

# Appendix A

## Federal Scoping Report

Scoping Document for the Federal Screening of the  
**Kabinakagami River Hydroelectric Project**

Prepared by the  
Federal Environmental Assessment Team  
December 2, 2011

## 1.0 INTRODUCTION

### 1.1. PROJECT SUMMARY

Northland Power Inc. and Constance Lake First Nation (CLFN) are proposing to construct and operate four (4) run-of-river hydroelectric facilities on the Kabinakagami River, north of Highway 11, approximately 30 km west of Hearst, Ontario. This project summary is based on the information provided in the November 30, 2011 project description (*Project Description for Kabinakagami River Project*), prepared by Hatch on behalf of the proponents.

The four proposed sites include: Neeskah (Site 3); Peeshoo (Site 4); Wahpeestan (Site 5); and Wapoose (Site 6). Each site will consist of an earth-fill dam and a concrete overflow spillway (either 50 or 70 m long depending on the site), a powerhouse and intake and tailrace channels. Three of the four sites will also have low earthen wing dikes of varying total lengths. The dams will create head ponds upstream from each facility; the area of new inundation upstream of each site will be 7 ha, 6 ha, 43 ha and 21 ha, respectively. The proposed operational regime for each facility will be based on the natural flow regime of the Kabinakagami River; daily or seasonal peaking operations are not proposed.

The powerhouse at each site will be located on the west bank of the river and sized to contain two pit-type turbine generating units each with a 3.25-MW capacity. The total installed capacity at each site will be 6.5 MW and the total installed capacity for all four sites combined will be 26 MW. Switchyard equipment, including the transformer, will be placed on the roof of the powerhouses so that separate switchyards will not be required. The powerhouse facilities will be designed to be automatic and remotely operated however manual control will be available at the plants.

Access to the project sites will be from Highway 11 and Highway 663 along Rogers Road and Pelican Road to Neeskah (Site 3). Two approximately 300 m sections of new access road will be developed to tie the existing Pelican Road into the Neeskah (Site 3) and Peeshoo (Site 4) facilities. A new approximately 8 km long access road will be required to connect Pelican Road to the Wahpeestan (Site 5) and Wapoose (Site 6) sites. All permanent and temporary access will be from the west bank of the river only. Preliminary transmission routing will consist of a single 44-kV line from Wapoose (Site 6) south along the new access road to Neeskah (Site 3) and then through a new corridor (approximately 22 km) to the existing substation at the Calstock Power Plant.

Construction of the proposed facilities will take place between 2012 and 2014. The first units are scheduled to be on-line in December 2013 and the last in December 2014.

### 1.2. FEDERAL REGULATORY REQUIREMENTS

The *Navigable Waters Protection Act* (NWPA), administered by Transport Canada (TC), prohibits the construction or placement of any “works” in navigable waters without first obtaining approval. The proposed dam and related infrastructure at each of the four sites may cause a significant interference to navigation and therefore requires an approval under section 5(1)(2) of the NWPA. Each of the four proposed facilities will require individual NWPA applications. Any questions about the NWPA application process should be directed to the Navigable Waters Protection Program at 1-866-821-6631 or [NWPontario-PENontario@tc.gc.ca](mailto:NWPontario-PENontario@tc.gc.ca).

Fisheries and Oceans Canada (DFO) is responsible for the administration of the habitat protection provisions of the *Fisheries Act*. This Act prohibits the harmful alteration, disruption or destruction of fish habitat (Section 35), the destruction of fish by means other than fishing (Section 32), and requires sufficient flow of water over and below an obstruction for the safety of fish (Section 22). The dam itself will result in the destruction of fish habitat and without properly installed measures obstruction of safe upstream and downstream fish migration. Dam operation may also result in the alteration of flows and therefore has the potential to impact spawning, nursery and rearing fish habitats both upstream and downstream. As such, an authorization(s) under subsection 35(2) of the *Fisheries Act* will be required. Furthermore, the possible use of explosives and other construction-related impacts, as well as the ability of fish to enter turbines during operation, can potentially destroy fish by means other than fishing and therefore an authorization(s) under Section 32 of the *Fisheries Act* may be required.

