likely evolution of the local, regional, territorial, and national economies over the life of the Project, having regard to direct, indirect, and induced effects on income and employment, in particular the effects on:
    i. Wage and salary employment by skills category over the life of the Project (including estimates of Nunavummiut and other participation);
    ii. Opportunities for local, regional, and territorial businesses to supply goods and services both directly to the Project and to meet the demand created by the expenditure of new income by employees and suppliers;
    iii. Opportunities to diversify the economic base of Nunavut to produce and to supply new goods and services; and
    iv. Prices and the cost of living;
i) Opportunities for participation by Nunavummiut workers from the West Kitikmeot Region in wage and salary employment, considering such factors as: the number of jobs to be created and the required skills; the effect of competition for labour between the Project and existing businesses, institutions, and traditional activities; the adequacy of training opportunities available to Nunavummiut to take advantage of jobs created by the Project, including apprenticeship opportunities and training organized by the Proponent; the extent to which the skills of the available workers match job requirements; the level of interest in mining work; commuting arrangements for workers; and barriers to employment, such as issues pertaining to the care of children and Elders;
j) Increased pressure on existing social, institutional, and community services, transportation facilities and services, and infrastructure;
k) Any permanent changes to infrastructure and services;
l) Revenues accruing to federal, territorial, and local governments; and ; and
m) The availability and capacity of community and local government organizations (community wellness initiatives, Hamlet programs, etc).

The impact of an industrial development in this region, particularly where human populations are low, is directly related both to its pace and to its scale. For example, given the small and relatively untrained work force, the scale of the Project might affect employment benefits, whereas its pace, if abrupt, could cause social or cultural disruption and prove to be more significant than its scale.

The Proponent shall address the potential for social and cultural disruption by, among other things, discussing social problems and evaluating the potential impacts of the Project on exacerbating or relieving such problems. The possibility that the difficulties of coping with prolonged absences of family members might increase stress in families already dealing with cultural disruption shall also be addressed.

The Proponent must evaluate how any temporary (i.e. throughout the expected life of mine) or final closure(s) (i.e. end of mine life) of the mine would affect workers and communities. Further, the Proponent shall consider whether and at what point or threshold, any temporary mine closures could be considered permanent or final closures. For example, how does it perceive its responsibility to its workforce and the local economy once operations shut down either temporarily or permanently? Would it put in place a program of workforce adjustment for the last few years of operations, assuming that the Project life extends, to provide such things as employee assistance, career counselling, educational subsidies, and re-training programs?

Where possible, the analyses of socio-economic impacts shall illustrate the distribution and magnitude of the potential impacts and effects on the relevant VSECs, communities, and regions potentially affected by the Project.

The Proponent shall utilize a defensible economic model to assess potential economic impacts, including indirect and induced effects, employing such a tool to the fullest extent possible. In their assessment, the Proponent shall also examine the potential distribution of potential impacts and benefits on socio-economic and cultural components, and should link this distribution on a macro level to communities in the region (i.e. Kitikmeot and/or transboundary) as well as on the micro level of within the household. The impact distribution should be gender disaggregated on all levels of impact analysis. Further, the Proponent shall describe the gender analysis approach that will be taken throughout the assessment to identify and monitor socio-economic impacts on households potentially impacted by the Project.

The economic model chosen should illustrate the distribution and magnitude of the potential impacts and effects on the relevant communities and regions potentially impacted by the Project. Findings of the analyses from respective models shall be clearly presented in the EIS, accompanied by a discussion on the respective accuracy of the findings and the robustness of the models employed (including respective strengths and limitations). Furthermore, any economic models employed shall be clearly presented as a separate Appendix to the EIS.

6.18.4 Cumulative Effects Assessment

The Proponent shall provide a brief overview of the theory and practice of Cumulative Effects Assessment (CEA) especially as it applies to the ecosystem model of evaluating environmental impacts, and shall justify the methodology adopted in relation to the design of the Project, its management, and the proposed approach to impact assessment. The Proponent shall demonstrate, where possible, how project-specific CEA complements any existing or planned regional cumulative effects initiatives.

The Proponent shall determine which other human activities have affected or are likely to affect the same VECs, VSECs, or ecosystems as the Project. This shall include an analysis of historic, current, and reasonably foreseeable exploration and development projects within the Hackett River LSA and RSA, in addition to any non-project related activities which may contribute to the cumulative effects of the Project (i.e. non-Project related - and perhaps unauthorized - traffic on Sabina built roads). The Proponent shall then predict the impacts of the Project in combination with those of the other past, present, and reasonably foreseeable future projects or activities, using the most appropriate methodology on a case-by-case basis that is capable of incorporating all of the relevant impacts.

The CEA shall consider the cumulative effects of other existing and reasonably foreseeable mines and exploration camps, including at a minimum, those projects currently operating in the region, including the High Lake, Ulu, and Izok projects, the Jericho mine, and also any potential future development in the region in light of the results of current exploration; gold and other precious and base metal mines and deposits, the existing Tibbitt to Contwoyto Lake winter road, and the proposed BIPR facilities (or Sabina built alternative), specifically, the all-weather road and deep sea port.

In considering reasonably foreseeable future developments, the Proponent shall also evaluate the cumulative impacts of the Project *should it provide for or contribute to the overall use of larger*

transportation corridors (both overland and marine, as with the proposed Sabina built port and road alternative).

In accordance with the direction provided by the Minister, the Proponent's analysis of the potential cumulative effects of the Project shall include an analysis of impacts associated with the Project (as defined in Subsection 6.18), including where relevant, both the proposed BIPR infrastructure and Sabina built alternatives (INAC 2008). The CEA shall incorporate with these impacts of the Project, a consideration of other past, present, or reasonably foreseeable developments as well as the existing environmental or socio-economic conditions.

Wherever possible, the Proponent shall utilize and include available monitoring data from other exploration and mining projects in the RSA.

6.18.5 Residual Impacts

Residual impacts are those for which feasible mitigation measures could not be conceived and for which compensation has not yet been determined. They also include the effects that persist after mitigation measures have been successfully applied. Both short-term and long-term residual impacts must be considered.

The Proponent shall describe the residual effects of the Project in a way that permits comparisons with the Project's potential effects in the absence of mitigation, and shall express their significance in the same manner as for the said potential effects, using the same criteria. It shall also assess the reliability of the planned mitigation measures and the environmental consequences of their failure.

6.19 ENVIRONMENTAL MANAGEMENT AND MITIGATION

6.19.1 Overview

The Proponent shall describe general and specific measures intended to mitigate the potentially significant adverse environmental effects of the Project. Mitigation is defined as the elimination, reduction, or control of the adverse environmental effects of the Project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation, or any other means.

The description of mitigation measures shall include procedures to avoid environmentally sensitive areas or seasons, contingency programs to respond to accidents and emergencies, restorative procedures to be implemented on disturbed sites, and compensation programs for damage caused by the Proponent's activities to the environment, property, or the land- and resource-use of others. Further, the Proponent shall provide commitments to any follow-up measures to be taken with respect to mitigation, and shall describe all thresholds where they may apply to the implementation of mitigation, in addition to the provision for any adaptive management measures to be employed.

The EIS shall discuss and evaluate the effectiveness and reliability of the proposed mitigation measures and assess the likelihood of mitigation failure, and the potential severity of the

consequences. Information should be provided on similar mitigation methods used with similar projects and the degree of success achieved. All uncertainties related to the mitigation measure should be clearly described and, if possible, quantified. The discussion of these effects and their proposed mitigation should give full consideration to community knowledge of the environment and of appropriate and effective mitigation measures. The EIS shall identify who is responsible for the implementation of these measures, the system of accountability and the phase and component of the Project to which the measure would be applied.

Moreover, the EIS shall discuss measures the Proponent shall take to engage the potentially affected communities that would permit them to participate fully in the planning, execution, and evaluation of mitigation measures.

The Proponent shall also evaluate the costs and economic and technical feasibility of the mitigation measures considered, specify where applicable, under which circumstances they would be employed, who would be responsible for their implementation, and provide a timetable for implementation.

6.19.2 Management Plans

The Proponent shall present draft environmental management plans developed to prevent or mitigate all the potential impacts of the Project as identified in Subsection 6.17.5, and shall also clearly identify any residual effects.

Management plans shall target at a minimum, the following, as well as any other VECs or VSECs identified by the Proponent or any other stakeholder, intervenor, or participant:

- Tailings;
- Waste rock;
- Blasting;
- Domestic and industrial solid wastes;
- Liquid waste;
- Incineration;
- Spill contingency plans (including provisions for the transportation and storage of fuels, and other hazardous wastes and/or materials);
- Acid rock drainage;
- Water supply (including potable and process water);
- Landscape;
- Permafrost;
- Climate change;
- Water quality (including potable water);
- Water management plan, including natural and on-site collection and drainage and diversion measures;
- Air quality and emissions;
- Vegetation;
- Caribou and their habitats;
- Musk-oxen and their habitats;
- Grizzly bears and other scavengers and wildlife potentially attracted to the site;

- Other bird and wildlife species and their habitats;
- Aquatic organisms and habitats;
- Archaeological sites and sacred or spiritual sites;
- Traffic;
- Cumulative effects (as identified through Subsection 6.18.4);
- Human resources;
- Nunavummiut and Inuit involvement;
- Public involvement, including a communications strategy;
- Education and orientation;
- Occupational health and safety;
- Emergency response and contingency plans (including plans for wildlife encounters, fires, aircraft/vehicle crashes, medical emergencies, mine rescue, hazardous materials spills, malfunctions of key Project components, natural disasters, and discoveries of historic resources);
- Site rehabilitation; and
- Ability to post full security.

The Proponent shall discuss the flexibility of the proposed environmental management plans to respond to changes in the mine development plan, the regulatory regime, the natural or socio-economic environment, technology, research results, or the understanding of Traditional Knowledge. It shall discuss how the results from the environmental management plans would be used in applying adaptive environmental management throughout all phases of the Project, and identify threshold criteria or indicators to trigger management action. Adaptive environmental management revises traditional conceptions conditioning environmental impact review procedures (Holling 1978).

