



Agence canadienne  
d'évaluation environnementale

Canadian Environmental  
Assessment Agency

**BlackRock Mining Project, Chibougamau Area  
by BlackRock Metals Inc.**

**Scope of Assessment and Comprehensive Study Guidelines  
Established Under the  
*Canadian Environmental Assessment Act***

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## **LIST OF ACRONYMS**

Agency: Canadian Environmental Assessment Agency

Act: *Canadian Environmental Assessment Act*

CEAR: Canadian Environmental Assessment Registry

CN: Canadian National

COMEV: Evaluating Committee established under section 22 of the JBNQA

COMEX: Provincial Review Committee established under section 22 of the JBNQA

CRA: Cree Regional Authority

CSR: Comprehensive study report

DFO: Department of Fisheries and Oceans

EA: Environmental assessment

EIS: Environmental Impact Statement

EMP: Environmental Management Plan

HADD: Harmful alteration, disruption or destruction of fish habitat

JBNQA: *James Bay and Northern Quebec Agreement*

MPMO: Major Projects Management Office

NRCan: Natural Resources Canada

NWPA: *Navigable Waters Protection Act*

SARA: *Species at Risk Act*

VEC: Valued ecosystem component

## **1 INTRODUCTION**

### **1.1 Purpose of the document**

The purpose of this document is to identify for the proponent the information requirements for the preparation of an environmental impact statement (EIS) for the proposed BlackRock Mining Project, which will be assessed under the comprehensive study process pursuant to the *Canadian Environmental Assessment Act* (the Act). These guidelines specify the nature, scope and extent of the information required.

The project is subject to a provincial environmental and social impact assessment pursuant to section 22 of the *James Bay and Northern Quebec Agreement* (JBNQA). Since the project is provincial in nature, the Provincial Administrator, following the recommendations of the Evaluating Committee (COMEV), has issued a directive for the conduct of the impact assessment by the proponent. The directive issued by the Provincial Administrator for the preparation of the impact assessment covers most of the federal authorities' requirements.

This document presents certain aspects specific to federal areas of jurisdiction or required by the Act that will have to be included in the EIS so that it meets federal requirements.

The proponent will prepare and submit an EIS that identifies the potential adverse environmental effects of the project, including cumulative effects; identifies technically and economically feasible measures to mitigate those effects; and evaluates whether the proposed project will result in any significant adverse environmental effects.

While the EIS Guidelines provide a framework for preparing a complete EIS, it is the responsibility of the proponent to provide sufficient data and analysis on any potential environmental effects of the project to permit proper evaluation by the Canadian Environmental Assessment Agency (the Agency), expert and regulatory departments, Aboriginal groups, and the public. The EIS Guidelines describe the minimum information requirements, but give the proponent the flexibility to choose the most appropriate methods for compiling and analyzing data for the EIS.

## **1.2 Brief description of the project**

The project is located on *James Bay and Northern Quebec Agreement* (JBNQA) territory, 30 kilometres southeast of Chibougamau. It involves the mining of an iron, titanium and vanadium deposit. The mining area would be about 2.5 kilometres long and 100 to 400 metres wide. The mineralized area would be mined to a depth of 200 metres.

The material would be drilled, blasted, loaded into trucks by power shovels, and trucked to the mill, where it would be coarsely and then finely crushed and magnetically separated in multiple steps using electromagnets to produce a magnetite concentrate.

The expected production rate during the first year is about 20 000 tonnes of raw ore per day, with the proponent planning to increase production to 50 000 tonnes per day over a period of two to three years.

The mill would be built at the edge of the mineralized zone in an area no larger than 200 metres by 150 metres.

Concentrate would be trucked to the existing rail line at Chibougamau and transported by rail to the Port of Quebec. The project also includes a 25-kilometre access road and a power line. The concentrate would then be sent to the Beauport terminal of the Port of Quebec and loaded on cargo ships bound for Asia.

The proponent plans to submit its impact statement in the fall of 2011 and start construction in the summer of 2012, with concentrate production beginning by late 2012.

## **1.3 Application of the Canadian Environmental Assessment Act**

On the basis of information received from the proponent and in accordance with section 11.01 of the Act, the Agency is initiating a comprehensive study of the BlackRock Mining Project since the following federal departments may issue authorizations under the *Law List Regulations*:

- Department of Fisheries and Oceans (DFO) under section 32 and subsection 35(2) of the *Fisheries Act*; and
- Natural Resources Canada (NRCan) under paragraph 7(1)(a) of the *Explosives Act*.

This project is described in the comprehensive study list under subsection 16(a) of the *Comprehensive Study List Regulations*, which states:

*The proposed construction, decommissioning or abandonment of a metal mine, other than a gold mine, with an ore production capacity of 3 000 t/d or more.*

In addition, it is a major resource project requiring the involvement of the Major Projects Management Office (MPMO).

#### **1.4 Comprehensive study process<sup>1</sup>**

In accordance with section 11.01 of the Act, the Agency will perform the duties and functions of the responsible authority in relation to the environmental assessment of the BlackRock Mining Project. The Agency will work closely with the federal authorities to coordinate their participation in the environmental assessment process and facilitate communication and cooperation between them and the other participants for the purpose of preparing the comprehensive study report (CSR).

To perform the analysis of the project, the Agency has established a federal environmental assessment committee (the federal committee) made up of representatives of Fisheries and Oceans Canada, Environment Canada, Natural Resources Canada, and the Cree Regional Authority (CRA). The MPMO is also involved. Other departments may be added if necessary.

The federal committee has established the scope of the environmental assessment to guide the analysis of the proponent's impact assessment (see section 2.3 below). The proponent, BlackRock Metals Inc., will submit its impact assessment statement evaluating the environmental effects of the project to the Agency for review and comment. During this analysis, the Agency will provide an opportunity for public consultation. A comprehensive study report detailing the conclusions of the Agency and the federal committee on the environmental effects of the project will then be prepared. This report will be submitted to the Minister of the Environment (the Minister) and will also be made available for public review and comment.

The Minister will review the comprehensive study report, the summary of the consultation of Aboriginal groups, the results of the consultation, and public concerns. If the Minister is of the opinion that additional information or specific actions are needed to address the concerns of the public or Aboriginal groups, the Minister may require the Agency or proponent to ensure that additional information is gathered or that measures are taken to resolve those issues.

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<sup>1</sup> See Appendix 1 for diagrams of the comprehensive study and public consultation process.

Once all the necessary information has been provided, the Minister will issue an environmental assessment decision statement. This statement sets out the Minister's opinion as to whether the project is likely to cause significant adverse environmental effects, taking into account the implementation of the mitigation measures and follow-up program that the Minister considers appropriate.

Once the Minister has issued an environmental assessment decision statement, the project is referred back to the federal authorities for their respective decisions under section 37 of the Act. The federal authorities can then take appropriate regulatory actions, such as issuing permits, licences or approvals, depending on the outcome of the environmental assessment.