Regarding the alteration of flows, it is a requirement of the *Fisheries Act* subsection 22(1) that sufficient flow of water be provided over the spillway or crest, with connecting sluices into the river below, to permit the safe and unimpeded descent of fish. It is also a requirement under subsection 22(3) that water be permitted to escape into the river-bed below the dam for the safety of fish and the flooding of spawning grounds to such depth as necessary for the safety of ova deposited thereon. In addition, Section 20 addresses obstructions and requires, where necessary, that a fish-pass be provided and maintained by the owner of the obstruction, to permit the free passage of fish through it.

### **1.3. CANADIAN ENVIRONMENTAL ASSESSMENT ACT**

The *Canadian Environmental Assessment Act* (CEAA) applies when federal authorities contemplate certain actions or decisions in relation to a project that would enable the project to proceed in whole or in part. An environmental assessment (EA) pursuant to CEAA may be required when a federal authority:

- a. is the proponent of a project;
- b. provides financial assistance to the proponent;
- c. sells, leases or otherwise disposes of federal lands; or
- d. issues a permit, license or any other approval as prescribed in the *Law List Regulation*

The aforementioned regulatory approvals under the NWPA and *Fisheries Act* are *Law List Regulation* triggers under section 5(1)(d) of CEAA. TC and DFO have confirmed that they will require a screening-level EA to be completed for the project.

The federal review team (FRT) for the Kabinakagami River Hydroelectric Project is as follows:

Responsible Authorities (RAs)

*Federal authorities requiring an EA of the project*

- Transport Canada
- Fisheries and Oceans Canada

Expert Federal Authorities (FAs)

*Federal authorities in possession of specialist or expert information that may assist in the EA*

- Environment Canada
- Health Canada
- Natural Resources Canada

Federal Environmental Assessment Coordinator (FEAC)

*Responsible for coordinating review activities of RAs and FAs in accordance with Section 12 of CEAA*

- Canadian Environmental Assessment Agency (the Agency)

Contact information for the FRT is provided in Appendix A.

As detailed under subsection 14 of CEAA, the screening-level EA process includes completion of a screening study, preparation of a screening report and, where applicable, the design and implementation of a follow-up program. **Based on authority provided to RAs in subsection 17(1) of CEAA, the RAs for the Kabinakagami River Hydroelectric Project are delegating the responsibility of preparing the screening report, including completing all necessary technical studies required to support the report, to the proponents and/or their qualified consultant(s).**

In order to complete the CEAA process, the EA screening report must be submitted for review and approval by the RAs. The screening report must contain enough information to be clear and understandable as a stand-alone document and which will constitute the basis for the RAs' decision under section 20 of CEAA. The proponent is requested to submit the screening report and all supporting technical studies to the Agency in its capacity as FEAC. The Agency will distribute the screening report and supporting documentation to the FRT for review and comment. Based on content received, the RAs may request revisions to the screening report. Once the screening report is complete to the satisfaction of the RAs, the RAs will use the information contained in the screening report to make a determination on the significance of environmental effects.

## **1.4. FEDERAL/PROVINCIAL COORDINATION**

The Kabinakagami River Hydroelectric Project proposal is also subject to an environmental screening process in accordance with the Ontario Waterpower Association Class Environmental Assessment (Class EA) for Waterpower Projects as well as the Ministry of Natural Resources Class EA for Resource Stewardship and Facility Development Projects. As such, in accordance with the *Canada-Ontario Agreement on Environmental Assessment Coordination (November 2004)*, the proponent should aim towards preparing a single EA screening report that meets both federal and provincial EA requirements.

