Government of Canada Gouvernement du Canada

Newfoundland Labrador

DRAFT

ENVIRONMENTAL IMPACT STATEMENT GUIDELINES

Lower Churchill

Hydroelectric Generation Project

Newfoundland and Labrador Hydro

Issued by the Government of Canada and
the Government of Newfoundland and Labrador

December 2007

PREFACE

On November 30, 2006, Newfoundland and Labrador Hydro (the Proponent) submitted a project registration/project description for the Lower Churchill Hydroelectric Generation Project (the Project), in Labrador. The proposal is to develop hydroelectric generating facilities with interconnecting transmission lines on the lower section of the Churchill River. Generation facilities with a combined capacity of approximately 2,800 MW are proposed at Gull Island and Muskrat Falls which are approximately 100 km and 30 km southwest of Happy Valley-Goose Bay, respectively. Interconnecting transmission lines are proposed between these generating sites and Churchill Falls.

On January 26, 2007, the Proponent was advised by the Minister of Environment and Conservation that an Environmental Impact Statement (EIS) is required for the Project under the Newfoundland and Labrador *Environmental Protection Act* (EPA). The Project is also subject to the *Canadian Environmental Assessment Act* (CEAA). On June 5, 2007 the Honourable John Baird, Minister of the Environment, announced that the Project will undergo a federal environmental assessment by an independent review panel.

Canada and Newfoundland and Labrador are discussing the possibility of a joint environmental assessment to ensure that the respective requirements of the EPA and the CEAA that apply to the Project are met in an effective and timely manner. As a first step toward that objective, the two governments have agreed that a single set of EIS guidelines is the most efficient and effective way to guide the Proponent in preparing an environmental assessment that will provide the type and quality of information and conclusions on environmental effects required to satisfy their respective legislative requirements.

These Guidelines are intended to assist the Proponent in its preparation of the EIS. The purpose of the EIS is to identify the important environmental effects associated with the Project, to identify measures that are required to mitigate against any adverse effects and determine the significance of residual environmental effects.

The EIS is expected to contain a review of all available pertinent information as well as such additional new information or data as provided by the Proponent or requested by Canada or Newfoundland and Labrador. Component Studies shall address baseline data requirements to support the evaluation of environmental effects and/or develop mitigation measures as well as monitoring and follow up programs. The Guidelines include the information required under Section 57 of the EPA, and the information necessary to address the factors set out in subsections 16(1) and 16(2) of the CEAA, both of which are included in **Appendix A**. As more specific information is provided and as additional baseline information is gathered, Canada and/or Newfoundland and Labrador may require other concerns and potential effects to be considered by the Proponent.

The EIS will be used by both governments in fulfilling their respective environmental assessment decision-making processes and will inform subsequent public hearing and regulatory processes for the Project. Following a comment period, these draft Guidelines will be amended accordingly and issued to the Proponent by the federal Minister of the Environment and the Newfoundland and Labrador Minister of Environment and Conservation.

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SECTION 1 - BACKGROUND

Purpose of the Guidelines

The purpose of this document is to identify for the Proponent, Newfoundland and Labrador Hydro, and interested parties, the nature, scope and extent of the information and analysis required in the preparation of the EIS. The Proponent will prepare and submit an EIS that examines the potential environmental effects of the construction, operation, reclamation, decommissioning and abandonment of the Project, identifies mitigation measures and evaluates the significance of residual effects. Section 4 of these Guidelines outlines in detail the content of the EIS to be prepared.

Proposed Project

The Proponent proposes a project consisting of hydroelectric generating facilities at Gull Island and Muskrat Falls, and interconnecting transmission lines to the existing Labrador grid. The Proposed Project includes:

The Gull Island facility consisting of a generating station with a capacity of approximately 2,000 MW that includes:

- a dam 99 m high and 1,315 m long: and
- a reservoir 200 km² in area at an assumed full supply level of 125 m asl.

The dam is to be a central till-cored, rock-fill, zone embankment. The reservoir is to be 225 km long, and the area of inundated land is to be 85 km² at full supply level. The powerhouse is to contain four to six Francis turbines.

The Muskrat Falls facility consisting of a generating station with a capacity of approximately 800 MW that includes:

- a concrete dam with two sections on the north and south abutments of the river, and
- a 107 km² reservoir at an assumed full supply level of 39 m asl.

The north section dam is to be 32 m high and 180 m long, while the south section is to be 29 m high and 370 m long. The reservoir is to be 60 km long and the area of inundated land is to be 36 km² at full supply level. The powerhouse is to contain four to five propeller or Kaplan turbines, or a combination of both.

Interconnecting transmission lines consisting of:

- a 735 kV transmission line between Gull Island and Churchill Falls; and,
- two 230 kV transmission lines between Muskrat Falls and Gull Island.

The 735 kV transmission line is to be 203 km long and the 230 kV transmission lines are to be 60 km long. Both lines will likely be lattice-type steel structures. The location of the transmission lines is to be north of the Churchill River; the final route is the subject of a route selection study that will be discussed in the environmental assessment. The lines between Muskrat Falls and Gull Island may be on separate towers, or combined on double-circuit structures.

Environmental Assessment Process

Under section 5 of the *CEAA*, an environmental assessment is required for this Project because Fisheries and Oceans Canada may issue a permit or license under subsection 35(2) of the *Fisheries Act* and Transport Canada may issue an approval under paragraph 5(1)(a) of the *Navigable Waters Protection Act*. Because of these regulatory roles, Fisheries and

Oceans Canada and Transport Canada are responsible authorities for the environmental assessment.

The responsible authorities recommended that the Minister of the Environment refer the Project for assessment by review panel. They are of the opinion that the Project is likely to cause significant adverse environmental effects over a large area and to a number of Valued Ecosystem Components (VECs). The Minister accepted this recommendation and has referred the Project to review panel.

This Project is also being assessed by the Government of Newfoundland and Labrador under Part X of the EPA, pursuant to Section 34(1)(a) and 34(1)(d) of the *Environmental Assessment Regulations*.

Newfoundland and Labrador and Canada are discussing the possibility of a joint environmental assessment to ensure that the respective requirements of the EPA and the CEAA that apply to the Project are met in an effective and timely manner.

Review and Comment on the Draft Guidelines

The draft EIS Guidelines are available for review and comment until January 28, 2008. During this period, any interested party may submit written comments to:

Maryse Pineau
Panel Manager
Canadian Environmental Assessment Agency
160 Elgin Street, 22nd Floor, Place Bell Canada
Ottawa, ON K1A 0H3
Telephone: (613) 948-1364
Fax: (613) 957-0941
E-mail: maryse.pineau@ceaa-acee.gc.ca

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Chairperson
Environmental Assessment Division
Department of Environment and Conservation
4th Floor, West Block, Confederation Complex
P.O. Box 8700, St. John's, NL A1B 4J6
Telephone: (709) 729-0188
Fax: (709) 729-5518
E-mail: pcarter@gov.nl.ca

All comments received will be placed on the public registry for the Project. After taking into consideration the input received during the comment period, the Guidelines will be finalized, sent to the Proponent and made public.

SECTION 2 - GUIDING PRINCIPLES

The EIS shall demonstrate adherence to the basic principles of environmental assessment as set out below.

Environmental Assessment: A Planning Tool

Environmental assessment is a planning tool that enables consideration of the potential effects of a project before actions are taken to allow that project to proceed. It is a process for identifying a project's potential interactions with the environment, predicting environmental effects, identifying mitigation measures and evaluating their significance. If the project proceeds, the environmental assessment process also provides the basis for setting out the requirements for monitoring and reporting to verify compliance with the terms and conditions of approval and the accuracy and effectiveness of predictions and mitigation measures.