## **1.5 Environmental impact statement**

The proponent is encouraged to produce a single impact assessment that meets the requirements established by the Provincial Administrator and the federal authorities. The proponent must provide the Agency with twenty (20) French hard copies of the impact assessment, as well as electronic versions. To facilitate consultation of Cree communities, it is recommended that the proponent provide English versions (eight copies) and a summary translated into Cree.

## **2 PREPARATION OF THE IMPACT STATEMENT**

### **2.1 Introduction and project background**

#### **2.1.1 Proponent**

The study should:

- provide the contact information (e.g. name, address, phone, fax, email) of the legal entity that will develop, manage and operate the project; and
- identify key personnel, contractors or sub-contractors responsible for preparing the EIS.



### 2.1.2 Project overview

The assessment must briefly summarize the project by presenting the project components, associated and ancillary works, activities, scheduling details, the timing of each phase of the project and other key features. If the project is part of a larger sequence of projects, the proponent must outline the larger context and present the relevant references, if available. The purpose of this overview is to provide the key components of the project.

### 2.1.3 Project setting

The EIS should contain a concise description of the geographic setting in which the project will take place. This description should focus on those aspects of the environment important for understanding the potential environmental effects of the project. The description should also integrate the natural and human elements of the environment in order to explain the interrelationships between the biophysical aspects and the people and their communities. The following information may be included:

- any existing designated environmentally sensitive areas, such as national, provincial and regional parks, ecological reserves, wetlands, estuaries, habitats of provincially or federally listed species at risk, and other sensitive areas;
- current land use in the area and the relationship of the project facilities and components with any existing land use, including traditional, private and Crown lands;
- local communities;
- categories of land under the JBNQA;
- geographic coordinates of the main project site; and
- environmental significance and value of the geographic setting in which the project will take place and the surrounding area.

The EIS will provide expanded description and mapping of the project location, including each of the project components.

#### 2.1.4 Environmental assessment participants

Clearly identify the main participants in the EA, including jurisdictions other than the federal government, Aboriginal groups, community groups, and environmental organizations.

#### 2.1.5 Regulatory framework and the role of the government

To understand the context of the EA, this section should identify, for each jurisdiction, the government bodies involved in the EA and the EA processes. More specifically, it should include:

- environmental and other specific regulatory approvals and legislation that are applicable to the project at the federal, provincial, regional, and municipal levels;
- government policies, resource management, and planning or study initiatives relevant to the project and EA, and a discussion of their implications;
- policies and guidelines pertaining to the Aboriginal groups that are being consulted;
- any treaty or self-government agreements with Aboriginal groups that are relevant to the project or EA; and
- any relevant land use plans, land zoning, or community plans.

## 2.2 Project description

### 2.2.1 Project components, activities and schedule

The environmental impact statement will provide a detailed description of all project components and ancillary works and activities. The EIS must include detailed descriptions of the construction, operation, maintenance, foreseeable modifications, and where relevant, closure, decommissioning and restoration of sites and facilities associated with the proposed project.

This includes detailed descriptions of the activities to be carried out during each phase, the location of each activity, expected outputs and an indication of the activity's magnitude and scale.

Although a complete list of project activities is expected, the emphasis should be on the activities with the greatest potential to have environmental effects. Sufficient information should be

included to predict environmental effects and address public concerns. Highlight activities that involve periods of increased environmental disturbance or the release of materials into the environment. Include a detailed schedule describing the time of year, frequency, and duration of all activities.

The description of the project, including the description of the work, must also be sufficiently detailed to allow a determination of whether the work is likely to cause harmful alteration, disruption or destruction (HADD) of fish habitat. The impact assessment must therefore:

- identify, on a scale map, all physical project components (pit, tailings site, overburden and waste rock dumps, dams, polishing ponds, main road, secondary roads, power line, main buildings, etc.);
- provide the surface area of the pit, tailings site, dumps, and polishing ponds;
- specify the geographic coordinates of the centre of the pit;
- indicate the locations of water intakes and the required flow; and
- indicate the locations of liquid effluent discharge points and the flow of each point.

### 2.2.2 Purpose of and need for the project

The “purpose of” and “need for” the project must be established from the perspective of the proponent. The project is designed to achieve specific objectives, and these should be described. If the project objectives are related to or contribute to private- or public-sector policies, plans or programs, this information must also be included.

The proponent must clearly state the need for the project. The proponent must establish the fundamental rationale for the project, namely the problem or opportunity that the proposed project is designed to solve or satisfy.

### 2.2.3 Alternative means of carrying out the project

The EIS must identify and describe alternative means of carrying out the project that are technically and economically feasible.

The Agency recommends the following approach for addressing alternative means:

- Identify the alternative means of carrying out the project:
  - Describe each alternative means in sufficient detail.
  - Develop criteria to determine the technical and economic feasibility of the alternative means.
  - Identify those alternative means that are technically and economically feasible.
- Identify the environmental effects of each alternative means:
  - Describe, in sufficient detail, those elements of each alternative means that could produce environmental effects.
- Identify the preferred means:
  - Identify the preferred means based on the relative consideration of environmental effects and of technical and economic feasibility.

## 2.3 Proposed scope of the environmental assessment

The federal committee will ensure that the environmental assessment is conducted in accordance with the scope of the project, as set out in the following subsection.

### 2.3.1 Project scope

The scope of the project includes the activities and works that will be considered in the federal environmental assessment. For the purposes of the application of the Act, the scope of the project encompasses all of the project components submitted by the proponent, including:

- mining pits;
- extraction of iron, titanium and vanadium ore (open-pit mines);

- ore crushers;
- waste rock dumps;
- ore mill;
- tailings sites;
- polishing ponds;
- water intakes;
- access roads and secondary roads;
- transportation of concentrate;
- manufacture and storage of explosives;
- power line;
- transfer point;
- borrow pits; and
- administrative buildings and staff accommodations if required.

All other works, permanent or temporary structures, or activities directly related to the project are also included in the project scope (e.g. temporary access roads, site clearing, cofferdams, earthworks, re-vegetation).

### 2.3.2 Factors to be considered

The environmental assessment will include consideration of the following factors, listed in paragraphs 16(1)(a) to (e) and subsection 16(2) of the Act:

- The purpose of the project.
- Alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means.
- The environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out.

- The significance of the effects referred to above.
- The capacity of renewable resources that are likely to be significantly affected by the project to meet the needs of the present and those of the future.
- Comments from the public that are received during the environmental assessment process;
- Measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project.
- The development of a follow-up program in respect of the project and its requirements.

Subsection 2(1) of the Act defines an environmental effect as any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the *Species at Risk Act* (SARA); any effect of any such change on health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes by Aboriginals, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance; or any change to the project that may be caused by the environment.

### 2.3.3 Scope of factors to be considered

The effects analysis will be based on the state of the environment in the study area prior to project implementation. Table 1 below lists some of the main environmental components that will be documented and considered in the environmental effects analysis.

All other adverse effects on environmental components observed during the environmental assessment must also be documented and considered.