The proponent should ensure that they understand the differences between the provincial and federal EA processes, and should ensure that all CEAA requirements are fulfilled prior to releasing the screening report for final review as part of the provincial EA process. Should the proponent decide to proceed to the Notice of Completion stage of the provincial EA process prior to satisfying CEAA requirements, it could result in significant delays to the federal EA process. Questions regarding the coordination of the federal and provincial processes should be directed to the Agency.

## **2.0 SCOPE OF ASSESSMENT**

When an EA is triggered under CEAA, RAs are required to establish the scope of project and scope of factors to be taken into consideration pursuant to sections 15 and 16 of CEAA. Scoping establishes the boundaries of an EA and focuses the assessment on relevant issues and concerns.

The RAs have prepared this Scoping Document to provide direction to the proponent on the issues that must be addressed in the screening report and prior to completion of the EA. Please note, however, that information contained in this document does not limit RAs from requesting additional information or details as they see fit.

If the proposed project description, as described in Section 1.1 above and as detailed in the November 30, 2011 2011 document, is refined at any time during the EA process, updated information must be provided to the FRT as it becomes available and prior to the RAs making a s.20 CEAA determination. Changes to the project description could result in changes to the scope of assessment and changes to the guidance provided in this document. In order to prevent unnecessary delays, it is imperative that the proponents advise the FRT of any changes to the project description as soon as possible.

### **2.1. SCOPE OF PROJECT**

In accordance with section 15(1) of CEAA, the scope of project for the proposed Kabinakagami River Hydroelectric Project has been identified as: *all physical works and activities associated with the construction and operation of the four proposed hydroelectric generating facilities on the Kabinakagami River, including dams, overflow weirs, powerhouses and associated intakes and tailraces, associated storage sites, working areas, new transmission lines and associated structures, new and upgraded access roads and any other works or undertakings directly associated with the four hydroelectric facilities, including those that are temporary.*

The RAs have not included “decommissioning” of the new developments as part of the scope of the project since the proponent is not proposing any decommissioning works at this time. Notwithstanding, the proponent should briefly describe the anticipated life span and expected decommissioning requirements for each facility (e.g. if and when decommissioning is required, such works may be subject to an EA as per regulations current to that time, etc.) within the screening report.

The screening report must provide a complete description of all proposed project components, and the associated physical works and activities, with an approximate schedule (timing, frequency, duration). The report must also clearly state who is responsible for the ownership, construction and operation of each work or activity. The level of detail should be appropriate to the scale and complexity of the project and to the sensitivity of its location. Reference maps and/or site plans should be attached to indicate the project location and/or its key features.

## **2.2. SCOPE OF FACTORS**

CEAA defines “*environment*” as the components of the Earth, including:

- a) land, water and air, including all layers of the atmosphere;
- b) all organic and inorganic matter and living organisms; and
- c) the interacting natural systems that include components referred to in paragraphs (a) and (b).

In respect of a project pursuant to CEAA "environmental effect" means:

- a) 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*,
- b) any effect of any such change referred to in paragraph (a) on
  - i. human health and socio-economic conditions,
  - ii. physical and cultural heritage,
  - iii. the current use of lands and resources for traditional purposes by aboriginal persons, or
  - iv. any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, or
- c) any change to the project that may be caused by the environment.

Section 16 (1) of CEAA requires the following factors be considered in a screening-level EA:

- a) 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;
- b) the significance of the effects referred to in paragraph (a);
- c) comments from the public that are received in accordance with the Act and the regulations;
- d) measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project; and
- e) any other matter relevant to the screening that the responsible authority may require be considered.

In accordance with section 16(3) of CEAA, sections 2.2.1 – 2.2.10 of this Scoping Document outline the scope of factors that will be taken into consideration pursuant to CEAA section 16(1) requirements. Consistent with the overall scoping guidance provided in this document, the RAs may revise the scope of factors and/or identify additional factors as the EA progresses.

### **2.2.1. Spatial and Temporal Boundaries**

The spatial boundaries of the EA are the geographical area within which an environmental component is likely to be affected by the project during construction and/or the operational phases (i.e. zone of influence). The temporal boundaries of the EA are the timeframe over which an environmental component could be impacted by the project.