Public Participation

Public participation is a central objective of an environmental assessment process and a means to ensure that a proponent considers and responds to public concerns. In preparing the EIS, the Proponent is encouraged to consult the affected communities, interested regional and national organizations and resource users.

Meaningful public involvement can only take place if the public has a clear understanding of the nature of the proposed Project as early as possible in the environmental assessment process. Therefore, the Proponent is encouraged to:

- continue to provide up-to-date information to the public and especially to the communities likely to be most affected by the Project;
- involve the main interested parties in determining how best to deliver that information, that is, the type of information required, format and presentation methods, as well as the need for community meetings; and
- explain the results of the EIS in a clear and direct manner to make the issues comprehensible to the widest possible audience.

Local Knowledge

Populations living in proximity to the Project may have substantial and distinct knowledge, which may be essential to the assessment of the effects of the Project, and their mitigation. Local knowledge will have an important contribution to make in preparing the EIS.

In environmental assessment, local knowledge may be regarded as the knowledge, understanding and values that local populations, including Aboriginal groups, have in relation to the environment and the potential environmental effects of the Project and proposed mitigation measures. This knowledge is based on personal observation, collective experience and/or oral transmission.

Local knowledge assists in understanding, including the inter-relationships, among such matters as: ecosystem function; resource abundance, distribution and quality; social and economic well-being; and use of the land and resources., It also informs the development of adequate baseline information, identification of key issues, prediction of effects, and assessment of their significance, all of which are essential to the EIS and its review.

Sustainable Development

Sustainable development seeks to meet the needs of present generations without compromising the ability of future generations to meet their own needs. Its three objectives are 1) preserving environmental integrity, 2) improving social equity and 3) improving economic efficiency.

The proponent shall strive to integrate these three objectives into the planning and decision-making process for the Project, including seeking the views of interested parties.

Precautionary Principle

One of the purposes of environmental assessment is to ensure that projects are considered in a careful and precautionary manner before action is taken in connection with them in order to ensure that such projects do not cause significant adverse environmental effects.

Principle 15 of the 1992 Rio Declaration on Environment and Development states that "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." In applying the precautionary approach, the Proponent shall:

- demonstrate that the proposed actions are examined in a careful and precautionary manner in order to ensure that they do not cause serious or irreversible damage to the environment, especially with respect to environmental functions and integrity, considering system tolerance and resilience, and will not interfere with the conservation of wildlife in a protected area;
- outline the assumptions made about the effects of the proposed actions and the approaches to minimize these effects; and
- identify any follow-up and monitoring activities planned, particularly in areas where scientific uncertainty exists in the prediction of effects.

SECTION 3 – PRESENTATION AND PREPARATION OF THE EIS

Study Strategy and Methodology

The Proponent shall explain and justify all methods used in the preparation of the EIS. In describing its overall approach, the Proponent shall explain how it used scientific, engineering, local and other knowledge. All hypotheses and assumptions shall be clearly identified and justified. All data collection methods, models and studies shall be documented so that the analyses are transparent and reproducible. The degree of uncertainty, reliability and sensitivity of models used to reach conclusions shall be indicated.

All conclusions regarding the receiving environment and predictions as well as the assessment of environmental effects shall be substantiated. The Proponent shall support all analyses, interpretation of results and conclusions with a review of the appropriate literature, providing all references required and indicating the public availability of all works consulted, when appropriate. Any contribution based on local knowledge shall be specified and the sources identified, where appropriate.

The EIS shall identify all significant gaps in knowledge and explain their relevance to key conclusions drawn. The Proponent shall indicate the measures applied to bridge these gaps. Where the conclusions drawn from scientific and technical knowledge are inconsistent with the conclusions drawn from local knowledge, the Proponent shall present a balanced version of the various points of view as well as a statement of the final conclusions.

Presentation of the EIS

The EIS and all associated reports and studies shall use System International (SI) units of measure and terminology throughout. The Proponent shall present the EIS in the clearest language possible. However, where the complexity of the issues addressed requires the use of technical language, a glossary defining technical words and acronyms shall be included. Lines shall be numbered in the margin at appropriate intervals.

An initial requirement for fifty (50) paper copies of the draft EIS and twenty electronic copies may be sufficient. They shall be written in English and printed or copied on two sides of recycled “Environmental Choice” paper in a loosely-bound format. The paper choice shall be conspicuously stated. Where possible, maps and other attachments should be scaled to fit on standard size papers to facilitate copying. The electronic version of the EIS shall be submitted in a format so that it may be posted on the internet and in a manner which shall facilitate downloading and printing in part or in whole.

The EIS should be presented in the sequence outlined in these Guidelines or the Proponent may decide that the information is better presented following a different sequence. For clarity and ease of reference, the EIS shall include a Table of Concordance that cross-references the EIS Guidelines so that points raised in the Guidelines are easily located in the EIS. The EIS shall refer to rather than repeat information already presented in other sections of the document. A key subject index is to be provided giving locations in the text by volume, section and sub-section.

The Proponent shall provide charts, diagrams and maps wherever useful to clarify the text, including a pictorial depiction that clearly conveys what the developed Project sites would look like from an aerial perspective. Maps shall use a limited number of common scales to

allow for comparison and overlay of mapped features. Maps shall indicate common and accepted local place names. The Proponent shall present information, where technically feasible, using a standard Geographic Information System (GIS) mapping (digital) format with maps geo-referenced.

Throughout the preparation of the EIS, the Proponent should freely cite experiences from other environmental assessments, with emphasis on Newfoundland and Labrador and other Canadian examples, to support the methodology and value of the information provided, or as reasons in support of the selection of a preferred alternative.

To facilitate the identification of the documents submitted and their coding in the Canadian Environmental Assessment Registry, the title page of the EIS and its related documents should contain the following information:

- project name and location;
- title of the document, including the term “environmental impact statement”;
- subtitle of the document;
- name of the Proponent;
- names of the consultants, as appropriate;
- date.

SECTION 4 – OUTLINE OF THE ENVIRONMENTAL IMPACT STATEMENT

EXECUTIVE SUMMARY

The executive summary shall include identification of the Proponent, a brief project description, predicted environmental and socio-economic effects, mitigation measures, residual effects, follow up and monitoring programs, an outline of the component studies, and a summary of the fundamental conclusions of the EIS.

The executive summary should be written in terms understandable to the general public and in such a manner as to allow reviewers to focus on items of concern.

1.0 INTRODUCTION

1.1 Identification of Proponent

This section shall introduce readers to the Proponent by providing pertinent corporate information, including the following:

(a) Name of corporate body and mailing address
(b) Chief Executive Officer
(c) Principal contact person for purposes of environmental assessment
(d) Ownership of rights and interests in the Project and associated natural resources
(e) Corporate accountability for management of environmental and socio-economic effects. Operational arrangements and corporate and management structures, including the linkage of these factors between the Proponent, its parent companies and any other organizations with operational or ownership rights
(f) Environmental and community relations policies
(g) Key elements of Newfoundland and Labrador Hydro's environment, health and safety management system and how the system will be integrated into the Project

In addition the Proponent shall describe its history in Canada's hydroelectricity industry, with specific reference to the existing Newfoundland and Labrador Hydro hydroelectric generation project at Churchill Falls.

1.2 Overview of the Project

The intent of this overview is to provide the key components rather than a detailed description of the Project, which will follow under "2.0 The Proposed Undertaking".

The Proponent shall briefly summarize the Project, by presenting the project components, associated 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 shall outline the larger context and present the relevant references, if available.

1.3 Purpose of the EIS

The purpose of the EIS shall be described.