### 2.3.4 Study area and temporal limits

The study area includes at least the factors listed in Section 2.3.1 above and their entire area of influence, meaning the area within which the direct and indirect environmental effects of the project components will occur.

The time period on which the environmental assessment will focus includes the construction, operation, modification, decommissioning and closure of the project, ensuring that all short-, medium- and long-term effects can be studied.

The proponent will clearly identify and justify the spatial boundaries determined for each component of the environment under study. A summary table indicating these boundaries and the rationale must be included in the impact assessment to facilitate the reader’s understanding.

<b>Table 1: Environmental Components to be Documented and Considered in the Analysis of Environmental Effects</b>	
<b>Environmental component</b>	<b>Factors to be considered</b>
Physical environment	<ul style="list-style-type: none"> <li>• Water regime</li> <li>• Surface water and groundwater quality</li> <li>• Air quality</li> <li>• Soil quality</li> </ul>
Biological environment	<ul style="list-style-type: none"> <li>• Species at risk and their habitat as defined in subsection 2(1) of SARA</li> <li>• Fish and fish habitats</li> <li>• Wildlife and their habitat, including migratory birds and their habitat</li> <li>• Wetlands</li> <li>• Terrestrial and aquatic vegetation</li> </ul>
Human environment <sup>2</sup> (human occupation and use of terrestrial and aquatic resources)	<ul style="list-style-type: none"> <li>• Current use of lands and resources for traditional purposes by Cree communities</li> <li>• Use of resources by residents of neighbouring communities</li> <li>• Boating and boater safety</li> <li>• Safety concerns regarding explosives manufacturing and magazines</li> <li>• Health of land users, particularly if there is metal accumulation in wild plants and animals</li> <li>• Socio-economic activities and heritage, historical, cultural and archaeological resources</li> </ul>

<sup>2</sup> *The definition of the term “environmental effect” in the Act includes economic and social changes that are caused by biophysical modifications of the environment. In other words, the Act does not provide for the assessment of the direct economic and social effects of the project. However, in certain contexts, the federal Crown may take such direct effects into account in determining whether potential significant adverse environmental impacts are justifiable.*

## **2.4 Existing environment and environmental effects**

The EIS will provide a baseline description of the environmental components, their interrelations and interactions and their variability over time scales appropriate to this EIS. The description must be sufficiently detailed to permit the identification, assessment and determination of the significance of potential adverse environmental effects.

The information describing the existing environment may be provided in a stand-alone chapter of the EIS or may be integrated into clearly defined sections within the effects assessment of each valued ecosystem component (VEC).

For the description of health and socio-economic conditions, the proponent must ensure that enough information is provided to allow for assessment of the impacts of the project on people and communities in the study area.

VECs should be described in sufficient detail to allow the reader to understand their importance and assess the potential for environmental effects arising from the project activities. The rationale for selecting these components as VECs and excluding others should be stated.

Potential effects of all components of the project must be discussed. The proponent must indicate the project's effects during construction, operation, maintenance, foreseeable modifications, and where relevant, closure, decommissioning and restoration of sites and facilities associated with the project, and describe these effects using appropriate criteria. To the extent possible, this documentation should include, for each potential project-related environmental effect, an indication of the nature of the effect, mechanism, magnitude, direction, duration, frequency and timing, geographic extent, and the degree to which it may be reversible. The proponent must consider the direct and indirect, reversible and irreversible, short- and long-term, and cumulative environmental effects of the project. In predicting and assessing the project's effects, the proponent must indicate important details and clearly state the elements and functions of the environment that may be affected, specifying the location, extent and duration of these effects and their overall impact.

The assessment of the effects of each component and activity, in all phases, must be based on a comparison of the biophysical and human environments between the predicted future conditions with the project and the predicted future conditions without the project. The assessment must reveal the environmental effects of the project, the feasible mitigation measures proposed for implementation, and an assessment of the effectiveness of those measures. Where mitigation measures are proposed to be implemented for which there is little experience or for which there is



some question as to their effectiveness, the potential risks and effects to the environment should those measures not be effective should be clearly and concisely described.

The consideration of views from the public and Aboriginal groups, including any perceived changes attributed to the project, must be incorporated into the analysis.

The proponent has received directives produced as part of the JBNQA assessment process. They include most of the components and elements relevant to the federal assessment. The subsections below describe the specific information required for the analysis of the project by federal departments.

#### 2.4.1 Fish and fish habitat

To enable the assessment of the effects of the project on fish and fish habitat, it is necessary to identify and characterize fish habitat that is present in the water bodies and watercourses and that would be directly or indirectly affected by the project.

Note that certain intermittent streams or wetlands may constitute fish habitat or contribute indirectly to fish habitat. The absence of fish at the time of the inventory does not irrefutably indicate an absence of fish habitat. The assessment must:

- indicate, on a scale map, watercourses, water bodies and wetlands located in the area of influence of the project;
- describe the water bodies and watercourses, including intermittent streams, that may be affected by the project activities and components. The required characteristics are width, depth, flow, current velocity, and substrate type; and
- specify the location and surface areas of potential or confirmed fish habitat and describe the purpose for which fish use it (spawning, rearing, growth, feeding, migration, overwintering).

The main road should connect the future mine site to Route 167. The secondary roads would interconnect the project components, including the pit, tailings site, waste rock dumps and mill. The assessment must:

- describe and identify the locations of planned activities on shorelines and in watercourses (permanent and intermittent), the dimensions of the works (permanent and temporary), the

machinery to be used, the equipment required, etc. These activities may include shoreline filling and the rehabilitation or construction of culverts or bridges; and

- attach, if necessary, recent photographs of the sites of planned work.

Where permanent culverts have been installed, the guiding principle of DFO's approach to ensuring free fish passage is to preserve the natural hydraulic characteristics of the watercourse. To do this, the existing physical characteristics of the watercourse (width, slope and substrate) must be maintained to the extent possible.

For general information, DFO recommends using the criteria and measurements set out in the document "Bonnes pratiques pour la conception et l'installation de ponceaux permanents de moins de 25 mètres." DFO believes that complete compliance with the design criteria and measurements outlined in that document can ensure free passage of fish. The assessment must:

- clearly indicate whether the design of the structure allows free passage of fish. To do this, the proponent can consult the DFO document "Bonnes pratiques pour la conception et l'installation de ponceaux permanents de moins de 25 mètres" or suggest other design criteria that will achieve the same results; and
- if the proponent believes that it is not necessary to ensure free passage of fish, it must explain why by demonstrating that there is a barrier to free passage of fish at or near the site of the work, or that the habitat upstream of the work is of marginal quantity and quality.

Before mining operations can begin, it may be necessary to divert or drain watercourses. The assessment must:

- estimate possible variations in the levels and flows of watercourses and water bodies (including wetlands) following the diversion of watercourses around the pit and waste rock dumps; and
- assess the potential impacts on fish habitat of the diversion of watercourses and the reduction in the surface water supply to watercourses, water bodies and wetlands.