In determining the spatial boundaries, the following should be considered:

- i. the proposed locations of all project components and related activities;
- ii. the local study area plus the adjacent area within which direct and indirect environmental effects can be anticipated;
- iii. the regional study area within which broader scale indirect effects can be anticipated or cumulative effects may be measurable.

### **2.2.2. Environmental Components**

Potential interactions between project components and environmental components must be identified and considered as part of the screening. The scope of factors to be considered in the assessment should include, but may not necessarily be limited to, potential effects (including cumulative effects) on the following environmental components:

- surface geology and soils
- surface water quality and quantity
- ground water quality and quantity
- air quality and climate change
- fish and fish habitat
- vegetation and wetlands
- wildlife and wildlife habitat – including migratory birds
- species at risk – including those species listed under the *Species at Risk Act*

In keeping with the definition of “environmental effect” as defined by CEAA, the scope of factors to be considered should also include the effect of any change that the project may cause in the environment on:

- human health and socio-economic conditions, including effects to navigation
- physical and cultural heritage
- the current use of lands and resources for traditional purposes by Aboriginal persons
- any structure, site or thing that is of historical, archaeological, paleontological or architectural significance

Appendix B provides additional information regarding environmental components and how they should be addressed for this project. For each environmental component that has the potential to interact with the project, a description of the existing conditions must be provided in the screening report. Special consideration should be given to the level of detail required for each environmental component. The level of detail should be appropriate to the scale and complexity of the project and to the sensitivity of its location.

It is important to note that a sufficient level of baseline information must be gathered in order to inform the screening process and to allow RAs to make a s.20 CEAA decision. Studies and consultations that may be required to establish baseline conditions must be sufficiently completed prior to finalizing the screening report.

### **2.2.3. Environmental Effects**

The definition of environmental effect according to CEAA is provided in section 2.2 above, and a listing of “Environmental Components to be Assessed” is included in Appendix B. The environmental components considered in the CEAA screening should include, but not necessarily be limited to, those identified in Appendix B. For each environmental component identified as having the potential to interact with project components, the screening report must analyze and describe the likely and potential environmental effects, including cumulative effects and the effects of accidents and malfunctions. A sufficient level of baseline information will be required in order to complete this analysis.

Likely and potential environmental effects should be considered and described using the following criteria in order to facilitate significance determinations: magnitude, geographic extent, duration, frequency of occurrence, permanence or reversibility of the effects, and ecological context. Potential effects must be identified for all project phases that were identified under Section 2.1 [Scope of Project] above. Spatial and temporal boundaries of effects should be identified to the extent possible for use in the cumulative effects assessment.

### **2.2.4. Accidents and Malfunctions**

The screening report should identify any accidents and malfunctions that may occur in connection with the project. This should include the assessment of potential environmental effects associated with accidental spills (e.g. fuel, oils, hydraulic fluids, etc.), debris clogging or icing up of flow control gates or outlet structures, dam failure, etc., as well as other accidents and malfunctions that could be expected to occur, such as power failures

and pump failures. Emphasis should be placed on accidents and malfunctions that are reasonably plausible. The effects of accidents and malfunctions on each environmental component should be considered as well as the contribution to cumulative effects.

### **2.2.5. Effects of the Environment on the Project**

The screening should assess the environmental effects of geological, climatic and other natural phenomena on the project, including effects associated with:

- extreme drought, flooding, or rainfall, including that associated with climate change, and any associated geophysical effects (e.g. increased erosion potential, changes to bank stability in reservoir areas, abnormally elevated/depressed groundwater levels, etc.); and,
- other extreme events (e.g. ice storms, river ice formation and jamming, forest fires, tornados or earthquakes, etc.).

The proponent must demonstrate that the project design is sufficiently robust to accommodate any expected changes in extreme flows, precipitation and temperature without potential failure. Emphasis should be on environmental conditions that are reasonably plausible, but should not be limited to events that occur on a regular basis.