The Proponent shall give a rationale for the proposed management plans and shall assess their likely effectiveness. It shall also give a rationale for the rejection of mitigation measures and justify trade-offs between cost savings and effectiveness. It shall provide a risk assessment of those economic or other conditions that might impair the effectiveness of mitigation measures.

By way of *example*, Cumberland Resources' Draft EIS for the Meadowbank Gold Mine included 11 integrated plans (CRL 2004):

- Aquatic Ecosystem Management Plan
- Terrestrial Ecosystem Management Plan
- Mining Metals Effluent Regulations
- No-Net-Loss
- Mine Waste & Water Management
- Spill Contingency
- Socio-Economic & Archaeology
- Access & Air Traffic Management
- Air Quality & Noise Management
- Emergency Response
- Occupational Health & Safety
- Hazardous Materials & Management
- Reclamation & Closure
- Human Resources

Each plan set out detailed site-specific protection measures and procedures that served to protect the VECs and VSECs identified for the Meadowbank Gold Mine Project through all phases of development.

Environmental Protection or Management Plans are practical documents that set out detailed site-specific protection measures or procedures that can be designed for such things as: clearing of vegetation; storage, handling, and transfer of fuel and other petrol products; sewage disposal; solid waste disposal; quarrying and aggregate removal; erosion prevention; drilling and exploration; dust control; noise control; blasting; permafrost; mineralized rock and acid mine drainage; and stream crossings.

6.19.3 Management of Impacts on the Physical Environment

The Proponent shall present specific mitigation and/or management measures for each VEC that is likely to be significantly impacted, by not only the preferred options, but also any alternatives which are assessed within the EIS.

The following subsections are meant only to be illustrative of what *might* be done in the cases of caribou, fish, and bears considered to be VECs, and would require significant expansion in order to be considered a complete presentation of the management of impacts to each.

6.19.3.1 Caribou

Mitigation measures for impacts on caribou could include**:**

- Fencing of roads, landing strips, tailings facilities, and other potentially dangerous areas;
- Education of employees;
- Speed restrictions (the Proponent must show how they will be enforced) during caribou migration to reduce the risk of vehicles' colliding with caribou; and
- Designing roads and other infrastructure in ways that discourage caribou from interacting with them.

The Proponent shall integrate mitigation measures into a detailed caribou management and monitoring plan. The use of Traditional Knowledge in minimizing the effects of the Project on caribou (e.g., diverting caribou from tailings) and in establishing a monitoring program shall be discussed.

6.19.3.2 Fish

The Proponent shall discuss measures to compensate for the loss of aquatic habitat, including habitat replacement. The principle of No Net Loss (Policy for the Management of Fish Habitat, Department of Fisheries & Oceans, 1986) for fish habitat shall be applied where appropriate.

6.19.3.3 Bears

Mitigation measures designed to prevent bears from becoming habituated to the mine site might include fencing, the removal of solid wastes, and devices to frighten them.

6.19.4 Management of Impacts on the Socio-economic and Human Environment

The Proponent shall present policies and programs to minimize potential negative socio-economic effects and to optimize potential positive effects. These plans and policies should be reflective of those VSECs and indicators which, through the Proponent's public consultation, are shown to be significant to potentially affected communities. These plans and policies shall be presented in a Socio-Economic Impact Management Plan. The Socio-Economic Impact Management Plan should be in alignment with the socio-economic monitoring program as outlined in Section 6.20.

The general areas that shall be considered are human resources, occupational health and safety, Nunavummiut and Inuit involvement, public involvement, IBAs, and Development Partnership Agreements.

6.19.4.1 Human Resources

The Proponent shall prepare and submit as part of the EIS, a Human Resources Plan, which might consider the following: human resources legislation; organization planning; succession and career plans; compensation plans and profit-sharing; benefit programs (e.g., health care plan, work clothing and safety equipment, vacation leave); work rotation and pay schedules; health and safety programs; hiring practices and procurement; skills and entry requirements; training and development; control of movements to and from the Project site; on-site public safety with respect to firearms, while respecting the rights and needs of harvesters from adjacent communities to travel freely through the country; alcohol and drugs; smoking; sexual and gender harassment; employment for women; human resource information systems; labour relations (e.g., procedure for submitting grievances or concerns, disciplinary procedures); employee communications; incorporation of relevant IBA terms and conditions; and the use of and payment for municipal facilities and services in local communities.

The Proponent shall also include in the EIS, an Education and Orientation Plan to help all employees to understand their responsibilities in environmental and health and safety management.

The Proponent shall give special consideration to promoting the participation of Nunavummiut in Project employment and related business opportunities by addressing in their Human Resources Plan, for example: how employment preference is given to Nunavummiut and Inuit; recruitment strategies to overcome entry barriers; education and training programs (e.g., partnerships with local schools and other educational institutions, on-the-job learning, and apprenticeships); cross-cultural orientation; preference to northern businesses; commuting arrangements; northern allowances; the types of food available to workers at the mine site; and the pursuit of on-site sport hunting and fishing by non-Nunavummiut employees, while respecting the rights and needs of Nunavummiut employees to harvest and pursue traditional activities and all applicable regulations, including the use of local guiding services.

The Proponent should note that hunting and fishing are usually prohibited at Nunavut mining sites. The Proponent's Human Resources Plan shall discuss any proposed policies or regulations regarding

the prohibition of recreational angling or hunting by employees at or near the Hackett River site, and how such policies or regulations were designed in consideration of potential impacts to fisheries or wildlife resources.

The Proponent's Human Resources Plan shall also discuss the extent to which its policies regarding such things as preferential hiring, northern allowances, safety, and alcohol and drugs would be applied to contractors and sub-contractors. It shall also discuss any criteria for selecting contractors where it relates to such policies.

The Proponent shall design socio-economic impact mitigation and monitoring measures in such a manner as to reduce potential social and cultural disruption, which could include: work schedules that are adapted to traditional activities; the provision of no-cost commuting to allow workers to continue to live in their own communities and to participate in their traditional economic and cultural activities; assistance to communities to address social problems, whether solely related to the Project or not; and counselling services to employees and their families regarding matters such as financial management, substance abuse, and work-related stress management. All such mitigation and monitoring measures shall be included within the Proponent's Socio-economic Impact Management Plan.

6.19.4.2 Occupational Health and Safety

The Proponent shall present an Occupational Health and Safety Plan that focuses on good safety practices, safety awareness, risk management, mine rescue, employee involvement, and management commitment. It shall address: safety reporting; safety orientation; hazard analysis; training in first-aid, cardio-pulmonary resuscitation, fire-fighting and -prevention, and spill response; workplace monitoring and control; and medical surveillance.

6.19.4.3 Nunavummiut and Inuit Involvement

In the discussion to involve Nunavummiut and Inuit, the Proponent might consider on-site observers (specific to wildlife, or other, who would be responsible for monitoring certain Project activities), liaison committees (to facilitate communication, consultation, and resolution of environmental matters), and the compilation, review, and use of common place names and other Traditional Knowledge throughout the Project lifetime.

6.19.4.4 Public Involvement

The Proponent shall describe a Public Involvement Plan, the objectives of which shall be to:

- Provide information to the public and potentially affected communities on Project design and activities;
- Identify mitigation needs;
- Gain an understanding of public concerns;
- Develop two-way communications with the concerned communities; and
- Obtain input to environmental and health and safety management decisions.

Public involvement techniques could include:

- Mail or hand-outs to households;
- Videos on Project components;
- Communication sessions to explain the results of the EIS;
- Information sessions on specific subjects;
- Corporate public offices in the Region or in Nunavut;
- Open houses;
- Workshops on Project development;
- Meetings with government officials, interest groups, and other parties;
- Presentations to interest groups and the public;
- Community forums;
- Site visits;
- Toll-free telephone lines;
- A company newsletter;
- Annual environmental reporting;
- Release of Project documents; local monitoring committees; and
- Media releases.

Wherever the Proponent undertakes public consultation and involvement, it shall ensure that participants and the public in general are subsequently made aware of how their views and knowledge were taken into consideration and applied. Further to this, the Proponent shall provide as an Appendix to the main EIS document, a summary of all dialogue between the Proponent and community members.

Appendices to the EIS must contain full documentation on public consultation, including records of any follow-up, and plans for public consultation throughout the entire project life.

6.19.4.5 Impact and Benefit Agreements

The EIS must respect all of the provisions of the NLCA relating to impact and benefits agreements as set out in Article 26.

The Proponent shall briefly discuss the negotiation of an Impact and Benefit Agreement (IBA). This discussion should identify with whom such agreements might be negotiated and whether these negotiations are expected to be concluded prior to the construction of the Project.

6.19.4.6 Development Partnership Agreement

The Proponent shall demonstrate a clear understanding of the opportunities the project presents to Nunavut communities, as well as undertake a thorough review of options for partnership with the Government of Nunavut, including the voluntary negotiation of a Development Partnership Agreement as a way to maximize the benefits of the Project.

6.19.4.7 Pollution Prevention

The Proponent shall highlight any pollution prevention measures to be implemented, as they pertain to the mitigation or management of site-specific or socio-economic impacts. Pollution prevention is defined by the Federal Government in the document *Pollution Prevention: A Strategy for Action* (EC 2000), which links the concept of pollution prevention with sustainable development - a vision that includes a clean, healthy environment and a strong, robust economy**,** and which works to avoid the creation of pollution rather than trying to manage it after it has occurred.

6.20 RISK ASSESSMENT AND EMERGENCY RESPONSE PLAN

The Proponent shall carry out a Preliminary Risk Assessment and prepare an Emergency Response Plan for the Project, discussing potential risks associated with its construction and operation. Potential ecological and human health risks should be assessed as part of these plans. Any possible abnormal events should be discussed, along with the safeguards that may be used to reduce these risks. Potential hazards both in the marine environment, and those related to land-based activities should be discussed and contingency plans to deal with spills of hydrocarbons, or other deleterious substances, on land or at sea, should be included. The Proponent should outline the steps it will take with respect to risk management, including loss prevention practices and insurance.

6.21 MONITORING, EVALUATION, AND MANAGEMENT

6.21.1 Overview

Consistent with Part 7 of Article 12 of the NLCA, the Proponent should describe the environmental and socio-economic monitoring programs to be incorporated into all phases of the Project. A follow-up monitoring program is necessary to verify the accuracy of the environmental assessment of the Project and determine the effectiveness of mitigation measures.

