

**FINAL GUIDELINES FOR AN ENVIRONMENTAL IMPACT ASSESSMENT
FOR THE REMOVAL OF THE EEL RIVER DAM**

**Issued by the Minister of the Environment and Local Government
for the Province of New Brunswick**

to

The NB Department of Supply & Services (NBDSS)

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1.0

INTRODUCTION

1.1 Background

The Eel River dam is located in Restigouche County south of the Town of Dalhousie, approximately 600 m upstream of New Brunswick (NB) Highway 134 at Eel River Bar. The dam extends from the Eel River Bar First Nation on the north side of the river, to the Blue Heron Campground/Park on the South. The dam was built in 1963 by the Town of Dalhousie to provide an industrial water source (non potable) for the area. Over time, the dam has resulted in a variety of changes in the hydrology of the Eel River watershed, including modifications to physical processes such as sediment transport, and a variety changes to ecosystem functions such as fish habitat and fish passage.

Removal of the dam is now being proposed by the New Brunswick Department of Supply and Services (NBDSS), with the objective of achieving a long term solution to fish passage and other ecosystem issues related to the presence of the dam (e.g., tidal exchange, sediment transport, wetland functions, populations of flora and fauna, fish habitat, etc).

An Agreement (dated December 10, 2002) was signed with the Province of NB (as represented by the NB Department of Supply & Services), Her Majesty the Queen in Right of Canada (as represented by the Minister of Indian & Northern Affairs Canada), and the Council of the Eel River Band, requiring that a full environmental assessment be conducted for the proposed decommissioning project.

The proposed project consists of the decommissioning or removal of the Eel River Dam, including the earthen dyke, concrete water control structure, and ancillary infrastructure (e.g., fish passage facilities).

1.2 Purpose

These Guidelines are to be used by NBDSS as a framework for conducting an Environmental Impact Assessment (EIA) of the proposed decommissioning or removal of the Eel River Dam.

The EIA study will examine the potential environmental effects (both positive and negative) of removal of the dam and of the status quo or null alternative (leaving the dam in place), and will identify appropriate mitigative/optimization measures. Additional options identified during the environmental assessment process may be considered as applicable.

The assessment must clearly describe the impacts (both positive and negative) of removal of the dam and compare them to the impacts (both positive and negative) of the status quo (ongoing and future impacts).

1.3 Environmental Impact Assessment (EIA) Process

Under The *Environmental Impact Assessment Regulation* (Regulation 87-83) of the NB Clean Environment Act, NBDSS, as the proponent of the project, was required to register the removal of the Eel River Dam as an undertaking for EIA review. The proposal was registered on March 28, 2003. On October 31, 2003, the Minister of the NB Department of the Environment & Local Government (the Minister) determined that the completion of a full EIA was required to assess the nature and significance of the proposal's potential impacts.

The Minister has appointed a Review Committee comprised of technical specialists from various government agencies whose jurisdictions may be affected by the undertaking. The agencies include:

- NB Department of the Environment and Local Government (NBDELG);
- NB Department of Natural Resources (NBDNR);
- NB Department of Health and Wellness (NBDHW);
- NB Department of Transportation (NBDOT);
- NB Culture & Sport Secretariat - Archaeological Services Unit (NBC&SS);
- Restigouche District Planning Commission;
- NB Museum;
- Department of Indian and Northern Affairs (DIANA);
- Canadian Coast Guard;
- Environment Canada (EC); and
- Fisheries and Oceans Canada (DFO).

The Technical Review Committee (TRC) has evaluated the initial EIA registration document provided by NBDSS and has requested additional information from NBDSS in an effort to evaluate the environmental issues for the proposed project. This screening exercise provided the basis for the Draft EIA Guidelines, which the TRC had also examined. The Guidelines outline the approach the proponent must follow in conducting the EIA. The Guidelines identify important issues, which must be considered in assessing the impacts of the proposal.

Members of the public and other stakeholders were invited to comment on the Draft Guidelines and to identify any issues of concern that did not appear in the document. Following public input, and a detailed review by the TRC, the Minister issued the Final Guidelines for the EIA.

Upon receipt of the Final EIA Guidelines, NBDSS and/or its consultant must provide the Minister with detailed Terms of Reference (TOR), which describe the approach to be used in the EIA. The TOR are evaluated through a consultative process involving the proponent and the appropriate government review agencies (TRC).

The principle objective of the EIA is to predict the impacts that can be expected should the project proceed. The EIA study, conducted in consultation with the residents from the area of potential impact, is also expected to identify methods of optimizing positive impacts and minimizing negative impacts resulting from the project.

Information gathered during the study is compiled in a Draft EIA Report. The draft report is evaluated by the TRC to determine whether the study adequately addressed the issues raised in the

Final EIA Guidelines. Should the TRC determine that the report does not adequately address the Guidelines, the proponent will be required to make revisions to address any identified deficiencies in order to advance the EIA process.

If, on the advice of the TRC, the Minister is satisfied that the Final EIA Report is adequate, the next step is additional consultation, to involve the public and other stakeholders in evaluating the potential impacts anticipated from this project.