According to the project notice, the maximum elevation in the sector of the future mine site is 100 metres, and the pit would be mined to a depth of approximately 200 metres. The assessment must:

- indicate whether it will be necessary to lower the water table around the pit;

- determine the daily groundwater pumping rate;
- estimate variations (monthly and annual) in the flows and levels of watercourses and water bodies that would be affected by groundwater pumping. Indicate whether wetlands would be likely to be drained;
- describe impacts on fish habitat that could be caused by the potential reduction in the groundwater supply to watercourses, water bodies and wetlands;
- estimate variations (monthly and annual) in the flow, level and quality (including temperature) of the receiving aquatic environment following daily groundwater discharge; and
- describe fish habitat losses or gains that could be caused by the discharge of mine water into the aquatic environment.

According to available information, a power line approximately 50 kilometres long will need to be constructed.

- To ensure suitable protection for fish habitat, follow the guidelines in the DFO operational statement on overhead line construction, available online at:  
<http://www.dfo-mpo.gc.ca/habitat/what-quoi/os-eo/qc/overhead-eng.asp>.
- In addition, a number of mitigation measures can be taken to prevent or limit HADD of fish habitat. Provide a list of planned mitigation measures for preventing or reducing HADD of fish habitat.

#### 2.4.2 Migratory birds

In addition to basic information on the project and receiving environment, the following data may be required for analysis:

- Description of the bird species likely to be present in the study area and of the habitats used.
- List of bird species observed, including species with confirmed nesting sites in the study area.
- Description of species, habitats or areas with legal status or of special interest.
- This description must also make it possible to assess the abundance and distribution of each species in the study area and the various habitats affected by the project.

- Timeline specifying the dates on which each project step will be carried out (e.g. site development, clearing), particularly activities that could disturb birds.
- A work plan that will minimize disturbance of migratory birds and avoid the periods during which birds are most vulnerable, particularly the breeding season.

If consultation of the information sources of official or specialized organizations does not yield enough suitable data to prepare a complete description of bird species, the data will need to be supplemented with a survey of the study area. We recommend consulting Environment Canada guides to develop and plan the survey. Regarding the survey strategy and sampling protocol, the following information may be required for analysis:

- Rationale for the selected survey strategy and sampling protocol
- Presentation of the survey results and rationale for the abundance of each species or habitat type
- Raw data
- Description of climate conditions during the survey

### 2.4.3 Species at risk

To determine whether a species at risk is likely to be present in the study area, it is recommended that the proponent:

- make a list of species likely to be present in the study area and their status under SARA;
- identify habitats present in the study area;
- consult the descriptions of the preferred habitats of species at risk to determine their potential presence in the study area; and
- if a species is potentially present in the area, determine whether surveys should be conducted.

#### 2.4.4 Wetlands

If the project involves activities that affect or interfere with the ecological or socio-economic functions of wetlands, the adverse environmental effects of the project on wetlands should be assessed. To do this, the proponent must:

- adequately describe the wetland or wetlands present in the study area using a recognized methodology that encompasses soil characteristics, hydrology and vegetation;
- determine the functions (e.g. hydrological, biogeochemical, ecological, socio-economic) of each wetland;
- determine the local, regional or even national importance of each wetland; and
- assess the adverse environmental impacts by integrating a sequential process to prevent, minimize, or, as a last resort, compensate for degradation or loss of function in the wetlands.

“Compensation” refers to the replacement of unavoidable losses of wetland functions, through enhancement or rehabilitation of existing wetlands, or, as a last resort, creation of new wetlands. Compensation cannot be achieved through the protection of another wetland, but rather involves the addition or improvement of wetland functions elsewhere.

#### 2.4.5 Tailings impoundment area

The documents provided by the proponent indicate the possibility of tailings impoundment areas (TIAs) in water bodies that may be frequented by fish. Schedule 2 to the *Metal Mining Effluent Regulations* (MMER), adopted under the *Fisheries Act*, designates certain natural fish-bearing water bodies as tailings impoundment areas. The proponent must demonstrate that the storage of tailings or other related waste in natural water bodies is the most environmentally, technically and socio-economically sensible solution when all factors are taken into account, including long-term risks.

It is possible that tailings storage will also require the designation of water bodies if waste rock dumps are located in the vicinity of natural fish-bearing water bodies.

#### 2.4.6 Boating and boater safety

The proponent must describe the main navigation features in the project area (type of boats, areas of use, importance, etc.), as well as the disruptions caused by the project on navigation activities.

If applying for approval under the NWPA, the proponent must also provide the following information and documents:

A table of the undertakings (including backfilling and drainage, if necessary) in the aquatic environment. Indicate:

- a. the type of work;
- b. the geographic coordinates of the central point, crossing to the middle of the watercourse (DMS, NAD 83);
- c. the geographic coordinates of the ends (DMS, NAD 83); and
- d. the characteristics of the watercourse:
  - i. width;
  - ii. minimum and maximum depth during the summer;
  - iii. bottom type (e.g. sediments, rocks);
  - iv. flow type (e.g. lake, stream, river, calm, flowing, fast); and
  - v. if possible, reference a photo taken of the watercourse in that area during the summer.

A plan for each of these undertakings, indicating the main dimensions and characteristics:

- a. Plan views and elevation
- b. Minimum and maximum water levels during the summer, before and after the work period
- c. If appropriate, the navigation protection measures during the work period and operations phase

For more information on the requirements for application for approvals under the NWPA, the proponent is invited to consult the following guide:  
[www.tc.gc.ca/eng/quebec/nwp-menu-1424.htm](http://www.tc.gc.ca/eng/quebec/nwp-menu-1424.htm).

#### 2.4.7 Safe use of explosives

The proponent must provide the following information:

- Description of explosives production:
  - Indicate whether explosives manufacturing will be required on or near the site and provide details.
  - Indicate whether an existing licence for an explosives factory will be used for this project and provide details if necessary.
  - Indicate whether a temporary explosives factory will be used for this project and provide details if necessary.
- Description of explosives storage:
  - Indicate whether magazines for storing explosives will be required on or near the site.
  - Describe the building footprint, type of building, site access, ancillary works, etc.

NRCan requires the following information to complete the environmental assessment of an explosives factory:

- Explosives to be manufactured
- Maximum quantity of explosives at each facility
- Specified location (i.e. detailed site plan) and distance from vulnerable features such as dwellings, roads, camps, railways, and water bodies. The proponent must describe the infrastructure, including explosives and innovation systems magazines, fuel storage, ammonium nitrate storage, maintenance/wash area, process vehicles and their parking area, offices, warehouses and buildings. The proponent must demonstrate that safety distances required by the Explosives Regulatory Division (ERD) of NRCan have been met
- Fuel and ammonium nitrate storage plans. Storage of ammonium nitrate must be in compliance with ERD guidelines
- Liquid effluent assessment plans
- Evaluation of worst case scenario (i.e. accidental explosion);
- Spill contingency plans
- Details on any temporary explosive facilities to be used for starting the project (same as above). Temporary installations are often required before the other facilities can be put in place and as such are often more problematic for location, containment, etc.