### **2.2.6. Mitigation Measures**

For each potential adverse environmental effect, including cumulative effects (see Section 2.2.7 below), technically and economically feasible mitigation measures must be identified. The screening report must predict the effectiveness of those mitigation measures and identify any residual effects that may persist after implementation. The screening report should identify compensation measures designed to offset any loss of fish habitat, including a monitoring program to evaluate the success of those measures.

Where mitigation cannot be fully described until the detailed design stage, the principles and criteria upon which such mitigation will be developed should be provided. The screening report must clearly state who is responsible for implementing each mitigation measure proposed.

### **2.2.7. Cumulative Effects**

A cumulative effects assessment must be completed as part of the screening. The cumulative effects assessment must consider potential residual environmental effects of the proposed project that have the potential to overlap in time and space with residual environmental effects of other past, present and future<sup>1</sup> projects or activities.

All potential residual environmental effects must be included in the cumulative effects assessment (i.e. residual effects do not need to be significant on their own to be considered). In conducting the analysis, consideration should be given to the length of time over which the residual environmental effects occur, not just the period of time during which the project will be constructed/operated.

### **2.2.8. Significance of Effects**

CEAA requires that RAs determine whether the project is likely to cause significant adverse environmental effects, including those associated with cumulative effects. Only environmental effects that are both likely and adverse must be considered in determining significance. Conclusions reached in this regard must be systematically documented in the screening report.

While the final determination of significance rests with RAs, the information provided by the proponent in the screening report will be used to help make this decision. The screening report must make conclusions on the

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<sup>1</sup> Reasonably foreseeable future projects or activities should be considered. "Reasonably foreseeable" is defined as having already been proposed, approved, or advancing through the regulatory approvals process.

likely significance of adverse environmental effects associated with the project. Conclusions must be clearly supported by and traceable from the description of the existing environment, the description of project activities, the potential project-environment interactions (environmental effects) and the predicted effectiveness of mitigation measures to be applied.

The prediction of significance should be based on such factors as: magnitude, geographic extent, duration, permanence/reversibility, and ecological context. When drawing conclusions about the significance of impacts, reference should be made to applicable federal or provincial guidelines.

### **2.2.9. Aboriginal and Public Comments**

The screening report must clearly describe any public and Aboriginal consultation that was completed related to the proposed project. Concerns raised with respect to the proposal, including any impacts to current use of lands and resources for traditional purposes by aboriginal peoples, must be identified. Actions taken by the proponent to address concerns raised must be discussed in detail. Further direction regarding Aboriginal consultation requirements will be detailed to the proponents under separate letter.

Should it be determined at any stage during the screening that additional public participation is required that has not been adequately addressed through public consultation periods conducted by the proponent (voluntary or as part of any other process), the RAs may initiate a formal public participation process according to section 18(3) of CEAA.

### **2.2.10. Monitoring and Follow-up**

Pursuant to section 38(1) of CEAA, consideration must be given to the need for a follow-up program. The purpose of a follow-up program is to confirm predictions made during the assessment and to ensure the effectiveness of mitigation measures considered. The RAs will not be in a position to consider the need for a follow-up program until it has examined the proponent's draft screening report. In the event that an adaptive management approach is proposed as a component of mitigation to address unresolved concerns, the need for implementing a follow-up program should be identified by the proponent in consultation with the RAs. Nevertheless, the requirement for a follow-up program will be determined as the screening proceeds.

Regardless of the requirement to complete a follow-up program pursuant to section 38(1) of CEAA, the screening should address the need for a monitoring program to ensure compliance with identified mitigation measures. In order to ensure effective implementation of the mitigation measures identified in the screening report, plans and procedures proposed for quality control and assurance should be described, including technical specifications for mitigation works, inspection activities during construction and operation; and, procedures for resolving issues and addressing unforeseen effects that may arise during construction or operation. These plans and procedures should also include, but not be limited to, environmental protection plans, emergency/contingency plans, construction environmental specifications, construction special provisions, operational maintenance plans, etc.