1.4 Roles and Responsibilities

The roles and responsibilities of the following shall be outlined in this section:

(a) Proponent
(b) Environmental Assessment Committee
(c) Governments of Canada and Newfoundland and Labrador
(d) Minister of the Department of Environment and Conservation
(e) Minister of the Environment and responsible authorities under CEAA

1.5 Previous Registration and Environmental Assessment

The Proponent shall describe their previous registrations of proposed hydro developments on the Lower Churchill River, environmental assessment(s), the outcome of the assessment(s), and the reasons the project did not commence.

1.6 Other Registrations

The Proponent shall indicate whether any other registrations are to be submitted for environmental assessment in the future as a result of this Project.

2.0 THE PROPOSED UNDERTAKING

2.1 Study Areas

A precise description of the boundary of the Project shall be presented in relation to the study area for each VEC, accompanied by map(s) of appropriate scale showing the entire project area with principal structures and appurtenant works. This section should provide aerial images that illustrate representative habitats along the area of inundation. The delineation of the study areas is crucial to scope the extent of the environmental assessment. The rationale used to delineate the boundaries of the study areas shall be provided.

With respect to baseline information on the environment, the Proponent shall present, wherever possible, a sufficient time-span of data and information to establish averages, trends and extremes. For the most important environmental and social components, the Proponent shall determine how far in the past the study should begin and how far into the future it should be carried.

The temporal boundaries of the Project shall cover all phases of the project: construction, operation, maintenance, foreseeable modifications and, where relevant, the abandonment and decommissioning of works and the rehabilitation of the sites affected by the Project. If the Proponent does not believe the full temporal boundaries should be used for a phase of the Project, the report shall identify the boundaries used and provide a rationale for the boundaries selected.

This description may include the following information:

(a) main ecological constraints of the environment;
(b) land use;
(c) local communities; and
(d) the environmental significance and value of the Lower Churchill River Area.

2.2 Need, Purpose and Rationale of the Project

This section of the EIS shall provide a comprehensive explanation of the need, purpose and rationale for the Project, including an evaluation of potential markets for electricity and trends in electricity conservation. The potential role of the Project in reducing greenhouse gas emissions is to be explained.

The need for the Project is defined as the problem or opportunity the Project is intending to solve or satisfy. The "need for" will establish the fundamental rationale of the Project.

The "purpose of" the Project defines what the Proponent hopes to accomplish by carrying out the Project.

"Need for" and "Purpose of" the Project should be established from the perspective of the Proponent and provide a context for the consideration of alternatives to the Project.

2.3 Alternatives

2.3.1 Alternatives to the Project

The EIS shall contain an analysis of alternatives to the Project.

The analysis of alternatives to the Project is to provide clearly described methods and sufficient information for the reader to understand the reasons for selecting the preferred alternative and for rejecting others. This shall include a description of the conditions or circumstances that could affect or alter these choices, such as market conditions, regulatory changes and other power developments, either prior to construction or during the life of the Project.

The EIS shall include a comparative analysis of the environmental effects and technical and economic feasibility of alternatives that led to the choice of the selected Project alternative. The comparative analysis shall indicate how the Proponent took into account the environmental and social objectives inherent in the concept of sustainable development in selecting the preferred alternative. The Proponent shall include an evaluation of the thresholds for economic viability of the Project and considerations respecting the timing of phases and components of the Project.

2.3.2 Alternative Means of Carrying Out the Project

Alternative means of carrying out the Project, which are technically and economically feasible, and the environmental effects of any such alternative means shall be discussed.

The EIS shall describe design and siting alternatives for dams/reservoirs, generating stations, transmission facilities and ancillary facilities (such as roads and temporary infrastructure). The preferred alternatives shall be identified, with the selection based on clearly described methods. An explanation shall be included of how environmental factors affect the design and consideration of alternatives.

The Proponent shall provide the rationale for selecting Project components and shall discuss the state of the art of the various technologies being proposed. The Proponent shall indicate the known experience with, and the effectiveness and reliability of these techniques, procedures and policies, particularly under arctic or subarctic conditions, in Canada and elsewhere, and their relation to best practice in Canada. This discussion shall also show how design, engineering and proposed procedures are compatible with the environment and the local communities and shall minimize adverse environmental and social effects.

The EIS shall analyze and compare the design alternatives for the Project in relation to their environmental and social costs and benefits, including those alternatives which cost more to build and/or operate but which cause less harmful environmental effects. The Proponent shall assess the implications in environmental, economic and social terms of flooding of sensitive areas.

The range of alternatives considered as alternatives for the pace and scale of the operation shall be discussed, and the chosen alternative justified. The Proponent shall also indicate under what circumstances a change in economic conditions may influence the fulfillment of its plans and any commitments regarding avoidance of effects or mitigation measures.

Alternative means of carrying out the Project shall include the following as discussed below:

(a) Reservoir preparation
(b) Transmission lines route selection
(c) Facility layout and siting

(d) Generation stations optimization and construction sequence
(e) Construction labour force accommodation

(a) Reservoir Preparation

Flooding shall remove access to the forest resources and other terrestrial vegetation within the newly formed reservoirs. Inundation of vegetation is of concern with respect to aesthetics, resource and recreational use of the waterway and valley, recovery of wood fibre, the sequestration and release of carbon dioxide, mercury uptake, and habitat loss. A selection of reservoir preparation strategies is necessary to address these concerns, including economic, technical and environmental considerations which are to be evaluated in order to select and justify the proposed mitigation measures.

(b) Transmission Line Route Selection

The Proponent is to undertake a Route Selection Study which identifies the alignment for transmission lines proposed between Gull Island and Muskrat Falls and from Gull Island to Churchill Falls. The study shall involve the selection of a study corridor, approximately 1.0 km in width, within which various engineering, social and environmental constraints are identified. A preferred alignment and one or two alternative alignments shall be selected for evaluation, as appropriate.

(c) Facility Layout and Siting

The Proponent shall evaluate facility layout and locations based on a variety of engineering and environmental considerations, including: camps, borrow pits, and roads. Where such facilities are yet to be located, a site selection process and evaluation process shall be described to demonstrate how potential environmental effects will be avoided or mitigated.

(d) Generation Stations Optimization and Construction Sequence

The Proponent shall outline generation station optimization alternatives (e.g., number of turbines, type of turbines, head, capacity, operating regime). The sequence of construction shall also be considered (e.g., Gull Island or Muskrat Falls first). These optimization studies are to consider technical and economic feasibility, and environmental considerations.

(e) Construction Labour Force Accommodation

The EIS shall describe alternative labour force accommodation strategies (e.g., number and location of camps, in-community housing). These evaluations are to consider economic, social and worker conditions as well as any other relevant community, including Aboriginal community, considerations and environmental factors.

2.4 Relationship to Legislation, Permitting, Regulatory Agencies & Policies

The EIS shall identify and discuss all relationships between the Project and all relevant legislation and policies (municipal, provincial, and federal). Pertinent government policies, such as land and water resources development and use policies, and the Project's compliance with respect to these policies are to be addressed.

The Proponent shall provide a comprehensive list of permits and regulatory approvals required for the undertaking. The list shall include the following details:

(a) activity requiring regulatory approval
(b) name of permit or regulatory approval
(c) name of legislation applicable in each case
(d) regulatory agency responsible for each permit of approval

2.5 Project Description

The Proponent shall describe the scope of the Project for which the EIS is being conducted, including: the construction, commissioning, operation, maintenance, foreseeable modifications of the facilities, and where relevant, the closure, decommissioning, and restoration of the construction facilities, related to the undertaking.