For more information on licensing, please refer to the NRCan Web site (<http://www.rncan.gc.ca/smm-mms/expl-expl/ind-ind-eng.htm>).

#### 2.4.8 Malfunctions and accidents

The probability of possible malfunctions or accidents during construction, operation, modification or any other undertaking in relation to the project, and the potential significant adverse environmental effects of such events, will be identified and described in the environmental assessment. The description will include, but not be limited to, the following:

- Accidental spills of hazardous materials, chemicals, petroleum substances or tailings
- Risk of fire and explosion at the site
- Wildfires
- Contingency plans and measures for responding to emergencies that may involve risks to environmental components

#### 2.4.9 Effects of the environment on the project

Environmental hazards that may affect the project will be described, and their predicted effects and their consideration in the design of the project will be documented. The proponent will address the following factors:

- Seismic activity
- Influence of climate conditions (e.g. precipitation, temperature during construction and operation)
- Presence of sources of contamination in the area of influence of the work

#### 2.4.10 Cumulative environmental effects

Cumulative effects are changes to the environment that are caused by an action in combination with other past, present and future human actions. The cumulative environmental effects that may result from the project in combination with other projects or activities that have been or will be carried out will be identified and assessed. The cumulative effects assessment will be carried out on the valued environmental components for which the project has an adverse residual effect and



for which cumulative effects are likely to occur.

The proponent will present a justification for the geographic and temporal boundaries of the cumulative effects assessment. It should be noted that these boundaries may vary depending on the components selected for cumulative effects assessment. The proponent will propose and justify the choice of projects and selected activities for the cumulative effects assessment; these shall include past activities and projects, those currently being carried out, and those with a high likelihood of being carried out.

#### 2.4.11 Current use of lands and resources for traditional purposes by the Aboriginals

The federal environmental assessment must examine the possibility of adverse environmental effects on current use of lands and resources for traditional purposes by Aboriginal persons. To do this, the proponent must:

- describe where and how traditional land use and occupancy could be affected by the project;
- describe any mitigation measures; and
- summarize information sources and consultations or exchanges with Cree land users. Identify the concerns expressed and the extent to which these elements were reflected in the project design and impact assessment.

During an initial consultation, the Cree community of Ouje-Bougoumou raised several concerns (see appendix 3) that the proponent is called to respond in the environmental impact study.

#### 2.4.12 Sustainability of the resource

The environmental assessment will consider the renewable resources that may be significantly affected by the project and the criteria used to determine whether their sustainable use will be compromised.

#### 2.4.13 Mitigation measures

The Act defines “mitigation” as the elimination, reduction or control of the adverse environmental effects of a project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means. Every comprehensive

study conducted under the Act must take into account measures that would mitigate any significant adverse environmental effects of the project.

The EIS must specify the actions, works, best available technology, corrective measures or additions planned during the project's various phases to eliminate or reduce the significance of adverse effects. The impact assessment must also present an assessment of the effectiveness of the proposed mitigation measures. The reasons for determining whether the mitigation measure reduces the significance of an adverse effect must be made explicit.

#### 2.4.14 Determination of the Significance of Residual Effects

The EIS should present and describe any residual effects of the project on biophysical and human environment after mitigation measures have been taken into account.

The EIS must include a summary of residual effects of the project so that the reader clearly understand the real consequences of the project and the extent to which the effects can be mitigated or compensated.

The EIS must identify the criteria used to assign significance ratings to any predicted adverse effects as well a detailed analysis of the significance of the potential residual adverse environmental effects. It must contain clear and sufficient information to enable the Agency, technical and regulatory agencies, Aboriginal groups and the public to understand and review the proponent's judgment of the significance of effects. The following elements should be used in determining the significance of residual effects:

- magnitude;
- geographic extent;
- timing, duration and frequency;
- reversibility;

#### 2.4.15 Environmental management and Follow-up program

The purpose of the environmental management plans (EMPs) is to ensure that proper measures and controls are in place in order to decrease the potential for environmental degradation during all phases of project, and to provide action plans and emergency response procedures to account for human and environmental health and safety. The EMPs will serve to provide guidance on specific actions and activities that will be implemented to decrease the potential for environmental

degradation during construction and operation, and to define the proponent's ongoing environmental commitment.

The EIS shall provide the preliminary outline of a decommissioning and reclamation plan for any components associated with the project. The plan would serve to provide guidance on specific actions and activities to be implemented to decrease the potential for environmental degradation in the long-term during decommissioning and abandonment of facilities.

A follow-up program is designed to verify the accuracy of the EA and to determine the effectiveness of the measures implemented to mitigate the adverse environmental effects of the project. The EIS must describe the proposed follow-up program plan in sufficient detail to allow independent judgment as to the likelihood that it will deliver the type, quantity and quality of information required to reliably verify predicted effects (or absence of them), and to confirm both the EIS assumptions and the effectiveness of mitigation measures.

The follow-up program must include a schedule indicating the frequency and duration of effects monitoring.

### **3 PUBLIC AND ABORIGINAL CONSULTATIONS**

#### **3.1 Public consultation**

Public participation is a crucial component of the environmental assessment process. When the public has the opportunity to participate fully in the process, the quality and credibility of the environmental assessment are enhanced.

Federal authorities will give the public three opportunities to comment:

- An initial consultation on the project and on the conduct of the comprehensive study.
- A second consultation during the environmental assessment.
- A third consultation on the CSR prepared by the Agency.

Documents will be made available to the public through the Canadian Environmental Assessment Registry (CEAR) and at specific locations, including Chibougamau, Chapais, Ouje-Bougoumou, Mistissini and Waswanipi. Meetings may be held with target groups during the second

participation and consultation opportunity.

For the Agency's second public consultation, the proponent will be invited to participate in consultation sessions and contribute to the preparation of material, such as by producing presentation materials (e.g. PowerPoint presentations), if necessary, and a summary of the impact assessment.

The proponent is also encouraged to consult the public and to provide details on the project consultations and information sessions it will be holding or has already held at the local and regional levels. The information required in this regard includes the identification of the groups with which the proponent has met, the concerns they expressed, and the extent to which these concerns were incorporated into the project design and impact assessment.

### **3.2 Aboriginal consultation**

As part of its regulatory authority, the federal government has an obligation to consult First Nations whose rights may be adversely affected by the project. The Aboriginal communities identified for this consultation are Oujé-Bougoumou, Mistissini and Waswanipi. Since the proponent's cooperation is crucial to ensure that the consultation proceeds smoothly, the proponent's impact assessment must:

- produce a list of potential impacts on each of the above-mentioned communities and on all other communities if, during the assessment, the proponent believes that other communities may be affected;
- provide clear maps and tables that can be used during a consultation to explain the identified effects; and
- provide a detailed map overlaying the project and all its components on trap lines. This large format map is a tool of work required to gather information from users of the territory;
- clearly explain the impacts of the project on each plant and animal species present in the study area.