## APPENDIX A – FEDERAL REVIEW TEAM CONTACT INFORMATION

Agency	Contact Information
Canadian Environmental Assessment Agency	Stephanie Davis, Environmental Assessment Analyst M: 55 St. Clair Avenue East, Suite 907 Toronto, ON M4T 1M2 P: 416.954.7334 E: <a href="mailto:stephanie.davis@ceaa-acee.gc.ca">stephanie.davis@ceaa-acee.gc.ca</a>
Transport Canada	Lisa McDonald, Environmental Officer M: 4900 Yonge Street, 4 <sup>th</sup> Floor (PHE) North York, ON M2N 6A5 P: 416.952.0475 E: <a href="mailto:lisa.mcdonald@tc.gc.ca">lisa.mcdonald@tc.gc.ca</a>
Fisheries and Oceans Canada	Alan Rowlinson, Habitat Biologist M: 1219 Queen Street East Sault Ste Marie, ON P6A 2E5 P: 705.941.2010 E: <a href="mailto:alan.rowlinson@dfo-mpo.gc.ca">alan.rowlinson@dfo-mpo.gc.ca</a>
Environment Canada	Sheryl Lusk, Environmental Assessment Officer M: 4905 Dufferin Street Toronto, ON M3H 5T4 P: 416.739.5962 E: <a href="mailto:sheryl.lusk@ec.gc.ca">sheryl.lusk@ec.gc.ca</a>
Health Canada	Kitty Ma, Regional Environmental Assessment Coordinator M: 180 Queen Street West, 10th Floor Toronto, Ontario M5V 3L7 P: 416.954.2206 E: <a href="mailto:kitty.ma@hc-sc.gc.ca">kitty.ma@hc-sc.gc.ca</a>
Natural Resources Canada	Angela Donato, Environmental Assessment Officer M: 580 Booth Street, 3 <sup>rd</sup> Floor, Room A7-4 Ottawa, ON K1A 0E4 P: 613.947.5861 E: <a href="mailto:angela.donato@nrcan-rncan.gc.ca">angela.donato@nrcan-rncan.gc.ca</a>

## APPENDIX B - ENVIRONMENTAL COMPONENTS TO BE ASSESSED

### Surface Geology and Soils

The screening report should describe surface geology and soils in the study area, and should identify any impacts the project may have on the following factors:

- terrain and topography (e.g. excavation and fill requirements, excess/waste rock/soil transportation and disposal, proposed temporary and permanent disposal sites, site restoration, etc.)
- soil quality, including contaminated sites and spills
- sedimentation, soil erosion, shoreline or riverbank erosion processes, hazard lands or unstable lands subject to erosion
- soil types and potential for acid rock drainage (ARD) and metal leaching (ML)

If and where the project will involve the confinement, removal or remediation of contaminated soils or sediments, information on the containment, disposal or treatment method, including the potential environmental effects and risks associated with the method, should be provided.

### Surface Water Quality and Quantity

The screening report should identify the name, location and characteristics of any water bodies in the project area, and should describe the potential impact of the project on these watercourses, including impacts associated with:

- potable water uses
- recreational water uses
- head pond creation and subsequent flooding of both river and lake environments<sup>2</sup>
- predicted changes to normal/extreme water levels, flows and movement
- predicted changes to the normal/extreme thermal/ice regime
- installation, modification or removal of watercourse crossing structures, if any
- accidental spills, erosion and sedimentation, concreting works<sup>3</sup> and repairs<sup>4</sup>, locally generated contaminants entering waterbodies (for example fugitive dust, engine emissions, smoke, ash), etc.
- siting and management of temporary and permanent waste rock/soil disposal areas and management of excess materials from excavations
- acid rock drainage (ARD) from exposed and/or excavated bedrock (identified as having a net acid generating potential), including specific management/disposal options of any materials having a potential for ARD
- methyl mercury generated in created head pond reservoirs<sup>5</sup>

The analysis should describe potential effects on the water quality and quantity of receiving water bodies during both the construction and operation phases. The screening report should also indicate whether any of these watercourses are navigable, and confirmation must be provided regarding the need for any *Navigable Waters Protection Act* approvals.