The Proponent shall present a monitoring plan that includes compliance, biophysical, and socio-economic monitoring programs, and a follow-up program to integrate monitoring results into a coherent action plan and to evaluate the effectiveness of mitigation measures during operation and after the final closure of the Project. In the case of the socio-economic monitoring program, the Proponent shall describe how they will identify, react to, and mitigate adverse socio-economic impacts and, where possible, if and how they will augment positive socio-economic impacts, what the Proponent's role will be in monitoring. The Proponent shall also describe their potential role, participation, and responsibilities in the Kitikmeot Regional Socio-Economic Monitoring Committee. In every case, the Proponent shall explain what is to be monitored, why it needs to be monitored, and how it will be monitored.

Compliance monitoring refers to verifying the Proponent's conformity with regulatory standards and requirements. Biophysical monitoring involves the monitoring of such biophysical components as air, water, and land. Socio-economic monitoring involves the monitoring of socio-economic parameters such as, for example, employment of Inuit and other northerners and the purchase of goods and services locally or within the region.

The Proponent shall discuss how its monitoring program would distinguish between natural environmental changes and those caused by the Project, how it would assess the validity of impact predictions, how monitoring results would be used to modify mitigation and management programs

or Project policies, and how it would respond to unexpected adverse effects. It shall also discuss the use of criteria or thresholds to assess impacts (e.g., the use of lichen as an indicator species due to its sensitivity to sulphur dioxide and nitrogen dioxide and its importance in the diet of caribou).

The Proponent shall strive at every phase of the Project to collect data in a manner that is consistent with existing databases, provided that doing so will not significantly compromise its ability to monitor effectively, given Project-specific conditions.

The description of the approach to monitoring shall address:

- Monitoring methodologies, standards, objectives and a corresponding data-collection schedule. The schedule shall describe the frequency of data-collection and -analysis, and shall distinguish between on- and off-site activities, describing the logistics for carrying out both types of activities;
- The subjects and parameters to be monitored, and the criteria used in their selection;
- The geographic extent of monitoring;
- Internal and external reporting and response mechanisms and structures, including procedures to be followed in the event that monitored results deviate significantly from predicted results;
- Approaches and methods for monitoring the cumulative effects of the Project;
- Integration of monitoring results with other aspects of the Project, including adjustments to operating procedures and refinements to mitigation measures;
- Experience gained from prior and current monitoring programs;
- The roles of independent experts, government agencies, communities, holders of Traditional Knowledge, and renewable resource users, and any joint monitoring programs;
- Procedures to assess the effectiveness of monitoring programs, mitigation measures, and recovery programs for disturbed areas and Species at Risk; and
- The role of communications plans in monitoring, and procedures to communicate the results of monitoring to interested parties.

In the case of post-closure monitoring, the Proponent shall describe how long monitoring will continue and shall identify who will assume the costs and responsibility, especially in the event of changes of corporate ownership.

The Proponent shall consult with all concerned regulatory authorities and stakeholders to maximize the chances that it proposes a clear, comprehensive, and proactive monitoring plan.

6.22 CLOSURE AND RECLAMATION

The Proponent shall present an Interim Closure and Reclamation Plan that respects all applicable regulations and standards and addresses the open pit and underground mines, mine rock, overburden, and tailings disposal facilities and areas, buildings and site infrastructure, fuel and hazardous materials storage facilities, wastes, borrow pits and quarries, roads and associated water crossings, deep sea port, airport, and all other areas of disturbance. It shall state its goals for reclamation, such as the re-establishment of stable physical landforms and land-use productivity, and the long-term physical and chemical stability of water resources. It shall discuss reclamation methods and the schedule and time frame (e.g., progressive reclamation). It shall also discuss how the Interim

Closure and Reclamation Plan would be updated periodically by, for example, incorporating ongoing research and technological advances or changes to standards or legislation.

The Proponent shall specify when a temporary closure should be considered permanent for the purposes of requiring implementation of the various aspects of the Closure and Reclamation Plan.

The Proponent shall discuss a research program that is consistent and compatible with broader efforts under way within Nunavut to address challenges to reclamation, such as the cold environment, poor soil development, limited topsoil resources, slow growth rates, limited seed production, low soil moisture, and short growing seasons.

The Proponent shall discuss the aesthetic impacts and the safety to both humans and wildlife of abandoned open pits, and shall discuss alternative development approaches that could accelerate the filling of pits and underground mines once mining is completed (e.g., filling of pits with waste rock, tailings, or water**,** provided that it can be demonstrated that such an option is environmentally acceptable).

The Proponent shall evaluate the cost and feasibility of going beyond mere reclamation by enhancing wildlife habitats and undertaking other forms of beneficial landscaping.

The Proponent shall discuss post-closure monitoring of such environmental components as wildlife, re-vegetation, landform stability, and water quality. Issues such as the introduction of exotic species of plants for purposes of re-vegetation shall be discussed.

6.23 CONCLUSION AND RECOMMENDATIONS

The DEIS should end with a conclusion presenting an overall analysis of the projected biophysical and socio-economic impacts, anticipated transboundary and cumulative effects, proposed mitigation measures, and any residual impacts. While highlighting the impacts in Nunavut, this conclusion should clearly present the importance of the DEIS findings to the entire Regional Study Area.

6.24 LIST OF CONSULTANTS AND ORGANIZATIONS

The Proponent shall present a list of all consultants who contributed to the preparation of the DEIS, and including their role and contact information.

In addition, the Proponent shall prepare a list of the organizations consulted, including: the time, place, and purpose of the consultation; and contact information for the organization. An appendix shall contain copies of the materials presented at such meetings and other relevant materials.

7.0 LITERATURE CITED

Baxter, Wanda, William A Ross and Harry Spalding. 2001. Cumulative effects assessment: Improving the practice of cumulative effects assessment in Canada. *Impact Assessment and Project Appraisal.* 19(4): 253-262.

Berkes F. 1993. Traditional Ecological Knowledge in perspective. In *Traditional Ecological Knowledge: Concepts and Cases*. Canadian Museum of Nature, Ottawa ON.

Canadian Council of Ministers of the Environment (CCME). 1999a. *Canadian Environmental Quality Guidelines* and *Guidelines Respecting Ambient Air Standards for Sulphur and Total Suspended Particulate Matter in the Northwest Territories*, under the *Environmental Protection Act.*

Canadian Council of Ministers of the Environment (CCME). 1999b. *Canadian Environmental Quality Guidelines for the Protection of Aquatic Life.* Available at http://ceqg-rcqe.ccme.ca/download/en/171/. Accessed 10 February 2009.

Canadian Environmental Assessment Agency (CEAA). 2000. Climate Change and Environmental Assessment: Part 1: Review of Climate Change Considerations in Selected Past Environmental Assessments. Available at http://www.ceaa.gc.ca/default.asp?lang=En&n=F2F22AF3-1&offset=20&toc=show. Accessed 11 February 2009.

Canadian Environmental Assessment Agency (CEAA). 2003. Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners. Available at http://www.ceaa.gc.ca/012/newguidance_e.htm. Accessed 10 February 2009.

Cumberland Resources Ltd (CRL). 2004. Meadowbank Gold Project Draft Environmental Impact Statement. Available at http://ftp.nirb.ca/REVIEWS/PREVIOUS_REVIEWS/03MN107-MEADOWBANK/02-REVIEW/05-DRAFT_EIS/DEIS/. Accessed 10 February 2009.

Department of Fisheries and Oceans. 1986. *Policy for the Management of Fish Habitat.* Available at http://www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/legislation-lois/policies/fhm-policy/index_e.asp. Accessed 10 February 2009.

Department of Indian and Northern Development (DIAND). 1999. Granular Resources Directory – Nunavut. Ottawa, Ontario: 41 pp.

Department of Justice Canada. 1985. *Fisheries Act.* Available at http://laws.justice.gc.ca/en/ShowFullDoc/cs/F-14///en. Accessed 16 March 2009.

Environment Canada (EC). 2000. *Pollution Prevention: A Federal Strategy for Action.* Available at http://www.ec.gc.ca/pollution/strategy/en/index.cfm. Accessed 10 February 2009.

Environment Canada (EC). 2002 (amended October 2006). *Metal Mining Effluent Regulations.* Available at http://www.ec.gc.ca/nopp/docs/regs/mmer/en/index.cfm. Accessed 10 February 2009.

Environment Canada (EC). 2004. *Submission to the Nunavut Impact Review Board September 10, 2004 – Public Registry Document 139.* Available at: http://ftp.nirb.ca/REVIEWS/CURRENT_REVIEWS/03UN114-BIPR_PROJECT/02-REVIEW/03-SCOPING/CORRESPONDENCE/. Accessed 10 February 2009.

Environment Canada (EC). 2008a. Information on Greenhouse Gas Sources and Sinks. Available at: < http://www.ec.gc.ca/pdb/ghg/about/FAQ_e.cfm >. Accessed 10 February 2009.

Environment Canada (EC). 2008b. *Draft Guidelines for the Assessment of Alternatives for Tailings Storage for Metal Mining Projects Proposing to use Natural, Fish-bearing Water Bodies as Tailings Impoundment Areas.* Mining and Processing Division. *Draft*: July 4, 2008.

Government of Canada, Tungavik Federation of Nunavut (GC and TFN). 1993. *Agreement Between The Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada*. Ottawa: Indian and Northern Affairs Canada. 282 p.

Government of Northwest Territories (GNWT). 2002. *Guideline for Ambient Air Quality Standards in the Northwest Territories.* Environmental Protection Service. Yellowknife, NT.

Health Canada (HC). 1999. *National Ambient Air Quality Objectives for Particulate Matter: Executive Summary – Part 1: Science Assessment Document.* Available at http://www.hc-sc.gc.ca/ewh-semt/pubs/air/naaqo-onqaa/index-eng.php. Accessed 10 February 2009.

Health Canada (HC). 1999. *National Ambient Air Quality Objectives for Ground-Level Ozone: Summary – Science Assessment Document.* Available at http://www.hc-sc.gc.ca/ewh-semt/pubs/air/naaqo-onqaa/index-eng.php. Accessed 10 February 2009.