The impact assessment must also describe any other concerns expressed by these communities that may contribute to the environmental assessment and must identify impacts on treaty rights.

Furthermore, to ensure effective Aboriginal participation, it is suggested that the impact assessment be submitted in both official languages and that materials such as PowerPoint presentations, maps and other information documents, as well as a Cree-language summary, be prepared to facilitate public and Aboriginal consultation.

### **3.3 Canadian Environmental Assessment Registry**

In implementing the Act, the Government of Canada is committed to promoting public participation in the environmental assessment of projects and providing access to the information on which environmental assessments are based. In connection with this commitment, section 55 of the Act requires the responsible authority to maintain a public registry concerning every project for which an environmental assessment is carried out.

All documents prepared or submitted by the proponent or any other stakeholder in relation to the environmental assessment are included in the CEAR and made available to the public on request. Certain confidential or sensitive information that should be protected and not made public may be excluded from the CEAR. In such cases, the Agency, which is responsible for maintaining the CEAR, must be provided with arguments demonstrating a likely risk of harm.

Observations, comments and concerns expressed by the public following the consultation will be listed in the Canadian Environmental Assessment Registry (CEAR) and made available to the public on request. Personal information will be protected under the *Privacy Act*.

The CEAR website can be consulted at [www.ceaa-acee.gc.ca/050/index\\_e.cfm](http://www.ceaa-acee.gc.ca/050/index_e.cfm).

## **4 BENEFITS**

### **4.1 Economic and social benefits of the project**

Information on the predicted economic and social benefits of the project should be presented. This information will be considered by the Agency and technical and regulatory agencies in assessing the justifiability of any significant adverse environmental effects, if necessary.

## **4.2 Benefits of the environmental assessment process**

The proponent is invited to describe how the EA process for the proposed project provided a benefit to Canadians. Factors to be considered include:

- **Maximized environmental benefits:** what were the environmental benefits created as a result of the project going through the EA process?
- **Contribution of the EA to support sustainable development:** describe how the EA process for the project contributed to the concept of sustainable development for a healthy environment and economy;
- **Public Participation:** how did the public participation in the EA influence the project design and the environmental effects analysis?
- **Technological innovations:** were there any new technologies developed to address environmental impacts that could be used for other projects?
- **Increases in scientific knowledge:** describe any new scientific information collected through the EA that could benefit the assessment of other projects;
- **Community and social benefits:** describe any changes in project design that resulted in indirect benefits to communities and/or social benefits.

## 5 REFERENCES

### Migratory Birds Environmental Assessment Guideline

[www.ec.gc.ca/Publications/default.asp?lang=En&xml=890F4558-807A-4010-96A9-A3CC9CE34CC8](http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=890F4558-807A-4010-96A9-A3CC9CE34CC8)

### Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada

[www.ec.gc.ca/Publications/default.asp?lang=En&xml=5407909E-10F6-4AFE-ACDF-75B9E820B4A1](http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=5407909E-10F6-4AFE-ACDF-75B9E820B4A1)

### Guide for Impact Assessment on Birds

[www.ec.gc.ca/Publications/default.asp?lang=En&xml=EFDCD467-B236-44C8-AC02-3C817CF5CB04](http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=EFDCD467-B236-44C8-AC02-3C817CF5CB04)

### Environmental Assessment Guideline for Forest Habitat of Migratory Birds

[www.ec.gc.ca/Publications/default.asp?lang=En&xml=EE79D1F4-BBF9-4FBF-8278-B907877E9CA3](http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=EE79D1F4-BBF9-4FBF-8278-B907877E9CA3)

### Federal Policy on Wetland Conservation, Canadian Wildlife Service, 1991

[www.ec.gc.ca/Publications/default.asp?lang=En&xml=BBAAE735-EF0D-4F0B-87B7-768745600AE8](http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=BBAAE735-EF0D-4F0B-87B7-768745600AE8)

### Implementation Guide for Federal Land Managers: Federal Policy on Wetland Conservation / by Pauline Lynch-Stewart et al., Ottawa: Habitat Conservation Division, Canadian Wildlife Service, Environment Canada, 1996. v, 32 pp.: map; 28 cm

[www.ec.gc.ca/Publications/default.asp?lang=En&xml=6AD07CA9-1DDD-4201-ACCF-B18E41FCB350](http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=6AD07CA9-1DDD-4201-ACCF-B18E41FCB350)

### Wetlands Environmental Assessment Guideline. Environment Canada, Canadian Wildlife Service, 1998, by Robert Milko, 20 pp.

[www.ec.gc.ca/Publications/default.asp?lang=En&xml=0D3880BC-9519-4FF9-A294-DCAF9E54C8B2](http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=0D3880BC-9519-4FF9-A294-DCAF9E54C8B2)

### Canadian Environmental Assessment Agency, 2000. Using Ecological Standards, Guidelines and Objectives for Determining Significance – An Examination of Existing Information to Support Significance Decisions Involving Wetlands. Prepared by Lynch-Stewart & Associates for the Research and Development Monograph Series, Research supported by the Canadian Environmental Assessment Agency's Research and Development Program, 109 pp.

[www.ceaa.gc.ca/default.asp?lang=En&n=46DA6C97-1&offset=1&toc=show](http://www.ceaa.gc.ca/default.asp?lang=En&n=46DA6C97-1&offset=1&toc=show)

### Wetland Ecological Functions Assessment: An Overview of Approaches

[www.ec.gc.ca/Publications/default.asp?lang=En&xml=B8737F25-B456-40ED-97E8-DF73C70236A4](http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=B8737F25-B456-40ED-97E8-DF73C70236A4)

Barnthouse, L.W., W. R. Munns, Jr. and M. T. Sorensen. 2008. "Population-Level Ecological Risk Assessment". CRC Taylor and Francis, NY. Society of Environmental Toxicology and Chemistry

Canada. 2003. A Framework for the Application of Precaution in Science-Based Decision Making About Risk. Accessed January 15, 2009  
[www.pco-bcp.gc.ca/docs/information/publications/precaution/precaution-eng.pdf](http://www.pco-bcp.gc.ca/docs/information/publications/precaution/precaution-eng.pdf)

Canadian Environmental Assessment Agency. Operational Policy Statement. 2007. Addressing 'Need for', 'Purpose of', 'Alternatives to' and 'Alternative Means' under the *Canadian Environmental Assessment Act*

Canadian Environmental Assessment Agency. Operational Policy Statement. 2007. Addressing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act*

Canadian Environmental Assessment Agency. Procedural Guide. 2003. "Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners," prepared by the Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment

Canadian Environmental Assessment Agency, Reference Guide 1994: Addressing Cumulative Environmental Effects

Canadian Environmental Assessment Agency. Procedural Guide. 1999. "Cumulative Effects Assessment Practitioners Guide," Hegmann, G., C. Cocklin, R. Creasey, S. Dupuis, A. Kennedy, L. Kingsley, W. Ross, H. Spaling and D. Stalker. Prepared by the Cumulative Effects Assessment Working Group and AXYS Environmental Consulting Ltd.  
<http://dsp-psd.pwgsc.gc.ca/Collection/En106-44-1999E.pdf>