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<sup>2</sup> A head pond would be created by raising water levels upstream of the proposed dam, possibly flooding shorelines and increasing the normal depth of the river, potentially impacting existing aquatic and shoreline ecosystems. Any existing near shore wetlands and adjacent terrestrial habitat affected by water level changes are potentially impacted.

<sup>3</sup> Best practices pertinent to concreting near or in waterbodies should be adopted. When setting water quality targets, please refer to an applicable standards set by Ontario's Provincial Water Quality Objectives (PWQOs) and the CCME's Canadian Water Quality Objectives regarding TSS, turbidity and pH.

<sup>4</sup> Operation and maintenance phase only

<sup>5</sup> Methyl mercury formation depends on a number of factors, but is primarily related to the change in headpond water level and volume, amount of organic material present on/in flooded soils, oxygen levels and temperature. The proponent should fully characterize mercury levels in sediments, the water column (low level analysis), and fish tissue; and, evaluate potential changes in mercury levels due to the project and proposed mitigation and monitoring.

## Hydrogeology, Ground Water Quality and Quantity

The screening report should provide a description of groundwater resources in the study area (including the depth of the water table), and should indicate whether groundwater in the area is currently being used as a source of potable water. The report should identify potential impacts of the project during construction and operation phases on groundwater quality and quantity, including impacts associated with:

- potable water uses
- accidental spills and other project effluents
- acid rock drainage and methyl mercury formation
- changes to normal/extreme groundwater levels, flux and movement
- changes to normal infiltration/recharge and seepage/upwelling zones
- fluctuating water levels on groundwater elevation and resultant impacts on surrounding areas, including any potential for contaminant migration

## Air Quality and Climate

The screening report should provide a description of air quality in the vicinity of the project, and should indicate the potential impact of the project on air quality. The discussion of potential effects should address the local and regional impacts associated with the construction and operation phases, such as:

- emissions of toxic substances including engine exhaust emissions
- dust and smoke emissions
- greenhouse gas emissions
- contributions to formation of local and regional smog, fog, thermal effects, icing and micro climate

The assessment of air quality effects should consider potential adverse impacts on sensitive local receptors.

## Fish and Fish Habitat

In conjunction with the section on surface water, the screening report should indicate the presence of fish and fish habitat in the study area, and should identify any impacts the project may have, including impacts associated with:

- aquatic species at risk listed under the federal *Species at Risk Act* (SARA)
- changes in surface water, groundwater and surface geology and soils (see above components) that could result in effects to fish and/or fish habitat (including uptake of mercury in fish and effects on humans consuming these resources)
- barriers to safe upstream and downstream fish passage
- fish injury or mortality associated with blasting, impingement, entrainment, etc.

When drawing conclusion about the significance of impacts, consideration should be given to DFO's *Policy for the Management of Fish Habitat* (1986).

## Vegetation and Wetlands

The screening report should provide a description of vegetation communities and wetlands in the study area, including any designations of importance (e.g. Environmentally Significant Areas, Areas of Natural and Scientific Interest, Provincial or locally significant wetlands, etc.). The screening report should identify any impacts the project may have on vegetation and wetlands during construction and operation phases, including impacts associated with:

- removal of vegetation

- noxious weed and vegetation control (e.g. chemical spray, mechanical)
- infilling, flooding, or de-watering of vegetation/wetland communities
- changes to wetland ecosystem and function, including changes to hydrology and hydrogeology due to head pond creation and modifications to surface drainage patterns
- effects on soils, terrestrial vegetation and wetlands due to disposal of waste rock/soils (and viability of site rehabilitation), including any effects of acid rock drainage
- plant species at risk listed under SARA

The ecological functions of any vegetation and wetland communities and wetland hydrology potentially impacted by the project should be described, and potential impacts on those functions should be noted. The screening report should indicate whether the project is located within an area where wetland loss has reached critical levels.