Holling, C. 1978. *Adaptive Environmental Assessment and Management*. Toronto, Ontario: John Wiley & Sons.

Indian and Northern Affairs Canada and Tungavik Federation of Nunavut (GC and TFN). 1993. *Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada* (Nunavut Land Claims Agreement). Ottawa, Ontario: INAC and TFN.

Indian and Northern Affairs Canada (INAC) 2001. *Esker Habitat Characteristics and Traditional Use Study in the Slave Geological Province – Final Report to the West Kitikmeot / Slave Study*. Yellowknife, NT: INAC.

Indian and Northern Affairs Canada (INAC). 2002. *Mine Site Reclamation Policy for Nunavut.* Ottawa, Ontario: INAC.

Indian and Northern Affairs Canada (INAC). 2007. *Glossary of Mining Terminology*. Minister of Indian and Northern Affairs Canada; Ottawa, Ontario: 25 pp.

Indian and Northern Affairs Canada (INAC), Honourable Minister Strahl. 2008. Letter to the Nunavut Impact Review Board. 4 September 2009. Available at http://ftp.nirb.ca/REVIEWS/CURRENT_REVIEWS/08MN006-SABINA_HACKETT_RIVER/2-REVIEW/01-SCREENING%20DECISION/. Accessed 10 February 2009.

Ittarnisalirijiit Katimajiit. 1996. Conference on Sacred Sites and Spiritual Places, Rankin Inlet, 1996. Availability unknown.

Latour, P.B., J. Leger, J.E. Hines, M.L. Mallory, D.L. Mulders, H.G. Gilchrist, P.A. Smith and D.L Dickson. 2008. *Key migratory bird terrestrial habitat sites in the Northwest Territories and Nunavut*. 3rd edition. Canadian Wildlife Service Occasional Paper No. 114. Available at http://www.cws-scf.ec.gc.ca/publications/papers/114/index_e.cfm. Accessed 10 February 2009.

Nunavut Impact Review Board (NIRB). 1997. S.Y. Ahmad, Jaida Edwards and Alexandra Thomson. Cumulative Environmental Effects in Nunavut. Paper presented at the Securing Northern Futures International Conference. May 1-4, 1997. Canadian Circumpolar Institute.

Nunavut Impact Review Board (NIRB). 2006. *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.

Nunavut Impact Review Board (NIRB). 2008a. Public Scoping Report for the Nunavut Impact Review Board's Part 5 Review of Sabina Silver Corporation's Hackett River Project. Available at http://ftp.nirb.ca/REVIEWS/CURRENT_REVIEWS/08MN006-SABINA_HACKETT_RIVER/2-REVIEW/03-SCOPING%20%26%20GUIDELINES/SCOPING/SCOPING%20REPORT/. Accessed 10 February 2009.

NIRB (Nunavut Impact Review Board). 2008b. *Guide 5: Guide to the NIRB Review Process*. Cambridge Bay, NU: NIRB.

NPC (Nunavut Planning Commission). 2000. Keewatin Regional Land Use Plan. Taloyoak, Nunavut.

Theodore L., J. Reynolds and K. Morris (ed.). 1997. *Concise Dictionary of Environmental Terms*. Overseas Publishers Association, Amsterdam: 383 pp.

Tilleman W. 2005. The Dictionary of Environmental Law and Science. 2nd ed. Environmental Law Centre, AB: 437 pp.

United Nations. 1972. Rio declaration on environment and development. In *Report of the United Nations Conference on the Human Environment*, Stockholm; pp. 5-16.

West Kitikmeot Slave Study Society. 2001. *Final Report - West Kitikmeot Slave Study*. Yellowknife, NT: West Kitikmeot Slave Study Society.

Whitney, J.B.R. and V.W. Maclaren (ed.). 1985. A Framework for the Assessment of EIA Methodologies. In *Environmental Impact Assessment: The Canadian Experience*. Toronto, Ontario: Institute for Environmental Studies, Environmental Monograph No. 5.

APPENDICES

APPENDIX A: THE NUNAVUT IMPACT REVIEW BOARD'S MINIMUM EIS REQUIREMENTS

Proponents must comply with the following minimum requirements for an Environmental Impact Statement:

1. Statement of Consultation Principles and Practices

The Proponent must conduct pre-Project consultations with locally affected persons. Where at all possible, information about the Project must be distributed, and comments collected with a view to resolving any differences. Discussions should include, but not be limited to, land uses, policies, resource uses, Archaeological areas, infrastructure, and terrain sensitivities. Inuit cultural concerns must be highlighted throughout. The Proponent shall explain where, how, why, and with whom it conducted public consultation, and shall demonstrate an understanding of the rights, interests, values, aspirations, and concerns of the potentially affected communities All comments from the public must be summarized, documented, and presented in the EIS.

2. Definition of Project

A definition of the Project must include a discussion of any connected or subsequently related projects in order to reveal the primary purpose and better understand complex or multi-staged related proposals.

3. Statement of Project's Purpose

Based on the concepts of the Precautionary Principle and Sustainable Development , an EIS must contain a statement explaining the need for, and the purpose of the Project. Where further economic development is needed for a given area, the Board expects the deficiencies in the economic status quo to be stated.

4. Anticipated Impacts Analysis

A comprehensive impact assessment must be carried out which includes, but is not limited to, environmental effects that are likely to result from the Project in combination with other projects or activities that have been, or will be, carried out. Anticipated impacts include short and long-term, direct and indirect, positive and negative, cumulative, socio-economic, Archaeological and cultural impacts. This element of the EIS must include a Mitigation analysis that explains how the impacts could be avoided, minimized, cured, eliminated, or compensated.

5. Cumulative Effects Analysis (CEA)

Cumulative Effects must be analyzed for all Part 5 Reviews. A project proposal causes a Cumulative Effect if, when added to other projects in the region, or projects Reasonably Foreseeable in the region, will cause an additive effect. A comprehensive examination of all Cumulative Effects must be included in an EIS.

6. Significant Effects Analysis

The Board must be advised of the significant impacts of the Project. This should be based upon:

- the Project setting, taking into account the location's unique Ecosystemic characteristics, and
- the severity of the impacts, taking into account, but not limited to public health, land use plans, protected areas, habitat, or species, public concern, etc.

Ultimately, the Board will decide which effects are significant and report to the Minister accordingly.

7. Project Alternatives

This requirement includes, but goes well beyond, Alternative Means of carrying out the Project that might be economically and technically feasible and the environmental effects of those Alternative Means. This assessment must include the "no-go" or "no-build" alternative, as well as the "preferred" alternative. The "no-go" alternative is not only a potentially stand-alone option; it also serves as a Baseline for comparison with other development alternatives that might reasonably be proposed in the circumstances.

8. Sustainability Analysis

The EIS must contain an analysis of the ability of renewable resources affected by the Project to sustain current and future generations in Nunavut and Canada.

9. Monitoring or Post-Project Analysis (PPA)

The purposes of a PPA are to:

- measure the relevant effects of projects on the Ecosystemic and socio-economic environments of the Nunavut Settlement Area;
- determine whether and to what extent the land or resource use in question is carried out within the predetermined terms and conditions;
- provide the information base necessary for agencies to enforce terms and conditions of land or resource use approvals; and
- assess the accuracy of the predictions contained in the project impact statements.

10. Transboundary Effects Analysis

Where relevant, an EIS must include an assessment of all significant adverse Ecosystemic or socio-economic Transboundary effects.

**It is important to note that Section 12.5.2(j) of the NLCA gives the NIRB the authority to add other requirements as deemed necessary. The NIRB will always review each project proposal on a case-by-case basis including instructions from the Minister, and may add other requirements as per s. 12.5.2 and 12.5.5 of the NLCA.

APPENDIX B: THE NUNAVUT WATER BOARD'S *DRAFT* MINING AND MILLING UNDERTAKING SUPPLEMENTAL INFORMATION GUIDELINE FOR MINE DEVELOPMENT

The Proponent shall note that the following list is not meant to represent a comprehensive 'distribution list' for the EIS, but rather to provide mailing addresses for, and definite inclusion of, some of the relevant agencies in Nunavut requiring copies of the EIS. Parties will be solicited for inclusion to this listing, where hard copies of the EIS may be required. The NIRB shall make the EIS publicly available through its Public Registry.

Nunavut Impact Review Board
PO Box 1360
c/o 29 Mitik
Cambridge Bay, NU
X0B 0C0

Nunavut Planning Commission
PO Box 2101
c/o 29 Mitik
Cambridge Bay, NU
X0B 0C0

Nunavut Water Board
PO Box 119
Gjoa Haven, NU
X0B 1J0

Nunavut Wildlife Management Board
PO Box 1379
Lot 924 Parnaivik Building
Iqaluit, NU
X0A 0H0

Cambridge Bay Hamlet Office
PO Box 16
Cambridge Bay, NU
X0B 0C0

Kugaaruk Hamlet Office
PO Box 205
Kugaaruk, NU
X0B 1K0

Kugluktuk Hamlet Office
PO Box 309
Kugluktuk, NU
X0B 0E0

Taloyoak Hamlet Office
PO Box 8
Taloyoak, NU
X0B 1B0

Gjoa Haven Hamlet Office
General Delivery
Gjoa Haven, NU
X0B 1J0

Canadian Arctic Resources Committee
Box 371 Station A
Ottawa, ON
K1N 8V4

Bathurst Inlet Port and Road Committee
PO Box 820
Yellowknife, NT
X1A 2N6

APPENDIX C: THE NUNAVUT WATER BOARD'S *DRAFT* MINING AND MILLING UNDERTAKING SUPPLEMENTAL INFORMATION GUIDELINE FOR MINE DEVELOPMENT

P.O. Box 119
Gjoa Haven, NU X0B 1J0
Tel: (867) 360-6338
Fax: (867) 360-6369

NUNAVUT WATER BOARD
kNK5 wmoEp5 vtmpq
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

Draft

Mining and Milling Undertaking Supplemental Information Guideline (SIG) for Mine Development (MM3)

Date of Issuance: December 15, 2008

1.0 Introduction

Supplemental information is required as part of the water licence application in accordance with section 48(2) of the *Nunavut Waters Nunavut Surface Rights Tribunal Act* (NWNSRTA or Act) which states:

> *"An application, except in relation to a cancellation, shall be accompanied by the information and studies concerning the use of waters or the deposit of waste that are required for the Board to evaluate the qualitative and quantitative effects of the use or the deposit on waters."*

To provide further guidance for these requirements, the NWB has developed this Technical Guide containing Supplemental Information Guidelines (SIG or Guidelines) for specific classifications of undertakings taking into consideration the requirements of sections 48 (2) and (3) of the Act and section 6 (2) of the *Northwest Territories Water Regulations* (NTWR or Regulations).