General Layout

The EIS shall provide a written and graphic description (e.g., maps and drawings) of the following physical features of the undertaking:

- The Gull Island and Muskrat Falls generating stations, including intakes, intake canals, dams, dykes, tailrace channels and spillways associated with each of these sites;
- The transmission terminal facilities and transmission lines linking the two stations and interconnecting with Churchill Falls Station;
- The reservoirs and their management;
- All related works and activities including all temporary facilities required for the construction of the previously mentioned facilities, in particular:
    - Temporary control structures and diversion works
    - Work camps
    - Permanent and temporary access roads
    - Bridges and watercourse crossings
    - Infrastructure for wastewater treatment & waste management
    - Energy supply for camps and worksites
    - Drinking water supply
    - Borrow pits and quarries
    - Management of excavated material
    - Construction worksites and storage areas

2.6 Construction

The approach, details, materials, methods, schedule and locations of all planned construction activities, including permanent and temporary infrastructure, related to the physical features shall be presented including estimates of magnitude or scale where applicable. This is to include but not necessarily be limited to the following:

- Dams, Reservoirs and Generating Stations
    - Construction methods for all facilities are to be described comprehensively, for example, methods for diversion of river flows, coffer damming and reservoir filling
- Access Roads, Borrow Pits and Quarries
    - Access roads and corridors are to be described, including locations, technical characteristics and general road construction standards including maintenance, ditches, bridges and culverts and use of dust-control and de-icers
    - Identify the source, quantity and end use of all rock and aggregate materials. Outline the methods for prediction and prevention of acid rock drainage and metal leaching to be used in the quarry site selection process
- Transmission Facilities
    - Construction methods for transmission facilities including crossings of water bodies and modifications to existing facilities shall be described
    - Description of volume of wood (e.g., merchantable and non-merchantable) within right-of-way, clearing methods, removal and cost benefit analysis
- Personnel Requirements
    - The estimated size of projected workforce by month over the construction phase is to be presented indicating occupations by National Occupation Classification (NOC) Codes, skills, entry requirements and duration of work
    - Describe any planned hiring initiatives and practices (employment equity, journeypersons, apprentices, students and regional/local preference)
- Temporary Structures and Infrastructure
    - Description of camp locations, drinking water supply source, method of managing wastewater and discharge areas, location and operating conditions of solid waste disposal sites, power supply, and management of any other installations (including fuel storage depots) required for the camps to function properly
    - Scope and location of any communication and telecommunications systems required by the Project (e.g., transmission towers, access roads, energy sources)
    - Where possible, identification and quantification of the use and production of dangerous products and waste generated by the Project

- River diversion structures (e.g., cofferdams, diversion tunnels)
- Material and fuel receiving, handling and storage areas
- Disposal sites for domestic and construction waste
- An inventory of equipment and materials required, including hazardous materials

- Reservoir Preparation
  - The work required and schedule for reservoir preparation including volume of wood within flood zone, harvesting strategy (e.g., roads, labour) and cost-benefit analysis
  - Methods to control and manage sedimentation and shoreline stability; dredging; dewatering methods for downstream sections of the river with respect to fish habitat maintenance and fish passage, including at the fish passage facility in the causeway across the Churchill River associated with the Trans Labrador Highway Phase III

2.7 Operation and Maintenance

All aspects of the operation and maintenance of the undertaking shall be detailed in this section of the EIS. This shall include:

(a) Operating Regime: The description of the operating regime shall include the following:

- Water management (turbine flows, ecological flows, reservoir head, maximum and minimum operating levels, operation of structures) for different hydrological conditions (low and high flows including flows lower than the ecological flows)
- The time of year, frequency and amplitude (maximum and minimum levels) of water level fluctuation ranges for all water bodies
- Flow rates (maximum, minimum and average) in the sections of the river affected with detailed maps showing the areas affected, and seasonal and daily variations in water levels
- The maximum and minimum surface areas of reservoirs, with detailed maps and residence time of water masses
- Changes in water temperature and oxygen regimes upstream and downstream of dams
- Velocity of water at intake structures and outlets of spillways and tailrace canals
- Changes in management of lakes or reservoirs upstream and downstream of the Project area
- The control and management of sedimentation and erosion
- Maintenance plan for structures (dams) and facilities
- Management of ice including “frazil”

(b) Access Roads and Transmission Facilities: Maintenance (e.g., vegetation management, dust control, de-icing) of roads and transmission facilities shall be described. Electromagnetic fields shall be indicated.

(c) Personnel Requirements: A profile of the work force and working schedules for Project operation and maintenance activities shall be included.

(d) Project Modification: The Proponent shall identify, within the limits of its knowledge and control, how the operation, use, development, possible rebuilding and eventual dismantling of certain installations shall be handled in consideration of other uses. The EIS shall specifically note, to the extent possible, whether some installations, including all of the access infrastructures, may be used as they are, or may be converted to other purposes by other proponents or communities, or if they must be dismantled at the end of their useful life. The proposed means of restoration of any areas to be abandoned shall be described.

(e) Project Schedule: The EIS shall show the construction and commissioning schedules for the various Project elements, based on the most current information available.

2.8 Decommissioning

The EIS will present an approach for the decommissioning phase of the Project, which sets out a commitment to address:

a) environmental planning and mitigation measures;
b) socio-economic mitigation measures; and
c) public health and safety procedures.

3.0 ENVIRONMENT

3.1 Identification of Key Issues

To better focus the EIS, the Proponent shall identify the key issues related to the Project.

It is understood that the process for defining the key issues is iterative and that the list of issues can be modified during the environmental effect analysis phase. The issues can be revised and adjusted in relation to the information acquired in the field and during consultations held by the Proponent.

For information purposes, the following are factors that could prove relevant in the choice of the key issues:

- public concerns related to the component;

- economic significance;
- protected status of the component;
- regulatory requirements;
- rarity or special status of the component;
- preservation of biodiversity;
- sensitivity of the component to disturbances or pollution;
- importance of the component's ecological role;
- cultural and social significance of the component.

3.2 Description of the Relevant Components

The EIS shall describe relevant aspects of the existing environment in the study area prior to implementation of the Project, which constitutes the reference state of the environment. Where appropriate and possible to do so, the Proponent shall present a time series of data and sufficient information to establish the averages, trends and extremes of the data that are necessary for the evaluation of potential environmental effects. For key environmental and social components, the Proponent should consider how far back in time and how far into the future the study should be conducted. Rationale for the temporal boundaries chosen should be provided. The Proponent will identify any deficiencies in information, and how these deficiencies will be addressed.

Using qualitative and quantitative surveys, the study shall describe the components of the biophysical and human environments likely to be affected by the Project. If the information available from government or other agencies is insufficient or no longer representative, the Proponent shall complete the description of the environment with current surveys according to generally accepted practices.

This description focuses on the components relevant to the key issues and effects of the Project. It shall only include the data necessary to analyze the effects. The EIS shall provide all of the information required to understand or interpret the data (methods, survey dates and times, weather conditions, location of sampling stations, etc.). The methods used should be sufficient for the purposes of identifying and assessing environmental effects.

3.3 Previous Development

Hydroelectric generation projects have been occurring on the Churchill River, since the 1960's. As such, understanding how the effects of past hydroelectric generation projects have been mitigated and/or managed is of interest where those environmental effects have the potential to overlap with those of the Project or would provide lessons learned that could be applied to the Environmental Assessment of the Project. The EIS should include a concise discussion of past hydroelectric generation projects, the environmental effects that have occurred as a result where overlapping environmental effect are anticipated, and the measures that have been taken to mitigate or manage those environmental effects. Discussion of

overlapping environmental effects should include consideration of the degree to which those mitigation measures have been successful. Any long-term monitoring or follow-up programs of relevance to these overlapping environmental effects and the key results should also be described. This information will help interested parties to understand the potential environmental effects of the Project and how they may be addressed.