Indian and Northern Affairs Canada, 2011, Aboriginal Consultation and Accommodation – Updated Guidelines for Federal Officials to Fulfill the Legal Duty to Consult  
[www.ainc-inac.gc.ca/ai/arp/cnl/ca/intgui-eng.asp](http://www.ainc-inac.gc.ca/ai/arp/cnl/ca/intgui-eng.asp)



**Available databases on bird species:**

Atlas of the Breeding Birds of Southern Quebec (Gauthier and Aubry 1995)  
[www.quebecoiseaux.org](http://www.quebecoiseaux.org)

Étude des populations d'oiseaux du Québec (EPOQ)  
[www.quebecoiseaux.org](http://www.quebecoiseaux.org)

Suivi de l'occupation des stations de nidification des populations d'oiseaux en péril du Québec (SOS-POP)  
[www.quebecoiseaux.org](http://www.quebecoiseaux.org)

The Regroupement QuébecOiseaux (RQO) has or manages other bird databases that may be useful. More information on the databases is available on its website at [www.quebecoiseaux.org](http://www.quebecoiseaux.org) .  
4545 Pierre de Coubertin Avenue  
P.O. Box 1000, Stn. M  
Montreal QC H1V 3R2  
Telephone: 514-252-3190

BirdMap Canada  
[www.bsc-eoc.org/birdmap\\_e.htm](http://www.bsc-eoc.org/birdmap_e.htm)

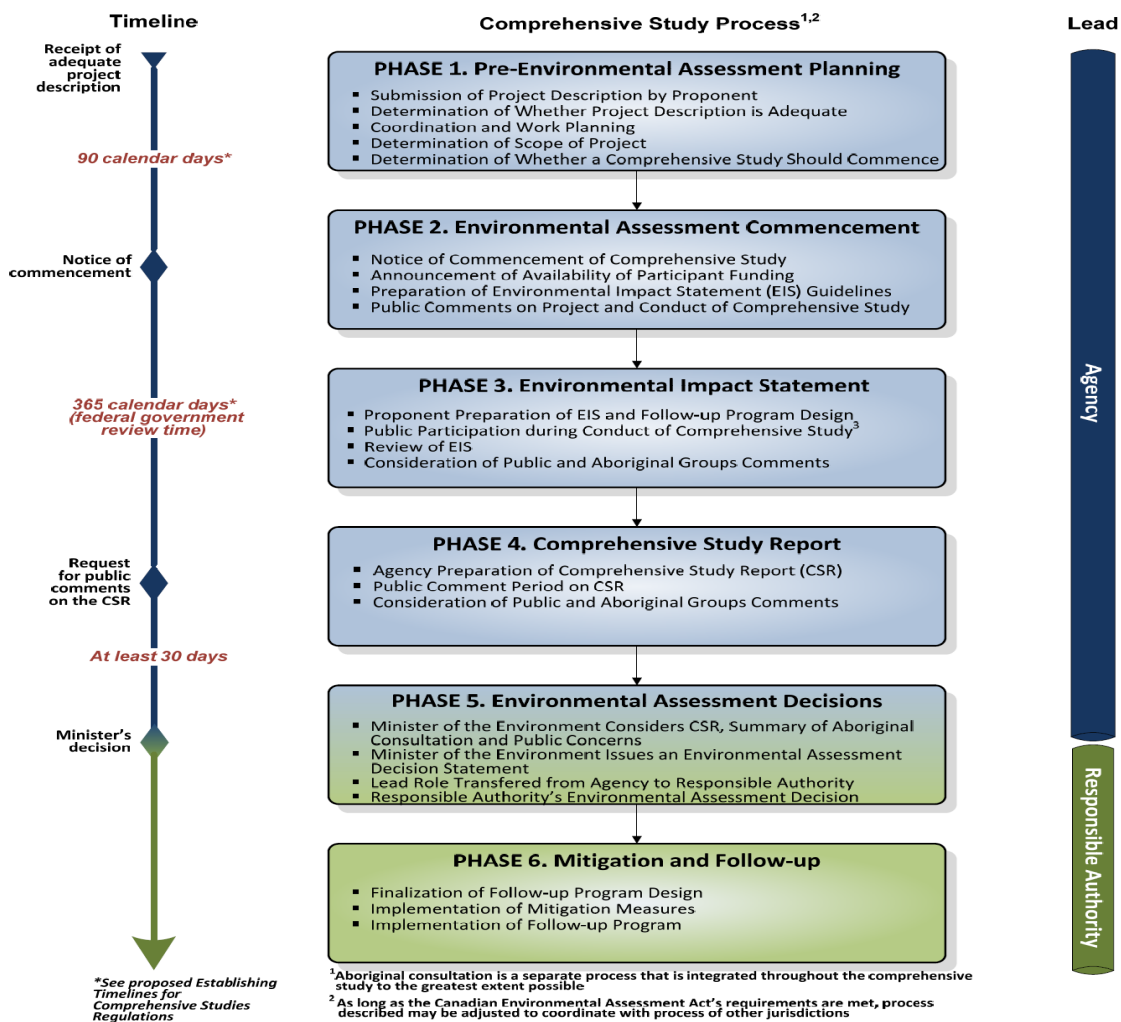
## 6 APPENDICES

### 6.1 Appendix 1: Comprehensive study process



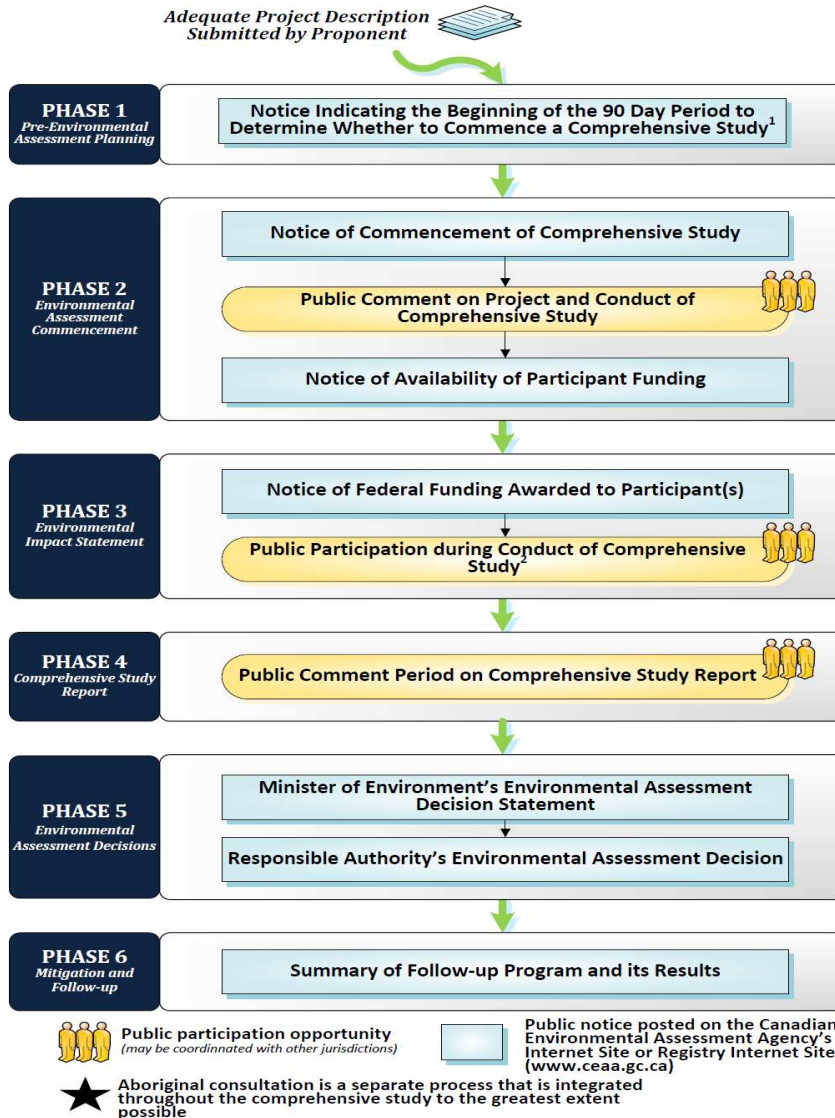
## COMPREHENSIVE STUDY PROCESS *at a glance*