These Guidelines are issued to proponents seeking a Type A licence for water use, waste disposal, works and associated activities for an undertaking classified as Mining and Milling in accordance with the Regulations. Further to these Guidelines, the Applicant is referred to the NWB's Draft *Guide 4 - Completing and Submitting a Water Licence Application for a New Licence*. The NWB's draft Guides will be made available to the Applicant in mid January 2009.

On the filing of an application, the Board may provide guidelines to the applicant respecting the information to be provided by the applicant in respect of any matter that the Board considered relevant including the following:

a) The description of the use of waters, deposit of waste or appurtenant undertaking;

b) Confirmation that the Nunavut Planning Commission's (NPC) requirements under the Nunavut Land Claims Agreement (NLCA) regarding land use plan conformity (Article 11 of the NLCA) have been addressed;

c) Confirmation that the Nunavut Impact Review Board's (NIRB) requirements under the Nunavut Land Claims Agreement (NLCA) regarding development impact assessment (Article 12 of the NLCA) have been addressed;

d) The qualitative and quantitative effects of the use of waters or the deposit of waste on the drainage basin where the use is to be undertaken or the deposit is to be made, and the anticipated impact of the use or deposit on other users;

e) The measures the applicant proposes to take to avoid or mitigate any adverse impact of the use of waters or the deposit of waste;

f) The measures the applicant proposes to take to compensate persons, including the Designated Inuit Organization (DIO), who are adversely affected by the use of waters, or the deposit of waste;

g) The program the applicant proposes to undertake to monitor the impact of the use of waters or the deposit of waste;

h) The interests in and rights to lands and waters that the applicant has obtained or seeks to obtain;

i) The options available for the use of waters or the deposit of waste;

j) Abandonment and Restoration;

k) Financial Responsibility; and

l) Specific Undertaking Information Requirements.

Each of the above points is considered in subsequent worksheets.

Submission of the information required by this SIG does not relieve the Applicant from confirming and following up on other information requirements which may be required during the regulatory process.

If the NWB determines that the application is materially incomplete, meaning that items included in Section 2: Minimum Application Requirements are missing, the applicant will be informed by the NWB that their application has been rejected. In other cases, NWB staff will correspond with the applicant to resolve deficiencies before proceeding.

The NWB cannot issue, amend, or renew a licence where there is an applicable, approved land use plan unless the NPC's requirements under the NLCA have been addressed regarding land use planning (Article 11). In addition, the NWB cannot issue, amend, or renew a licence where the appurtenant undertaking requires screening by NIRB in accordance with Part 4 of Article 12 of the NLCA until NIRB has completed its screening. Furthermore, notwithstanding sections 13.5.5 or 12.10.2 of the NLCA, where the appurtenant undertaking requires a review under Part 5 or Part 6 of Article 12 of the NLCA, the Board may not issue, amend, or renew a licence until NIRB has issued a project certificate.

The Board expects that following completion of development impact requirements in accordance with Article 12 of the NLCA, additional Project Specific Information Requirements (PSIRs) will be issued to the Applicant as outlines in section 6.0 of this SIG.

The Applicant is referred to Appendix A of these Guidelines for a list of additional documents, guidelines, legislation and standards that may be of use to the Applicant in preparing the information to address this SIG.

2.0 Minimum Application Requirements (Application Checklist)

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment
Minimum Application Requirements	1	General Water Licence Application Form (see the NWB's draft *Guide 4: Completing and Submitting a Water Licence Application for a New Licence*) or Application for Water Licence Amendment Form, if appropriate (see NWB's draft *Guide 7: Licensee Requirements Following the Issuance of a Water Licence*)					
	2	Information requirement of SIG for Mine Development MM3 including plans, reports and designs					
	3	Executive Summary in English					
	4	Translated Executive Summary in appropriate language and dialect					
	5	Application Fee					
	6	A table indicating concordance of the application and supporting documents to the Guidelines. These generic Guidelines are provided in excel as a tool for Applicants to provide the necessary concordance table.					
	7	Water Use Fee					

Qualifications:

1 Applications that do not include all of the items listed above will be returned to the applicant as incomplete with a request for the deficient information.

2 The application must address the entire scope of the project including not only the primary undertaking, but also related activities for all phases of the project.

3 Information between all documents that make up the application package must be consistent and must be accurately cross referenced.

4 The application must distinguish between recommendations or options and actual commitments to chosen alternatives.

5 For additional guidance regarding the submission of electronic documentation, the NWB refers the Applicant to Draft *Guide 6 - Electronic Documentation: Submissions and*

6 The Applicant, where practical, may combine components of the information requested in the SIG into more concise plans to provide clarity and eliminate duplication. If this practice is considered, then the Applicant shall clearly outline, through proper referencing and clearly detailed statements, how the NWB shall consider the documents that have combined elements of information. Information management is the responsibility of the Applicant.

7 The Applicant shall submit a concise executive summary of the application package. In addition, the Applicant shall submit an executive summary for each separate supporting document, report or study. All executive summaries shall be provided in English, Inuktitut and/or Inuinnaqtun (where applicable).

The Applicant shall complete the orange sections of the worksheet(s). Blue sections are for NWB use only.

3.0 General Water Licence Application - Project Description

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
Applicant	**1**	Provide contact information (see General Water Licence Application Form)						
Applicant Representative	**2**	Provide the name and contact information of any party submitting the application on behalf of the applicant						
	3	Provide a signed letter authorizing a party to be its representative in the licensing process						
Location of Undertaking	**4**	Provide coordinates of the project extents taking into account the local and regional impact area(s)						
	a	Provide location by Latitude and Longitude						
	b	Provide location by UTM coordinates, if available						
NPC Determination	**5**	Provide written confirmation from the NPC confirming that NPC's requirements under the NLCA regarding land use plan conformity (Article 11 of the NLCA) have been addressed						
NIRB Determination	**6**	Provide written confirmation from the NIRB confirming that NIRB's requirements under the NLCA regarding development impact assessment (Article 12 of the NLCA) have been or are in the process of being addressed. Documentation may include:						
	a	NIRB's screening determination						
	b	NIRB's recommendation to Minister regarding the type of review						
	c	Minister's written decision regarding the review of the development proposal						
	d	List of activities requested for exception in accordance with NLCA s. 12.10.2						
	e	Type B water application for any activities to be considered for interim, short term approval in accordance with NLCA s. 13.5.5						
Description of Undertaking	**7**	Provide a complete description of the undertaking with detailed site plan(s) of all project infrastructure for the Local Project Area (LPA) and/or the Regional Project Area (RPA) where applicable, including:						
	a	Raw water intake						
	b	Water storage and treatment facilities including distribution systems						
	c	Existing water bodies/courses and any changes to these water bodies/courses that may have or may occur as a result of water use or waste disposal facilities. Outline of the drainage basin within the RPA						
	d	Location of receiving water bodies and drainage pathways						
	e	Transportation access routes and details of water course crossings						
	f	Locations of environmental monitoring sites						
	g	Traditional water use and land use areas impacted by the project						
	h	Sewage treatment facilities (lagoon, wetland)						
	i	Wastewater treatment area and discharge outlet locations						
	j	Solid waste disposal areas and drainage patterns						
	k	Waste rock piles (PAG and non-PAG)						
	l	Stockpiles						

	Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
		m	Tailing containment areas						
		n	Laydown areas						
		o	Hazardous waste disposal area						
		p	Waste discharge distribution lines						
		q	Fuel and chemical storage						
		r	Abandoned and/or restored water treatment, sewage and solid waste disposal facilities						
		8	Provide a Mine Plan Overview including:						
		a	Details on how facilities, structures, and plans will be operated, maintained and implemented						
		b	Instrumentation and monitoring requirements of the proposed designs and plans						
		c	Indication of camp and mine site operation population projections for each phase of the project						
	Nature of Interest in the Land	9	Provide the nature of the interest in the land associated with the proposed undertaking, including:						
		a	Sub-surface leases from Nunavut Tunngavik Incorporated (NTI) and/or Indian and Northern Affairs Canada (INAC) as well as surface authorizations from INAC for crown land use, a Designated Inuit Organization (DIO) for Inuit Owned Land (IOL) use, or the Government of Nunavut for Commissioner's land use						
		b	The date or expected date of issuance of any authorization and the date of expiry. Indicate whether the applicant is the name of the entity holding the authorization for the interest in the land and if not, provide the name of the entity holding the authorization						
		10	Provide the name of the entity(s) that hold the interest(s) in the land						
See Section 4.0 of this SIG for Additional Requirements	**Water Use: (including water works)**	11	Provide a detailed description of all forms of water consumption. Categorize use(s) as mining/industrial use and/or domestic use.						
	Water Use: Quality and Quantity	12	Provide for each type of water use:						
		a	The source of water including the name of the water body and the location of the water source as shown on a map						
		b	A description of the quality of the water from the source as well as the capacity of the water source						
		c	The amount of water taken from each source and the method of extraction including specific pumping rates, pumping procedures and potential for draw down						
		d	The amount of water to be returned to the source						
		e	Methods to ensure the quality of water returned to the source is of an acceptable quality						
ction 5.0 of this SIG for nal Requirements	**Waste Disposal:**	13	Provide a detailed description of all forms of waste disposal indicating the type of waste(s) generated and/or to be deposited.						
	Waste Disposal: Quality and Quantity	14	Provide a description for each type of waste generated, its composition, quantity (cubic meters per day), method of treatment and disposal, including:						
		a	System for the treatment and/or disposal of solid waste, liquid effluent, and gaseous materials expected from the operations, including any measures proposed to minimize production of wastes						

	Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
See Sec Additio		b	Substances and their amounts that will be released to the environment, methods of release and any associated control technology						
	Other Authorizations	**15**	Provide a list of any authorizations required in addition to the water licence and a description of how those authorizations may affect the NWB's water licensing process						
		16	Provide an indication of whether any other authorizations are required in relation to the project. Provide the name of the authorization, the administering agency, the project activity requiring the authorization, the date or expected date of issuance and the date of expiry						
		17	Provide an overview of and a description of the status of any existing water licences currently held with the NWB and future plans for the administration of existing licences						
		18	Provide formal applications to the Navigable Waters Protection Program (NWPP) for any works						
		19	Provide a timetable for filing the appropriate plans and procedures required by government parties						
See Section 4.0 and 5.0 for Additional Requirements	**Predicted Environmental Impacts and Proposed mitigation measures**	**20**	Provide a description of the environmental and resource impacts including the following:						
		a	Groundwater and Surface Water including:						
			changes in flow						
			quantity and quality						
		b	Land including:						
			geologic structure change						
			soil contamination						
			compaction, settling and erosion						
			alteration of the permafrost regime						
			riparian zone loss						
		c	Vegetation including:						
			species composition and abundance						
			non-native species introduction						
			accumulation of toxins and heavy metals (in relation to remediation objectives for closure)						
		21	Provide a description of all proposed environmental management systems and monitoring programs for all significant impacts						
		22	Provide a description of all mitigation plans and/or programs						
		23	Provide a description of all remediation plans and/or programs						
	Options (Alternatives)	**24**	Provide a brief explanation of the alternative methods or locations that were considered to carry out the project						
	Existing and Other User Water Rights	**25**	Provide the names, addresses, and nature of use for any known persons or properties that may be adversely affected by the proposed undertaking, including those that that hold licences for water use in precedent to the application, domestic users, in-stream users, authorized waste depositors, owners of property, occupiers of property, and/or holders of outfitting concessions, registered trapline holders, and holders of other rights of a similar nature						

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
	26	Indicate whether compensation has been paid and/or agreement(s) for compensation have been reached with any existing or other users						
	27	Provide a description of the applicant's consultation plan and the concerns expressed during consultation						
	28	Provide a description of how the results of consultation were incorporated into baseline studies						
	29	Provide a description of any potential impacts of the project on other licensees or pre-existing applicants, domestic users, in-stream users, authorized waste depositors, owners of property, occupiers of property, and/or holders of outfitting concessions, registered trapline holders or holders of other rights of a similar nature						
	30	Provide a description of how the results of consultation were incorporated into the determination of effects						
	31	Provide a description of any potential impacts of the project on the quality, quantity, or flow of waters flowing through Inuit Owned Land (IOL)						
Inuit Water Rights	**32**	Advise the Board of any substantial affect of the quality, quantity or flow of waters flowing through IOL, and indicate whether negotiations have commenced or an agreement to pay compensation for any loss or damage has been reached with one or more DIO						
Security	**33**	The Applicant and/or DIO shall advise the Board in writing, if either party is unable to reach agreement on compensation						
	34	Provide a financial security assessment that is prepared in a manner consistent with principals respecting mine site reclamation and implementation found in the Mine Site Reclamation Policy for Nunavut, Indian and Northern Affairs Canada, 2002. The financial security assessment must include:						
	a	An estimate of the total financial security for final reclamation equal to the total outstanding reclamation liability for land and water combined sufficient to cover the highest liability over the life of the undertaking						
	b	The cost of having the necessary reclamation work done by a third-party contractor if the operator defaults						
	c	Contingency factors appropriate to the particular work to be undertaken						
Financial Information	**35**	Provide a statement of financial responsibility						
	36	If the applicant is an entity for which audited financial statements are issued, a copy of the most recent audited financial statements must be attached to the statement of financial responsibility						
	37	Provide the name of a corporation, limited company or other business entity, with a list of the officers of the company and a copy of the Certificate of Incorporation or evidence of registration of the company name						
Abandonment and Restoration	**38**	Provide plans for the abandonment and restoration, or temporary closing of the project including a description of how project equipment and construction materials will be removed and how the site will be reclaimed						

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
	39	Provide a list and description of abandoned or restored site facilities						
	40	Provide details regarding the timing of the removal of any dewatering dikes (if applicable) and the implications of this action on water quality						
	41	Provide detailed information regarding the method used to remove/breach any dewatering dykes (if applicable), including details of any mitigation measures for any adverse impacts.						
Studies and Designs	**42**	Provide a list of studies, reports and plans relevant to the application that have been undertaken to date including:						
Designs	**a**	Design rational; design requirements, design criteria, design parameters, design standards/analysis/method						
	b	Design assumptions and the limitations associated with such design assumptions						
	c	The inclusion of clear, definable engineering qualifiers with all design drawings and reports						
	d	Site specific data and analysis to support the design and management decisions made						
	e	Materials that appropriately delineate the particulars of a design or plan						
	43	Provide construction methods and procedures regarding how infrastructure will be put in place on-site						
	44	Provide a timetable for submission of preliminary and final-for construction engineered designs (note: for construction designs are required for NWB approvals)						
Annual Reporting	**45**	Provide detailed information regarding the content of annual reports and a proposed outline or template of the annual report. The annual report should include the following:						
	a	Water related monitoring results						
	b	Comparison of water quality and quantity monitoring data with the water quality and quantity predictions presented in the application						
	c	A description of how the conditions in the NIRB project certificate related to the NWB mandate have been implemented						
	d	Project changes under Adaptive Management						
	e	Any actions taken in response to direction provided by the Inspector						
		If the application is for a renewal or amendment of an existing licence, provide a status report. This report must document for each condition of the existing water licence, what action the licensee has taken						
		If the application is for a renewal or amendment of an existing licence, provide a compliance assessment. This assessment must indicate when facilities were inspected by regulatory agencies such as INAC or GN and which agencies. The compliance assessment must include any inspection reports and/or directions issued by the Inspector and any responses provided by the licensee. The compliance assessment must also list any spills that have occurred including a description, location shown on a map, and the action taken to address the affected area.						

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
Proposed Time Schedule	**46**	Provide the proposed start and completion dates for each phase of development (construction, operation, closure and post closure) and any anticipated periods of seasonal shut down						
Proposed Term of Licence	**47**	Provide a proposed term of licence including the expected date of licence issuance and the expected date of licence expiry						

4.0 Water Use: including Water Works, Quality, Quantity, Predicted Environmental Impact and Proposed Mitigation Measures

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
Water Use: (including water works), Quality and Quantity	**1**	Provide a detailed description of all forms of water consumption. Categorize use(s) as mining/industrial use and/or domestic use.						
Environmental Setting	**2**	Provide a description of the regional and local setting						
	3	Provide a description of the surface water regime						
	4	Provide a description of receiving lakes (lake id, hydrology, water quality)						
	5	Provide a description of the groundwater regime						
	6	Indicate the type of water source(s) as lake, river, well, or other type						
	7	Provide a description of the usual break-up and freeze-up periods						
	8	Provide a description of the site conditions, including the location, topography, geologic and hydrologic characteristics, climate conditions, permafrost conditions and soil and rock conditions (provide test pit/ drill hole logs and laboratory test results)						
	9	Provide a description of the historical uses of the waters affected by the project						
	10	Provide a description of any traditional uses in the project area						
	11	For each water use, provide the following streamflow data in cubic metres per second for all watercourse included in the application						
	a	mean annual flow						
	b	mean summer flow						
	c	minimum summer flow						
	d	minimum annual flow						
	e	mean annual flood						
	f	maximum summer flood						
	g	mean summer flood						
	12	Provide bathymetric information						
	13	Provide results of any assessment of the permeability of any faults and taliks beneath water bodies						
	14	Provide baseline data and an evaluation of baseline data describing surface and groundwater quality in the project area (physical, chemical, and biological characteristics)						
	15	Baseline data and an evaluation of baseline data describing fish and fish habitat in the project area						
Fisheries	**16**	Provide a fisheries assessment including:						
	a	Detailed area description (including photographic record)						
	b	Description of fish habitat (including river or lake bottom substrates such as silt, sand, or cobble)						
	c	Presence of sensitive habitats (spawning, migration corridors etc.)						
	d	Description of aquatic and riparian vegetation						
	e	Fish community and lifestage present						
	f	Depth and width of watercourse						
	g	Max/min water flows, currents, tides						
	h	Turbidity and sediment loads (total suspended solids)						
	i	Sport, commercial, subsistence fishery present						

4.0 Water Use: including Water Works, Quality, Quantity, Predicted Environmental Impact and Proposed Mitigation Measures

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
Water Intake	**17**	Provide the name of the primary water source as well as the name of any alternative water source(s)						
	18	Provide a description of the quality of the water from the source as well as capacity of the water source						
	19	Indicate the amount of water taken from each source and provide a description of the method of extraction including specific pumping rates, pumping procedures and potential for draw down						
	20	Provide the acquisition rate in cubic metres per day and cubic metres per year						
	21	Provide a description of the water intake method including the intake facility, the operating capacity of the pump used, the details of any screening to exclude fish, and the distance the pump will be placed from the ordinary high water mark of the watercourse						
	22	Provide a description of the general condition of any existing water intake facility. Rate the condition of the facility as satisfactory or unsatisfactory and explain the rating						
	23	Indicate whether water is drawn from the source intermittently or continuously and if intermittently indicate during what months it is drawn and for what period it is drawn (days/weeks/months)						
	24	Indicate the amount of water to be returned to the source						
	25	Provide a description of the methods to ensure water returned to source is of an acceptable quality						
	26	Provide a description of the quality of the water source for each season (summer, fall, winter, spring)						
	27	Provide a detailed description of any potential impacts to water quality, quantity, and rate of flow including seasonal rate of flow						
	28	Provide a description of any hydrostatic testing programs, including water sources, and treatment/disposal requirements						
	29	Provide a description of the source of water including the name of the water body and the location of the water source as shown on a map						
	30	Indicate the quantities of water required for ice road construction and provide a description of the methods of ice road construction						
Water Storage	**31**	Indicate whether the project includes water storage and provide the following if applicable:						
	32	A description of any water storage facilities including the type (reservoir/pond, storage tank), location, design, and the water storage volume in cubic meters						
	33	If the water storage facility is a reservoir indicate whether the reservoir is lined, the type of liner and when it was or will be installed						
	34	Provide a description of the general condition of any water storage facility						
Water Treatment	**35**	Indicate whether the project includes water treatment prior to water use and provide the following if applicable:						