3.4 Existing Environment

The EIS shall identify the overall study area and include a description of the existing biophysical and socio-economic environment and the resources within it that shall be affected or that might reasonably be expected to be affected, directly or indirectly, by the proposed undertaking emphasizing the VECs. A qualitative and quantitative description of the present and potential resource use and the identification of known data gaps are imperative.

In addition, the EIS shall describe environmental interrelationships and sensitivity to disturbance. If the study results or data has been extrapolated or otherwise manipulated to depict environmental conditions in the study area modeling methods and equations shall be described with calculations of margins of error and/or confidence limits.

A description of the existing environment shall be developed for each alternative drawing specific reference to the VECs. References are attached at the end of these Guidelines to provide direction to the Proponent. Detailed discussions shall be developed for the following environmental components:

- Atmospheric Environment
- Aquatic Environment
- Terrestrial Environment
- Land and Resource Use
- Heritage Resources
- Communities
- Economy, Employment and Business

VECs for each of the environmental component shall be described.

3.4.1 Atmospheric Environment

- Climate and meteorology
- Climate change and emissions of greenhouse gases (e.g., CO_2, CH_4) including reservoir emissions in the context of provincial and regional emissions and targets
- Air Quality, including substantive emissions of conventional air contaminants (PM, SO_2, NO_x, VOCs) from Project-related sources
- Effects of the Project on local climate
- Existing ambient noise level

3.4.2 Aquatic Environment

- Hydrological features such as lakes and streams/rivers, watershed boundaries, river hydrology and hydraulics, bathymetry, surface water flow, groundwater movement and aquifer recharge zones, flood zones, ice formation and melt patterns
- Water quality and quantity from both surface and groundwater sources
- Sediment quality of watercourse
- Quantification of fish and potential effects to fish and fish habitat
- Mercury presence, mobility, fate and effects in the reservoir, including content in fish at representative levels in food chain as determined in an ecological risk assessment
- Geomorphology, including erosion and sedimentation
- Fish mortality from construction and operation (e.g., gas bubble disease, entrainment)
- Marine mammals (e.g., ringed seals)
- Species of conservation concern (e.g., *Species at Risk Act*)

3.4.3 Terrestrial Environment

- Bedrock and surficial geology, terrain and soil conditions
- Pertinent physical and chemical properties of sediment and rock that might be affected by or have an effect on the Project
- Areas of potential ground instability such as slumping or landslides
- Permafrost conditions including areas of discontinuous permafrost, high ice content soils, thaw sensitive slopes and stream banks
- Terrestrial fauna, including mammals, avifauna (e.g., raptor, waterfowl and passerine/songbird surveys) and herpetiles
- Terrestrial flora, including forest inventories and ecological land classifications
- Terrestrial habitat and ecotype alteration, disruption and destruction
- Wetland as classified using the Canada Wetland Classification System, and further characterized in terms of a functional analysis (e.g., habitat, water flow regulation, groundwater recharge)
- Migratory patterns/river crossings
- Population dynamics
- Species and areas of conservation concern (e.g., *Endangered Species Act*, *Species at Risk Act*)
- Migratory birds
- Human-wildlife interaction (e.g., bear management plans)

For the Terrestrial Environment some key indicator species/species assemblages were selected to focus the environmental assessment. The species selected are reflective of different phyla, orders, families or guilds of species that represent key components of the Terrestrial Environment. These species were selected as being representative of species groups,

importance in the food web (e.g., top predator), and their importance from socio-cultural and economic perspectives. The following is the list of these key indicators:

(a) Beaver
(b) Marten
(c) Porcupine
(d) Caribou
(e) Moose
(f) Black bear
(g) Harlequin duck
(h) Early breeding waterfowl (including Canada goose)
(i) Late breeding waterfowl (including Scoters)
(j) Upland game birds
(k) Osprey
(l) Passerine/song birds (including Water thrush)

3.4.4 Land and Resource Use

- Present and Potential Timber Resource Utilization
- Current use of land and resources (including aquatic resources by Aboriginal persons for traditional purposes)
- Other rural land and resource use including existing and potential recreational and commercial fishing and hunting, gathering of country food and collection of plant propagules
- Effects on navigation (e.g., vessel/boat traffic)
- Unique sites or special features in the Study Area(s), including any Special Places candidate sites, Environmentally Sensitive Areas, reserves or protected areas, conservation agreement lands and habitat enhancement projects
- Landscapes, including aesthetic quality and effects on river aesthetics

3.4.5 Heritage Resources

- Historic and archaeological resources
- Paleontological resources
- Architectural resources
- Burial, cultural, spiritual and heritage sites

3.4.6 Communities

- Community services and infrastructure in Upper Lake Melville
    - Health services and social programs (e.g., drug addiction, delinquency)
- Human health in Upper Lake Melville and Churchill Falls
    - Occurrence and trends in chronic diseases (e.g., diabetes, cardiovascular disease, chronic pulmonary disease and

cancer), infectious disease, mental illness, addictions, and quality of life
    - Dietary changes that could lead to health risks from methylmercury
- Community health in Upper Lake Melville and Churchill Falls
- Family life in Upper Lake Melville and Churchill Falls
- Safety in Upper Lake Melville and Churchill Falls
- Culture in Upper Lake Melville and Churchill Falls
- Education and Training in Upper Lake Melville, Labrador and Province
- Housing and accommodation in Upper Lake Melville
- Property value and land use in Upper Lake Melville and within and adjacent to future reservoirs
- Road transportation of workers and materials to and from the Project limits between Churchill Falls, Upper Lake Melville and the Project sites

3.4.7 Economy, Employment and Business

- Economy of Upper Lake Melville, Labrador and the Province
    - Taxes and royalties
    - Effects on gross domestic product
- Employment in Upper Lake Melville, Labrador and the Province
- Skilled and unskilled labour supply in Upper Lake Melville, Labrador and the Province
- Expenditures in Upper Lake Melville, Labrador and the Province
- Availability of skilled and unskilled labour
- Employment equity and diversity including under-represented groups (e.g., women, persons with disabilities, aboriginal groups)
- Business capacity
    - Goods and services
- Expenditures in Upper lake Melville, Labrador and the Province
- Impacts and Benefits Agreement
- Agriculture
- Outfitting
- Eco-tourism
- Trapping
- Forest Resources Harvesting
- Mining and Mineral Exploration

3.5 Component Studies

Component Studies shall be prepared for at least the following VECs, including:

- Large mammals
- Furbearers
- Avifauna

- Species at risk
- Fish and fish habitat (plankton, benthos, marine mammals)
- Aquatic (water quality, hydrology, ice dynamics, sedimentation)
- Historic resources
- Timber Resources
- Socio-economics

Where new information becomes available as a result of baseline studies, additional component studies may be required.

Component studies generally have the following format: (a) Rationale/Objectives, (b) Study Area, (c) Methodology, and (d) Study Outputs.

(a) Rationale/Objectives

In general terms, the rationale for a component study is based on the need to obtain additional data to determine the potential for significant effects on a VEC due to the proposed undertaking, and to provide the necessary baseline information for monitoring programs.

(b) Study Area

The boundaries of the study area shall be defined depending on the characteristics of the VEC being investigated.

(c) Methodology

Methodology shall be proposed by the Proponent, in consultation with resource agencies, as appropriate. The methodologies for each component study shall be summarized in the EIS.

(d) Study Outputs

Study outputs shall be proposed by the Proponent. Information and data generated shall be sufficient to adequately predict the effects on the VEC.