### Wildlife and Wildlife Habitat (including Migratory Birds)

In conjunction with the section on vegetation and wetlands, the screening report should provide a description of wildlife species and their habitat that are present in the study area at any time during their life cycle, including species that may only use the study area on a seasonal basis. The proponent must be sure to consider potential impacts of the project on migratory birds. The screening report should identify any impacts the project may have on wildlife communities or their habitats during construction and operation phases, including:

- species diversity, abundance and movement
- terrestrial species at risk listed under SARA (including those species observed in the zone of influence of the project and those species with habitats ranging into the project area)
- wildlife habitat abundance, availability, diversity and function (e.g. corridors, breeding, staging and foraging areas), including seasonal uses and specialized habitats used by species at risk

### Species at Risk

When a federal EA is carried out on a project that may affect a listed species or its critical habitat, SARA requires that adverse environmental effects be identified, mitigation measures be taken to avoid or lessen adverse effects, and environmental effects monitoring be conducted.

In conjunction with the sections on vegetation, wildlife and fish, the screening report should indicate any federally and/or provincially listed species at risk that are known to or may be expected to use the site or adjacent lands due to the presence of suitable habitat. This includes those species listed under the SARA. At a minimum, the Natural Heritage Information Centre database maintained by the Ontario Ministry of Natural Resources in Peterborough should be consulted for known occurrences of species at risk in the area. Environment Canada - Canadian Wildlife Service<sup>6</sup> should also be consulted to determine if occurrences or ranges of any endangered, threatened, and special concern species overlap with the project's zone of influence.

If there is potential for species at risk to occur at a project site (i.e. previous known occurrence, species range overlap and/or known habitat preference exists), a qualified biologist should conduct a thorough biological inventory of all areas of natural habitat that may be affected by the project and have the potential to support species at risk. The screening report should indicate whether the project activities may have an adverse effect on any species at risk, and also include a substantiated professional opinion on the likelihood of the occurrence of such effects. A strategy should be developed to protect any identified species at risk, with a primary focus on avoidance, and a monitoring program developed in consultation with Environment Canada – Canadian Wildlife Service should be described.

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<sup>6</sup> Species currently listed under SARA can be found at the following web sites: [http://www.sararegistry.gc.ca/default\\_e.cfm](http://www.sararegistry.gc.ca/default_e.cfm) and [http://www.sararegistry.gc.ca/species/default\\_e.cfm](http://www.sararegistry.gc.ca/species/default_e.cfm)

## Environmental Changes Resulting in Effects on Other Environmental Components

The screening report should identify and address the effect of any change the project may cause in the environment on:

- Human health and socio-economic conditions<sup>7</sup> – including impacts to navigation, noise and vibrations, drinking and recreational water quality and quantity, country foods (including those harvested by hunting, trapping, fishing, gathering or small-scale farming), air quality, recreation, cottaging and tourism, game and fishery resources, electric and magnetic fields emitted by transmission lines, property flooding/flood risk to residential structures physical and cultural heritage
- the current use of lands and resources for traditional purposes by Aboriginal persons<sup>8</sup>
- any structure site or thing that is of historical, archaeological, paleontological or architectural significance

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<sup>7</sup> For more information on how to assess noise and vibrations, drinking water quality, country foods, air quality and electric and magnetic fields emitted by transmission lines, please refer to Health Canada's *Useful Information for Environmental Assessment*. This document can be obtained from: [http://www.hc-sc.gc.ca/ewh-semt/pubs/eval/environ\\_assess-eval/index-eng.php](http://www.hc-sc.gc.ca/ewh-semt/pubs/eval/environ_assess-eval/index-eng.php)

<sup>8</sup> Consultation with potentially affected Aboriginal persons should be completed in order to gain an understanding of current use of lands and resources used for traditional purposes.