4.0 Water Use: including Water Works, Quality, Quantity, Predicted Environmental Impact and Proposed Mitigation Measures

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
	36	A description of the type or method of water treatment involved using a diagram if possible and the capacity of the facility						
	37	The results, if any, of the most recent bacteriological and chemical analyses of water sources						
	38	A description of the general condition of any water treatment system and provide an explanation if it is unsatisfactory						
Water Distribution	**39**	Indicate whether the project includes water distribution and provide the following if applicable:						
	40	Calculate the total water consumed per day (L/day) by multiplying the estimated number of persons on the system by the estimated average water consumption(Litres/ capita/day). Calculate the total water consumed for each individual distribution system if more than one is used (ie. piped water and trucked water).						
	41	Provide a description of the general condition of any existing water distribution system and provide an explanation if it is unsatisfactory						
	42	Provide a description of site water management facilities						
Watercourse Crossings and/or Trainings	**43**	Indicate whether the project includes any watercourse crossings including pipelines, bridges, culverts or roads						
	44	Indicate whether the project includes any watercourse trainings including channel and bank alterations, culverts, spurs, erosion control, and artificial accretion						
	45	Provide a description of proposed works or undertakings (culvert crossing, bridge, intake, infilling pipeline, etc.)						
Flood Control	**46**	Indicate whether the project includes any flood control structures						
Diversions	**47**	Indicate whether the project includes any diversions including ditches and dikes						
Alterations in flow	**48**	Indicate whether the project includes any activities or structures that could alter the flow of a watercourse including dams, spillways, berms, cofferdams, and dikes						
	49	Provide a description of any expected changes in surface water flow or storage						
	50	If the cross-section of any watercourse is changed, provide a description of the change and its effect on the flow capacity of the channel						
	51	If a dam or dyke is used to store or alter the flow of water, provide a description of the effect of the dam or dyke on fish migration or movement						
Dewatering	**52**	Provide a description of dewatering programs, if planned, including estimated quantities, methods of withdrawl, end use or discharge location						
	53	Provide an estimate of the quality of the groundwater that will flow into any open pits						
Predicted Environmental Impacts and Proposed mitigation	**54**	Provide a description of all proposed environmental management systems and monitoring programs for all significant impacts						
	55	Provide a description of all mitigation plans and/or programs						

4.0 Water Use: including Water Works, Quality, Quantity, Predicted Environmental Impact and Proposed Mitigation Measures

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
measures	**56**	Provide a description of all remediation plans and/or programs						
	57	Provide a description of mitigation measures to be undertaken if groundwater monitoring around the tailings facility demonstrates that contamination from tailings is occurring through a fault (if applicable)						
	58	Provide a site water quality model using the updated estimates of the quality of groundwater flowing to the pits, and additional groundwater quality data collected on site. The water quality model should be used to assess the impacts of any pit water discharges on the environment and to develop mitigation measures for disposing of pit water of poor quality						
	59	Provide a description of the measures to be taken to mitigate the project effects on the historical resources or procedures to be followed should artifacts be discovered						
	60	Provide a description of the effects of water usage on the river or lake from which water will be drawn						
	61	Provide a description of the measures incorporated into the project design to mitigate potential impacts to water quality, quantity, and rate of flow including seasonal rate of flow						
	62	If the course of any channel is changed, provide a description of measures to maintain stream bed and bank stability						
	63	Provide a description of the measures incorporated into the project design to mitigate potential impacts of the project on the quality, quantity, or flow of waters flowing through IOL						
	64	Provide a description of the measures incorporated into the project design to mitigate potential impacts of the project on other licensees or pre-existing applicants, domestic users, in-stream users, authorized waste depositors, owners of property, occupiers of property, and/or holders of outfitting concessions, registered trapline holders or holders of other rights of a similar nature						
	65	Provide a description of how the results of consultation were incorporated into the design of mitigation measures						
	66	Provide a description of mitigation measures that will be implemented when working in close proximity to water						
Fisheries	**67**	Provide a description of any potential impacts to fish and/or fish habitat. (Indirect effects may include project effects, water quality, or aquatic organisms. Direct effects may include degradation or alteration of fish habitat)						
	a	potential effects on fish or fish habitat,						
	b	the area square metres to be impacted,						
	c	measures to avoid sensitive periods and habitat areas (i.e., spawning beds, migration corridors),						
	d	measures to avoid physical impacts on habitat,						
	e	measures to maintain flows and fish passage,						
	f	measures to avoid sedimentation,						
	g	detailed habitat no-net-loss plan and site restoration plan,						
	h	macroscopic site surface water and groundwater management;						

4.0 Water Use: including Water Works, Quality, Quantity, Predicted Environmental Impact and Proposed Mitigation Measures

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
	68	Provide a description of plans for the replacement of any fish habitat lost due to the project and provide a schedule for the proposed works						
Studies	**69**	Provide a list of studies, reports and plans relevant to the application that have been undertaken to date, including:						
	a	Water Management Plan including water balance						
	b	Operation and Maintenance Plan						
	c	Remediation Plans for water works infrastructure						
	d	Construction Plan and construction schedule for water works						
	e	Monitoring Plan						
	f	Implementation schedule for construction of works, submission of studies and mitigation plans for operations and closures.						

5.0 Waste Disposal: Quality, Quantity, Predicted Environmental Impact and Proposed Mitigation Measures

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
Waste Disposal:	**1**	All forms of waste disposal must be described in detail indicating the type of waste(s) generated and/or to be deposited						
	2	Indicate whether the project includes any deposit of waste (See NWB definition of Waste in the NWB *Guide 2: Terminology and Definitions*)						
	3	Provide a list of the types of waste included in the project						
	4	For each type of waste, provide the location, rate, timing, frequency and duration of the deposit						
	5	For each type of waste, provide the proposed methods and processes for collecting, storing, treating and discharging the waste, as well as the volumes of any waste storage systems						
	6	For each type of waste treatment/ storage/ discharge facility, provide a description of the construction methods, type and composition of the materials to be used in the construction of the structure, equipment to be used, schedule, quality assurance/ quality control measures, and inspection and maintenance procedures						
	7	Provide details regarding chemicals or other hazardous or potentially hazardous materials that will be used and will be in contact with or may impact water either directly or indirectly						
	8	Provide detailed information regarding the disposal of any lake bottom sediments						
	9	Provide detailed water treatment plans for discharges from the Tailings Impoundment Area, as well as treatment plans for discharges from attenuation pond(s) (on a contingency basis). Water treatment plans should include estimates of treatment efficiency for each parameter of concern and a description of pH adjustment methods						
	10	For each type of waste disposal treatment system provide the design plans stamped for construction. The designs shall include:						
	a	Level of treatment (primary, secondary or tertiary)						
	b	A description of the types of waste entering each treatment system or disposal area (if applicable, provide a description of the source, type, and quantity of the commercial or industrial waste)						
	c	Capacity and retention time of the facility						
	d	Estimated rates for discharge						
	e	Concentration of waste						
	f	Geochemical characterization, where applicable						
	g	Discharge effluent criteria proposed						

5.0 Waste Disposal: Quality, Quantity, Predicted Environmental Impact and Proposed Mitigation Measures

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
	h	Identification of final discharge point (last point of control)						
	i	Type of discharge (seasonal, annual, continuous)						
	j	Restriction on discharge						
	k	By products of treatment which may require further treatment, characterization, handling and disposal						
	l	Receiving water quality objectives						
	m	Capacity of the receiving environment						
	n	Contingency measures						
	o	Remediation objectives						
	11	Indicate whether any natural watercourse enters the disposal area and if applicable provide a description of the measures employed to decrease the amount of runoff entering the area						
	12	Indicate whether fish, shellfish, or other wildlife are harvested in or near the discharge area and if applicable indicate the species harvested and the level of harvest						
	13	If waste is expected to infiltrate into the ground, provide a description of the sub-surface soil compositions and provide information on groundwater elevations for the project area. Also provide the proximity between the proposed waste disposal system and the groundwater elevation						
	14	All design(s) plans shall include details regarding direction and path of wastewater flow from the area or infrastructure; details of retaining structures; details of the drainage basin; existing and proposed drainage modifications; distance from watercourses and fish bearing waters; details regarding the direction and path of wastewater flow from the area; the distance from watercourses and fish bearing waters; all sources of seepage encountered near watercourse and fish bearing waters; and the volumes (m3/day) and direction of any seepage; and mitigation measures.						
	15	Provide design drawings for the construction of any disposal/treatment facility. Final drawings for construction must be stamped by a Professional Engineer licensed to practice in Nunavut. (See Section 7 of the NWB's *Guide 4: Completing and Submitting a Water Licence Application* for more information regarding design drawings).						
Waste Disposal: Quality and Quantity	**16**	Provide a description of each type of waste generated, its composition, quantity (cubic metres per day), concentration, method of treatment and disposal, including:						

5.0 Waste Disposal: Quality, Quantity, Predicted Environmental Impact and Proposed Mitigation Measures

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
	a	System for the treatment and/or disposal of solid waste, liquid effluent, and gaseous materials expected from the operations, including any measures proposed to minimize production of wastes						
	b	Substances and their amounts that will be released to the environment, methods of release and any associated control technology						
	17	For each discharge of waste to the receiving environment provide a description and justification of the proposed standards to be applied						
Predicted Environmental Impacts and Proposed mitigation measures	18	Provide a description of the environmental and resource impacts on the following:						
	a	Groundwater and surface water including:						
		changes in flow						
		quantity and quality						
	b	Land including:						
		geologic structure change						
		soil contamination						
		compaction, settling and erosion						
		alteration of the permafrost regime						
		riparian zone loss						
	c	Vegetation including:						
		species composition and abundance						
		non-native species introduction						
		accumulation of toxins and heavy metals (in relation to remediation objectives for closure)						
	19	Provide a description of all mitigation plans and/or programs						
	20	Clearly outline the proposed discharge criteria, how the criteria were developed, and how these criteria will be used to prevent ecological effects in the receiving environment as a result of reconnecting the pit lakes to the watershed (especially in regards to contaminants, major ions and nutrients)						
	21	Provide detailed treatment plans for the treatment of effluent from attenuation pond(s) and/or reclaim pond(s)						
	22	Provide a discussion of the consequences of long-term stratification in any pit lakes and associated contingency plans						
	23	Provide a description of the ground condition for design and engineering of earthwork infrastructure, including:						
	a	Interim and permanent waste rock facilities						