3.6 Data Gaps

Information gaps from a lack of previous research or practice shall be described indicating baseline/information which is not available or existing data which cannot accurately represent environmental conditions in the study area over four seasons. If background data have been extrapolated or otherwise manipulated to depict environmental conditions in the study area, modeling methods and equations shall be described and shall include calculations of margins of error and/or confidence limits.

3.7 Future Environment

The EIS shall describe the predicted future condition of the environment within the expected life span of the Project, if the Project were not to proceed. The predicted future condition of the environment shall help to distinguish project related effects from environmental change due to natural processes and shall include a discussion of climate change.

The socio-economic environment to be described is undergoing substantial change regardless of the Project. The analysis shall consider the likely trends in the area in the absence of the Project given available information about other planned major projects or social, economic, or institutional changes in the zone of influence within the time frame of the Project.

4.0 ENVIRONMENTAL EFFECTS

4.1 General

The EIS shall contain a comprehensive analysis of the predicted environmental effects of each project alternative for the VECs. If the effects are attributable to a particular phase of the Project (construction, operation and/or maintenance) then they should be designated as such.

Predicted environmental effects (positive and negative, direct and indirect, short and long-term) shall be defined quantitatively and qualitatively for each project alternative and for each VEC. Environmental effects predictions shall be explicitly stated and the theory or rationale upon which they are based shall be presented in terms of the following parameters, as appropriate.

(a) nature
(b) magnitude (qualitative and quantitative)
(c) geographic (spatial) extent
(d) timing, duration and frequency
(e) degree to which effects are reversible or mitigable
(f) ecological context
(g) level of knowledge
(h) the capacity of renewable resources that are likely to be significantly affected by the Project, to meet the needs of present and future generations
(i) the extent to which biological diversity is affected by the Project
(j) the extent of application of the precautionary principle to Project mitigation measures

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

The assessment of the beneficial and adverse effects of the Project on the socio-economic environment shall consider how the Project may affect various segments of the local populations (e.g., youth, elders, women, Aboriginal groups, harvesters,

existing workforce including professionals). In considering the local social and economic effects of the Project, the Proponent shall have due regard for the attitudes and perceptions of local residents, and how these are grounded in their culture, social organizations and historical experience. Particular attention shall also be paid to the distinctive benefits and problems associated with large, temporary work forces:

(a) demographics
(b) social and cultural patterns (particular attention shall be given to the comparative adverse and beneficial effects of a major base of employment away from the communities, rotational work schedules, and the presence of large numbers of transient employees and contractors in the region)
(c) services and infrastructure
(d) cultural sites
(e) land and resource use
(f) local, regional and provincial economy
(g) employment, education and training
(h) governments
(i) aboriginal issues

4.2 Accidents and Malfunctions

The Proponent will identify and describe the potential accidents and malfunctions related to the Project, including an explanation of how those events were identified, potential consequences (including the potential environmental effects), the worst case scenarios and the effects of these scenarios. The Proponent will explain the potential quantity, mechanism, rate, form and characteristics of the contaminants and other materials likely to be released into the environment during the malfunction and accident events.

Potential accidents and malfunctions may include those associated with the following occurrences:

- dam failure;
- waste management and disposal;
- handling and use of chemicals and hazardous materials on-site; and
- any other project components or systems that have the potential, through accident or malfunction, to adversely affect the natural environment.

The Proponents shall pay special attention to the sensitive elements of the environment (e.g.: communities, homes, natural sites of interest, areas of major use, etc.) that may be affected in the event of an accident or a major malfunction.

The Proponent shall assess the likelihood of occurrence of the accidents and malfunctions.

Detailed plans, measures and systems to reduce the potential occurrence of an accident or malfunction shall be provided by the Proponent. They shall indicate how they will reduce the effects or consequences of an accident or malfunction, should it occur.

4.3 Cumulative Effects

The Proponent shall identify and assess the Project's cumulative environmental effects. Cumulative effects are defined as changes to the environment due to the Project combined with the existence of projects or activities that have been or will be carried out.

In the cumulative effects assessment, the Proponent shall consider the guidance described in the CEAA Cumulative Effects Assessment Practitioners Guide (1999) and other literature and experience with environmental assessment in Canada or elsewhere that it finds helpful in framing the cumulative environmental effects analysis.

Accordingly, the Proponent shall consider the cumulative environmental effects of the Project where those overlap with those of other projects and activities, of the past and future, and shall:

- identify and justify the environmental components that will constitute the focus of the cumulative effects assessment. The Proponent's assessment should emphasize the cumulative effects on the main VECs that could potentially be most affected by the Project. To this end, the Proponent shall consider, without limiting itself thereto, the following components likely to be affected by the Project:
    - endangered or valued wildlife;
    - endangered or valued plant species;
    - sensitive soils or landforms;
- present a justification for the geographic and temporal boundaries of the cumulative effects assessment. The boundaries for the cumulative effects assessments will again depend on the effects being considered (e.g., will generally be different for different effects). These cumulative effects boundaries will also generally be different from (larger than) the boundaries for the corresponding Project effects;
- describe and justify the choice of projects and selected activities for the cumulative effects assessment. These shall include past activities and projects, those being carried out and future projects or activities likely to be carried out; and
- describe the mitigation measures that are technically and economically feasible, determine the significance of the residual cumulative effects. The Proponent shall assess the effectiveness of the measures applied to mitigate the cumulative effects. In cases where measures exist that are beyond the scope of the Proponent's responsibility that could be effectively applied to mitigate these effects, the Proponent shall identify these effects and the parties that have the authority to act. In such cases, the Proponent shall summarize the discussions that took place with the other parties in order to implement the necessary measures over the long term.

4.4 Renewable Resources

The Proponent shall determine, based on the results of their assessment, whether the Project is likely to cause significant environmental effects on renewable

resources and therefore compromise their capacity to meet present and future needs.

Renewable resources are defined as resources that can be renewed on a regular basis, either naturally or by human action. While the emphasis is placed on living renewable resources such as fish, wildlife and forest, the analysis of the effects on renewable resources should also consider non-living renewable resources such as water.

The Proponent shall briefly describe the renewable resources that may be affected by the Project. The Proponent shall clearly establish, taking into account the result of their impact assessment, whether these renewable resources are likely to be significantly affected following the implementation of proposed mitigation measures (residual significant environmental effects). Should this be the case, the following points shall be addressed:

- a brief description of the Project's environmental effects on the renewable resource;
- an indication as to the way in which the capacity of this resource was measured or evaluated;
- an indication of the temporal and geographic boundaries used to assess the capacity of the affected resource;
- a determination of the capacity of the resource to meet current needs;
- a determination of the capacity of the resource to meet future needs;
- a description of any other appropriate mitigation measures;
- a determination of the significance of the residual effects on the renewable resource and its capacity to meet the need of current and future generations;
- an identification of the risks and uncertainties that remain and the description of the next steps, if any, that will be required to address this effect.

4.5 Effects of Environment on the Project

Environmental changes and hazards that may occur and may affect the Project shall be described (e.g., wind, currents, waves, storm surges, severe precipitation events, flooding, ice). The EIS shall take into account the potential influence of climate change scenarios (e.g., sea level rise, increased severity and frequency of storms and flooding). The influence that these environmental changes and hazards may have on the Project shall be predicted and described.

The environmental effects that may occur as a result of the environment acting on the Project shall be assessed.