For Comprehensive Studies conducted by the Canadian Environmental Assessment Agency



## PUBLIC NOTICES & PUBLIC PARTICIPATION OPPORTUNITIES

For Comprehensive Studies conducted by the Canadian Environmental Assessment Agency



<sup>1</sup>As proposed in the Establishing Timelines for Comprehensive Studies Regulations. Would be implemented when the Regulations come into force

<sup>2</sup>Timing and nature of this public participation opportunity can vary depending on the process

## **6.2 Appendix 2: Contacts**

The contact information for the federal assessment of this project is the following:

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## **6.3 Appendix 3: Concerns raised by Ouje-Bougoumou cri community**

### **1) Community Wellness**

#### a) Cultural and Health (spiritual, physical, emotional and psychological):

- Decrease of wildlife food and the affect on diet (diminution of wildlife food)
- The affect on the health of land users : psychological and spiritual because of the disturbance on the environment)
- Decreased transference of knowledge between generations (Impact on story telling: the mountain that will be affected by the project is part of stories)
- The affect on the spiritual connection of the tallymen to his land and psychological health (balance and healing)
- Loss of Traditional Knowledge (e.g. traditional medicine)
- Impact on values : Protection for the land (strong values and accepting this project will not enable the people to fulfill their promise to protect the land) and the sharing of traditional food
- Loss of heritage : The mountain is highly valued by the family (generational place to get food)
- Disturbance of traditional activities (fishing, trapping, hunting) on traplines O57 and O59 (tallymen live there all year long)
- Possible loss of archaeological sites
- Noise disturbance because of traffic (impact on sleep and rest for the tallymen and families)
- Decrease of traditional food supply (many members of the tallymen family are dependent on his harvesting)
- Impact on the food chain
- Loss of spiritual value of a place (mountain and trapline affected)
- Loss of scenic beauty (from the top of the mountain)Impact on tallymen neighborhood

b) Community Capacity:

- Impact on the desire to control the fish camps in the area (project in discussion since the late 1980's)
- Loss of control over development (Impact of Chibougamau new development (houses) on Cree traplines)
- Cumulative impacts on the Cree rights because of all development on Cree traplines (ATV trails, mine, Obalsky Park)
- Lack of knowledge concerning vanadium impacts on the Environment -Extraction Process

c) Land Use:

- Increase presence of poachers because of the access road
- Lessening of poaching control because of the access road
- Impact on traditional harvesting (loss of key habitat for big game – best moose area)
- Diminution of security for the children because of the access road
- Loss of security for the tallymen riding skidoos (due to accessibility increase)
- Impact on path portage
- Impacts on physical occupation (camp moving because of the road)
- Impacts on skidoo trails because of the traffic
- Increase access for cabin leases by non-natives
- Impact on the management site of special interest because of the permanent mining camp (25% Special Management) according to the Adapted Forestry Regime (Chapter 3 of the Paix des Braves)

d) Traditional Economy

- Impact on the sale of furs for the trappers

## 2) Water

### a) Surface Water and Watershed

- Watershed direction: impact on surface water + environment
- Location for the waste deposit : impact on water (which watershed will be affected)

### b) Water Use

- Decrease quality of spring water (drinking water for 2 camps could be affected )
- Increase tallymen dependency on water and decrease land use for harvesting (trapline O59 is already about 80% of water)

### c) Data

- Baseline data on water quality on Lake Armitage + Sediments +Biota (aquatic plants)
- Monitoring of impacts on water quality

### d) Water Quality

- Contamination by dust emission
- Impact on water quality at Chibougamau Armitage lakes (level of toxicity, vanadium, baseline information)
- Cumulative impacts on Chibougamau and Armitage lakes (vanadium + mine principal)

## 3) Fish

### a) Data

- Baseline data on different fish species on Lake Armitage (Five-mile lake) : Lake trout, Suckers, White fish, Pike)
- Baseline data on spawning areas near Lake Chibougamau and Lake Armitage (Fish spawning area on km17 of the road)
- Monitoring of impact on fish



b) Road and Watershed Impact

- Impact on fish restock (project of restocking on the Lake Chibougamau)
- Fish health and marine life
- Impact on spawning areas
- Cumulative impact on fish (mine principal)

**4) Wildlife**

a) Big Game (Moose and Bear)

- Noise disturbance because of traffic
- Noise disturbance because of blasting
- Loss of key habitat in winter (open pit on moose eating ground)

b) Fur Bearing Animals (Beaver, Otter, Muskrat)

- Noise disturbance because of traffic
- Noise disturbance because of blasting

c) Species at Risk (Caribou)

- Noise disturbance because of traffic
- Noise disturbance because of blasting
- Impact on Caribou behavior (migratory caribou was present last winter, used to be woodland caribou before, currently uncertain)

**5) Various**

a) Air Quality

- Increase dust from the road
- Increase dust emission when the mineral is transported by train

b) Infrastructure Alternatives

- Possibility of using only one location for processing of the ore for Cree inland communities, Chibougamau and Chapais
- Possibility of using the Cooperrand Mill instead of building a new mill

c) Public Consultation and Communication

- Importance of public consultation with all the community members
- Importance of communicating in lay terms, documentation in Cree, and using Cree mining terminology and concepts
- Importance in communicating with the Montagnais
- Importance in communicating with tallymen and the Band Council regarding land use issues

d) Cumulative Effects

- Importance to take into account that the environment is already modified/contaminated (Opemiska spill and mine principal)

e) Mitigation and Compensation Measures

- Cultural significance: erect a monument on the mountain
- Water quality: drinking water well
- Availability of funding