5.0 Waste Disposal: Quality, Quantity, Predicted Environmental Impact and Proposed Mitigation Measures

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
	b	Tailings containment area						
	c	Landfills						
	d	Landfarms						
	e	Fuel and chemical storage facilities						
	f	Explosives management areas and facilities						
	g	Quarries or borrow pits						
	h	Hazardous waste facilities						
	i	Wastewater treatment facilities						
	j	Ore stockpiles and waste rock piles						
	k	Overburden piles						
	l	Dewatering dikes						
	m	Mine rock geochemistry						
	24	Provide designs for the fuel tank farm facilities including a description of the nearest water bodies. Provide an evaluation of impacts and mitigation measures in case of a fuel spill.						
	25	Provide detailed contingency plans for the treatment of turbid water during dewatering activities and/or increased suspended solids during operations (i.e rewatering)						
Studies	**26**	Provide a list of studies, reports and plans relevant to the application that have been undertaken to date. Including design and management decisions. Studies, reports and plans may include:						
	a	Waste management						
	b	Waste rock management						
	c	Tailings management						
	d	Metal leaching / acid rock drainage management						
	e	Landfill management						
	f	Landfarm management						
	g	Incineration management						
	h	Hazardous waste management						
	i	Water management						
	j	Geotechnical and geothermal assessment						
	k	Permafrost protection						
	l	Water quality modeling						
	m	Snow drift assessments						
	n	Leachate and groundwater collection systems						
	o	Wastewater treatment						
	p	Operation and maintenance plan						
	q	General monitoring						
	r	Monitoring plan						
	s	Tailings monitoring						
	t	Mine site water quality						
	u	Receiving water quality						
	v	Aquatic effects monitoring						
	w	Geotechnical and structural monitoring						
	x	Quality assurance and quality control						
	y	Spill contingency and emergency response plans						

5.0 Waste Disposal: Quality, Quantity, Predicted Environmental Impact and Proposed Mitigation Measures

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
	z	Interim and final abandonment and reclamation plans for the mine site						
	aa	Remediation plans for waste disposal infrastructure						
	bb	Human health and ecological risk assessment for establishment of remediation objectives for closure						
	cc	The collection of weather data for purposes of mine design						
	dd	Construction plan and construction schedule for waste disposal infrastructure						
	ee	Implementation schedule for construction of works, submission of studies and mitigation plans for operations and closure						
	ff	Options analysis						
Operations and Maintenance	**27**	If the project includes sewage and/or solid waste disposal, provide an Operations and Maintenance Manual in accordance with the "Guidelines for the Preparation of an Operations and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories, 1996"						
Hazardous Materials	**28**	Indicate whether the project includes the handling or storage of petroleum products or hazardous materials						
	29	Provide a description of the type of petroleum products and/or hazardous materials						
Emergency Response and Spill Contingency	**30**	Provide an Emergency Response and Spill Contingency Plan (ERSCP) consistent with established Water Board guidelines						
	31	Plan(s) shall address phases of the project including construction, operation, care & maintenance.						
	32	Provide an explanation of how the Applicant will ensure project contractors meet the Applicants' due diligence standards with respect to oil and hazardous material spill prevention, preparedness, response, and restoration.						
Abandonment and Reclamation	**33**	Provide a description of all remediation plans and/or programs						
	34	Abandonment & Reclamation Plan(s) shall address all phases of the project for construction, operation, care & maintenance and final closure.						

5.0 Waste Disposal: Quality, Quantity, Predicted Environmental Impact and Proposed Mitigation Measures

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
Monitoring	**35**	Provide a Monitoring Plan including a description of the methods, procedures, standards, and schedules proposed. Monitoring may be required for effluent, surface and/or groundwater water quality, water quantity, or flow; ground temperature; ground settlement; etc. The Monitoring Plan must consider the life of the project, temporary closure and permanent closure.						
	36	Indicate who is responsible for sampling including that person's position, contact information and level of training						
	37	Indicate the name and contact information of the certified laboratory performing the analysis of samples						
	38	Provide a description of how the results of consultation were incorporated into the design of the Monitoring Plan						
	39	Provide an Inspection Plan including a description of the methods, procedures, standards, and schedules proposed. Inspections may be required for engineered facilities related to the management of water and waste as well as spills. The Inspection Plan must consider the life of the project, temporary closure and permanent closure.						
	40	Provide a description of how the results of consultation were incorporated into the design of the Inspection Plan						
	41	Provide a description of all proposed environmental management systems and monitoring programs for all significant impacts						
	42	Provide a summary table of all monitoring commitments that details all Surveillance Network Program (SNP) locations. The table should include parameter(s), location, frequency, and mining phase, along with, cross-referencing to sub-documents where detailed information is provided. Where appropriate, a map detailing the location of monitoring sites is to be provided.						
	43	Provide a summary table of the expected quality and quantity of waters, over time in all sumps, SNP, and discharge points, along with i) if applicable, adaptive management criteria to benchmark if mitigation/contingency are to be implemented, ii) if applicable, water quality criteria, and iii) management action.						
	44	Provide a monitoring plan for incinerator emissions (including, but not limited to, stack testing and annual reporting)						

6.0 Project Specific Information Requirements (PSIR)

PSIR's will only be issued following a positive Environment Assessment Review determination by NIRB

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
Applicant								
Applicant Representative								
Location of Undertaking								
NPC Determination								
NIRB Determination								
Description of Undertaking								
Nature of Interest in the Land								
Water Use: (including water works)								
Water Use: Quality and Quantity								
Waste Disposal:								
Waste Disposal: Quality and Quantity								
Other Authorizations								
Predicted Environmental Impacts and Proposed mitigation measures								
Options (Alternatives)								

6.0 Project Specific Information Requirements (PSIR)

PSIR's will only be issued following a positive Environment Assessment Review determination by NIRB

Section Title	Section No.	Information Requirement	Indicate whether Information Requirement is applicable by inserting ' Y ' or ' NA '	If 'NA' provide justification	Insert Title, Author and Date of Document where information is provided	Insert electronic file name of document where information is provided	NWB Concordance Assessment	NIRB Guideline Section No.
Existing and Other User Water Rights								
Inuit Water Rights								
Security								
Financial Information								
Studies								
Proposed Time Schedule								
Proposed Term of Licence								

APPENDIX A: ADDITIONAL SOURCE DOCUMENTS TO ASSIST THE APPLICANT

This appendix provides a list of additional documents, guidelines, legislation and standards that may be of use to the Applicant in preparing the supplemental information.

For the development of additional information the proponent should be guided by, and is directed to, the most recent editions of the following standards/guidelines

- CCME – *Environmental Code of Practice for Above Ground and Underground Storage Tanks Systems containing Petroleum Product and*
- CCME – *Guidelines for the Protection of Freshwater Aquatic Life;*
- DFO – *Decision Framework for the Determination and Authorization of Harmful Alteration, Disruption or Destruction of Fish Habitat;*
- DFO – *Freshwater Intake End-of-Pipe Fish Screen Guide (1995);*
- DFO – *Guidelines for the Use of Explosives In or Near Canadian Fisheries Water (1998);*
- DFO – *Policy on the Management of Fish Habitat and Habitat Conservation and Protection Guidelines;*
- DFO – *Policy for management of Fish Habitat (2001);*
- EC – *Guidelines for the Preparation of Hazardous Material Spill Contingency Plans;*
- EC – *MMER Environmental Effects Monitoring Program Protocol (2002);*
- EC – *Guidelines for the Assessment of Alternatives for Tailings Storage for Metal Mining Projects Proposing to use Natural, Fish-bearing Water Bodies as Tailings Impoundment Areas (Draft July 4, 2008);*
- GN – *Contaminated Site Remediation (2002);*
- GN – *Environmental Guideline for Contingency Planning and Spill Reporting in Nunavut ;*
- GN – *General Management of Hazardous Waste in Nunavut (2002);*

- GN – *Occupational Health &Safety Guidelines (2006);*
- GN – *Spill Contingency Planning and Reporting Regulations (1998);*
- GNWT – *Environmental Protection Act (1988);*
- GNWT – *Ice Road guidelines;*
- INAC – *A Policy respecting the Prohibition of Bulk Water Removal from Major River Basins in Nunavut (2003);*
- INAC – *Nunavut Waters and Nunavut Surface Rights Tribunal Act (2002);*
- INAC – *Mine Site Reclamation Policy for Nunavut (2002);*
- INAC – *Territorial Lands Act (1985);*
- INAC – *Territorial Land Use Regulations;*
- NWB – *Guidelines for Abandonment and Restoration Planning for Mines in the NWT;*
- The Mining Association of Canada "*A Guide to the Management of Tailings Facilities* " (1998), (Referenced within the guidelines as GMTF);
- The proponent where applicable should consider the application of the Canadian Dam Association "*Dam Safety Guidelines* " (January 1999) in the design, construction, operation, monitoring, decommission and closure of dam infrastructure. (Referenced within the guidelines as CDA);
- TC – *Transportation of Dangerous Goods Act/Regulations* ;
- *Workplace Hazardous Materials Information System* (WHMIS);

Copies of all guidelines referenced in this document are available on the NWB ftp site or with Justice Canada for federal legislation and policies. The Applicant may have to contact the appropriate author of the above listed guidelines for a copy if needed.

The Applicant is encouraged to consult with governmental agencies on issues related with the above listed guidelines. When a guideline is used by the Applicant the NWB requests that proper footnoting or referencing be done. It is the Applicant's responsibility to ensure that all necessary standards and guidelines are considered in the water licence application.