5.0 ENVIRONMENTAL PROTECTION

5.1 Mitigation

The EIS shall identify and discuss the proposed mitigation measures that are technically and economically feasible and that would mitigate the significant

adverse effects of the Project and enhance beneficial effects, including the interaction of these measures with existing environmental management plans. Under the *CEAA*, mitigation is defined as the elimination, reduction or control of the adverse environmental effects of the Project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means. The rationale for and effectiveness of the proposed mitigation and enhancement measures should be discussed and evaluated. The Proponent ,where possible, should refer to similar situations where the proposed mitigation has proven to be successful. Mitigation failure should be discussed with respect to risk and severity of consequence. The discussion should include failure of dam/control structures.

The Proponent shall identify who is responsible for the implementation of these measures and the system of accountability, including the obligations of all its contractors and subcontractors.

Mitigation measures shall be described for the construction, operation and modification phases and shall include:

(a) Procedures that would be used to avoid environmentally sensitive areas or periods of the year;
(b) Contingency plans and procedures to respond to accidents, malfunctions & emergencies;
(c) Description of fish habitat compensation strategy;
(d) Measures to ensure continued unrestricted and safe access and passage on land and sea for harvesting and travel by Aboriginal and non-Aboriginal local residents, and what alternatives shall be provided in the event of disruption;
(e) Mitigation measures which would be taken to reduce or offset adverse effects on the life of the communities most directly affected by the Project;
(f) Mitigation measures which would be taken to reduce or offset adverse effects on local businesses most directly affected by the Project; and
(g) Describe measures to enhance any beneficial environmental effects, such as economic benefits to businesses affected by the Project.

Other mitigation measures, if any, that were considered shall be identified, and the rationale for rejecting these measures shall be explained. Trade-offs between costs and predicted effectiveness of the mitigation measures shall be justified.

The Proponent shall discuss the application of the Precautionary Principle in the identification of mitigation measures. The Precautionary Principle is defined in Section 2. The best available technology and best management practices shall be considered. Consideration shall be given for avoidance of environmental effects through implementation of scheduling and siting constraints and pollution prevention opportunities.

5.1.1 Compensation

The Proponent shall describe, in general terms, compensation programs and arrangements as follows:

(a) Any compensation programs for damage caused by the Proponent's activities to the environment, to property, business operations, or to the land and resources of others. The Proponent shall describe any existing or proposed compensation programs for losses relating to property, use, access, harvests, added harvesting effort and costs that may be incurred by users of the land and its resource (e.g., tourism operators, trappers, subsistence hunters). A comparison with compensation programs for other projects and other resource development activities shall be provided.

(b) Any compensation arrangements for local, public or private providers whose burdens and costs are increased or who incur losses as a result of the Project.

5.2 Emergency Response / Contingency Plans

The Proponent shall describe its environmental management plans and Safety, Health and Environmental Emergency Response Plans (SHERP) to provide an overall perspective on how potentially adverse environmental effects shall be managed over time. The Environmental Management System (EMS) shall include various plans (e.g., emergency response plans, contingency plans, environmental protection plans, waste management plans, monitoring plans) and developed in a manner consistent with the International Organization for Standardization (ISO) 14001 program. It shall show how the Project is consistent with sustainable development efforts in the region. Appropriate government agencies, aboriginal groups and local communities shall be involved in the development of the plans.

5.3 Rehabilitation

A plan of proposed rehabilitation measures is required with an explanation of how the measures shall reduce or eliminate various negative effects during construction, operation and maintenance. The plan shall discuss the rationale, objectives and procedures for proposed rehabilitation measures. Restoration of areas disturbed by temporary activities such as access roads, off-loading facilities, construction camp(s), land clearing prior to inundation, etc., shall be detailed. A schedule for carrying out the work (seasonal requirements, etc.) shall be included in the plan. Appropriate materials (plant species, soils, etc.) shall be indicated.

5.4 Monitoring and Follow-up Programs

The EIS shall describe the environmental and socio-economic monitoring and follow-up programs to be incorporated into construction, operation and modification activities.

Monitoring programs will ensure that the Project is implemented as proposed, that the mitigation or compensation measures proposed to minimize the Project's environmental effects are effectively implemented,

and that the conditions set at the time of the Project's authorization and the requirements pertaining to the relevant laws and regulations are met. The monitoring program will also make it possible to check the proper operation of works, equipment and facilities. If necessary, the program will help reorient the work and possibly make improvements at the time of construction and implementation of the various elements of the Project.

The purpose of the follow-up program is to verify the accuracy of the predictions made in the assessment of the effects as well as the effectiveness of the mitigation measures. The duration of the follow-up program shall be as long as is needed to evaluate the effectiveness of the mitigation measures.

If either of these programs identify unforeseen adverse environmental effects, the Proponent shall commit to adjusting existing mitigation measures, or, if necessary, develop new mitigation or compensation measures. The Proponent shall describe how the results of monitoring and follow-up programs will be used to refine or modify the design and implementation of management plans, mitigation measures and Project operations. This section shall also discuss the ways in which holders of local knowledge of Aboriginal and non-Aboriginal area residents, including women and youth, shall be involved in any monitoring and follow-up programs. The Proponent shall distinguish as appropriate between monitoring (compliance) and effects follow-up programs.

The proposed approach for monitoring shall be described and shall include:

(a) The objectives of the monitoring program and a schedule for collection of the monitoring data required to meet these objectives;
(b) The sampling design, methodology, selection of the subjects and indicators to be monitored, and their selection criteria;
(c) The frequency, duration and geographic extent of monitoring, and justification for the extent;
(d) Reporting and response mechanisms, including criteria for initiating a response and procedures;
(e) The approaches and methods for monitoring the cumulative effects of the Project with existing and future developments in the Project area;
(f) Integration of monitoring results with other aspects of the Project including adjustments to operating procedures and refinement of mitigation measures;
(g) Experience gained from previous and existing monitoring programs;
(h) The advisory roles of independent experts, government agencies, communities, holders of Aboriginal knowledge and renewal resource users;
(i) Procedures to assess the effectiveness of monitoring and follow-up programs, mitigation measures and recovery programs for areas disturbed by the Project; and
(j) A communications plan to describe the results of monitoring to interested parties.

The Proponent shall explain how the public shall continue to be involved, including participation in the design and implementation of environmental management and monitoring and follow-up programs.

The Proponent shall describe plans to maintain communications and working relationships with the affected communities, Aboriginal and town organizations and government agencies throughout the life of the Project. The intent of these plans is to involve those groups in monitoring and follow-up programs, and in identifying and working toward the reduction of adverse physical, biological or socio-economic effects, and the enhancement of beneficial effects.

To design complete and comprehensive program proposals, the Proponent shall prepare and submit these documents subsequent to the completion of the environmental assessment, but before the initiation of the Project itself.

6.0 RESIDUAL EFFECTS & DETERMINATION OF SIGNIFICANCE

Residual effects are those adverse effects or significant environmental effects which cannot or shall not be avoided or mitigated through the application of environmental control technologies, best management practices or other acceptable means.

The EIS shall list and contain a detailed discussion and evaluation of residual effects, which shall be defined in terms of the parameters outlined in section 4.1.

The EIS shall contain a concise statement and rationale for the overall conclusion relating to the significance of the residual adverse environmental effects. The EIS will, for ease of review, include a matrix of the environmental effects, proposed mitigation and residual adverse effects.

7.0 CONSULTATION WITH ABORIGINAL GROUPS AND COMMUNITIES

In addition to the specific references to assessing potential effects of the Project on aboriginal governments, groups and communities in other parts of the Guidelines, the Proponent is to present aboriginal governments, group and community interests and concerns including those received in response to the Registration in a separate chapter of the EIS.

8.0 PUBLIC PARTICIPATION

Public consultations/meetings are required of the Proponent to present the proposal and to record interests and concerns including those received in response to the Registration. These concerns shall be addressed in a separate chapter of the EIS. Protocol for this meeting shall comply with the legislation and with divisional policy included in **Appendix B**.

As a minimum, public consultation meetings must be held in the communities of Happy Valley-Goose Bay, Northwest River, Sheshatshiu, Natuashish, Churchill Falls, and in the region of Labrador West.

9.0 ENVIRONMENTAL PROTECTION PLAN

The Proponent shall prepare an Environmental Protection Plan (EPP) for each main construction site and have them approved by the regulatory authorities before starting construction. They shall be stand-alone documents that shall target the site foreperson, the Proponent's occupational health, safety and environmental compliance staff, as well as government environmental surveillance staff. The EPPs shall address construction, operation and modification phases of the Project. A proposed Table of Contents and an annotated outline for the EPPs is to be presented in the EIS which shall address the major construction and operational activities, permit requirements, mitigation measures and contingency planning as follows:

- Proponent's environmental policies
- Objectives and voluntary commitments
- Relevant human resource management plans
- Environmental compliance monitoring
- Environmental protection measures
- Mitigation measures
- Permit application and approval planning
- Contingency planning for accidental and unplanned events
- Statutory requirements
- Revision procedures and contact lists

10.0 REFERENCES CITED

All references used during the preparation of the EIS shall be cited in the text and listed in this section.

11.0 PERSONNEL

The names and qualifications of all key professionals responsible for preparing the EIS and supporting documentation shall be included.

12.0 COPIES OF REPORTS

The Proponent shall prepare a complete and detailed bibliography of all studies used to prepare the EIS. Supporting documentation shall be referenced in the EIS and submitted in separate volumes or attached as an Appendix to the EIS.

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APPENDIX A – Requirements of an Environmental Impact Statement under the Environmental Protection Act, Section 57 and Assessment by a Review Panel under the Canadian Environmental Assessment Act, Section 16

APPENDIX B –Requirements for Public Meetings

APPENDIX A

Environmental Protection Act

Section 57 - Environmental Impact Statement

57. An environmental impact statement shall be prepared in accordance with the guidelines, and shall include,

(a) a description of the undertaking;

(b) the rationale for the undertaking;

(c) the alternative methods of carrying out the undertaking, and the alternatives to the undertaking;

(d) a description of the

(i) present environment that shall be affected or that might reasonably be expected to be affected, directly or indirectly, by the undertaking, and

(ii) predicted future condition of the environment that might reasonably be expected to occur within the expected life span of the undertaking, if the undertaking was not approved;

(e) a description of

(i) the effects that would be caused, or that might reasonably be expected to be caused, to the environment by the undertaking with respect to the descriptions provided under paragraph (d), and

(ii) the actions necessary, or that may reasonably be expected to be necessary, to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment by the undertaking;

(f) an evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking;

(g) a proposed set of control or remedial measures designed to minimize any or all significant harmful effects identified under paragraph (e);

(h) a proposed program of study designed to monitor all substances and harmful effects that would be produced by the undertaking; and

(i) a proposed program of public information as required under section 58.

Canadian Environmental Assessment Act

Section 16 - Factors to be considered

16. (1) Every screening or comprehensive study of a project and every mediation or assessment by a review panel shall include a consideration of the following factors:

(*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 this 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, comprehensive study, mediation or assessment by a review panel, such as the need for the project and alternatives to the project, that the responsible authority or, except in the case of a screening, the Minister after consulting with the responsible authority, may require to be considered.

Additional factors

(2) In addition to the factors set out in subsection (1), every comprehensive study of a project and every mediation or assessment by a review panel shall include a consideration of the following factors:

(*a*) the purpose of the project;

(*b*) alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means;

(*c*) the need for, and the requirements of, any follow-up program in respect of the project; and

(*d*) 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.

APPENDIX B

Department of Environment & Conservation
Environmental Assessment Division

ADVERTISEMENT REQUIREMENTS FOR PUBLIC MEETINGS / INFORMATION SESSIONS

Purpose: To clarify for staff, proponents, public interest groups, etc. the types, timing, number, notification requirements, etc. for public consultations in relation to undertakings required under the *Environmental Protection Act, SNL 2002 cE-14.2*, (Section 58) to prepare an Environmental Impact Statement (EIS) or required under the *Environmental Assessment Regulations, 2003* (Section 10) to prepare an Environmental Preview Report (EPR).

1. The Proponent is not required to conduct public meeting(s) (information sessions) under an EPR process unless specifically required to do so in the project Guidelines. This requirement shall be at the Minister's discretion, based upon advice from the Assessment Committee (AC) as provided by the Chairperson, taking into account the level of expressed public interest.

2. The Proponent is always required to conduct public meeting(s) (information sessions) under an EIS process as specified in the Legislation. This requirement shall be specified in the project Guidelines.

3. When required, a public meeting shall normally be held in the largest local population centre within the project area. This shall be the minimum requirement. In addition, when demonstrated public interest or concern warrants, additional meetings may be required. This may take the form of additional meetings to be held in major regional or provincial population centres, or possibly additional meetings within the original community. Such requirements are at the discretion of the Minister based on consensus advice from the AC Chairperson, and based upon public interest as evidenced by public submissions received.

4. The requirements for location of public meetings may be modified for projects proposed within areas subject to formal aboriginal land claims processes recognized by the provincial and federal governments, excluding projects located entirely within municipal boundaries. In such cases, a public meeting may specifically be required in an appropriate aboriginal community which has a direct interest in the land claim. Such a meeting may be required in addition to others required under #3 (above). The Proponent may be required to provide appropriate translation services for such meetings. This provision is subject to alternate direction relating to dealings with aboriginal groups which may be imposed by government under special circumstances.

5. The format of the public meeting may be flexible, and the Proponent is free to propose a suitable format for approval by the AC. The format may range from formal public meetings chaired by the Proponent or representative with presentations followed by questions and answers, to a less formal open house forum where the public may discuss the proposal with the Proponent or representatives. Other formats may be considered by the AC. The purpose of the public information session is to 1) provide information concerning the proposed undertaking to those who may be affected, and 2) to record the concerns of the local community regarding the undertaking. Any format must meet these objectives.

6. The Proponent must ensure that each public meeting is advertised in accordance with the following specified public notification requirements, which shall form part of the project Guidelines when appropriate:

- Minimum information content of public advertisement - (Proponent to substitute appropriate information for italicised items):

PUBLIC NOTICE

Public Information Session on the Proposed

Name of undertaking
Location of undertaking

shall be held at
Date and Time
Location

This session shall be conducted by the Proponent,
Proponent name and contact phone number,
as part of the environmental assessment for this Project.
The purpose of this session is to describe all aspects of the proposed Project, to describe the activities associated with it, and to provide an opportunity for all interested persons to request information or state their concerns.

ALL ARE WELCOME

- If translation services are to be provided as per #4 (above), then the ad should specify this fact and the languages to be used for the session.

- Minimum newspaper ad size: 2 columns wide.

- Minimum posted ad size: 10 cm x 12 cm.

- Minimum newspaper ad frequency (to be run in newspaper(s) locally distributed within each meeting area or newspaper(s) with the closest local distribution area):
    - For dailies, the weekend between 2 and 3 weeks prior to each session and

the two consecutive days prior to each session, OR
- For weeklies, in each of the two weeks prior to the week in which the session is to be held.

- Minimum posted ad coverage: In the local Town or City Hall or office, and the local post office, within the Town or City where the meeting is to be held, to be posted continually for not less than 15 days prior to each session.

- Any deviation from these requirements for any reason must receive the prior written approval of the Minister.

- The Proponent must provide the Chairperson of the AC with copies of advertisements and public notices.