A summary of the Final EIA Report is prepared on behalf of the Minister, to assist members of the public in becoming familiar with the information. The TRC also prepares a General Review Statement summarizing its comments on the Final EIA Report. These documents are released for a period of at least 30 days for public review and comment, after which, the schedule and location(s) of public meeting(s) are announced by the Minister.

Public meetings generally take place near the area where the project is being proposed and provide all interested parties with an opportunity to make comments, raise concerns, or ask questions about any matter covered in the EIA study. Following the public meeting, a period of fifteen days is set aside for members of the public to submit written comments to the Minister. At the end of this period, a summary of public participation is made available to the public and presented to the Minister. At any time after this date, the Cabinet (Lieutenant-Governor in Council) may render a decision to issue or deny an approval for the project.

Specific procedures to be followed in conducting an EIA may be found in Regulation 87-83, *Environmental Impact Assessment Regulation - Clean Environment Act*. A procedural summary is available in the publication entitled "Environmental Impact Assessment in New Brunswick." These documents may be obtained from the NB Department of the Environment & Local Government at the address provided below:

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Project Assessment Branch
NB Department of the Environment and Local Government
P.O. Box 6000
Fredericton, NB
E3B 5H1
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2.0

METHODOLOGICAL APPROACH TO EIA

2.1 General

The EIA process results in a detailed study of potential environmental impacts and identification of procedures that may be used to mitigate these effects. The EIA study must also identify methods of optimizing positive impacts and minimizing negative impacts resulting from the proposed project, and of the status quo or null alternative (leaving the dam in place). Additional options identified during the environmental assessment process may be considered as appropriate.

To provide a focus for the EIA, environmental components of principal concern, commonly referred to as Valued Environmental Components (VECs), must be identified early in the assessment process. The method for determining VECs must be clearly stated by the proponent. The proponent shall seek public, Aboriginal, and other stakeholder knowledge during the identification of appropriate VECs. The EIA must clearly indicate the provisions for compliance with relevant regulatory requirements, guidelines and best management practices. The assessment will include consideration of, but is not limited to, the regulations, guidelines and associated documents listed in Appendix A.

Presented in Section 4.0 of these Guidelines are a number of specific issues for study, including a variety of questions/concerns raised by the TRC during review of the initial EIA registration document. However, this framework does not limit the proposed EIA study. Should additional issues arise from discussion with members of the TRC, or consultation with regulatory agencies, Aboriginal communities, members of the public, or other stakeholders, the proponent must incorporate these issues into the assessment of the project's potential impacts.

2.2 Study Boundaries

The proponent (NBDSS) must clearly describe the boundaries of the study in time and space used in the evaluation of environmental effects for each VEC. The temporal boundaries of the study (the length of time over which project environmental effects are anticipated to occur) must reflect the decommissioning period, and extent of any potentially significant environmental effects that may remain beyond the decommissioning period, including any potential accidents or malfunctions.

Spatial boundaries must reflect the geographical extent to which activities associated with the proposed project are anticipated to occur in the existing environment and the extent of existing or anticipated environmental effects, including cumulative environmental effects for each VEC (i.e., both positive and negative). Boundaries such as administrative, technical, biophysical, socio-economic and the areas over which activities may occur, must be defined and related to the impact assessment process as appropriate. In determining applicable spatial boundaries, consideration must be given to environmental effects potentially resulting from the proposed project on a local, regional and national scale, as applicable.

A similar assessment must also be applied to the null alternative or status quo (leaving the dam in place), to allow a detailed assessment of negative impacts that could result from not proceeding to remove the dam structure.

2.3 Prediction of Environmental Effects

The main focus of the EIA is to predict environmental effects (i.e., both positive and negative) that may result from the proposed project or from the null alternative or status quo, and their potential significance. Predictions must consider all aspects and phases of the proposed project/status quo, and any indirect environmental effects, cumulative effects, and any effects that may result from accidents or malfunctions. In addition, potential effects of the environment on the proposed project/status quo must be predicted, such as effects that may be caused by extreme weather events (e.g., flood/ice damage; tidal surges), seismic activity, acid rock drainage and climate change.

EIA predictions are generally based on a combination of objective and subjective evaluation. The use of objective (measurable) analysis is strongly preferred where it is technically feasible and reasonable to do so. However, in recognition of any factor that may limit the ability to predict or measure environmental responses, predictions may be based on subjective evaluation using professional judgement and experience. Community knowledge and Aboriginal traditional knowledge may also be utilized, as applicable. In consideration of this, predictive statements must be accompanied by a discussion of the limitations of the analysis, references to supporting documentation and the qualifying credentials of those making the predictions.

Predictions must be made regarding the nature (adverse or positive), magnitude, duration, frequency, geographic extent and reversibility of the proposed project/status quo's potential or existing environmental effects. The significance of these effects must also be determined. These predictions must:

- facilitate decision-making with respect to the proposed project;
- clearly specify any degree of uncertainty inherent in the projections;
- clearly identify positive and negative environmental effects (both biophysical and socio-economic) of the proposed project/status quo; and
- be amenable to testing where possible through ongoing monitoring initiatives.

To clearly distinguish potentially significant environmental effects from those likely to be insignificant, the proponent must first define "significant." The definition must be based on scientific determinations, social values, public concerns, and economic judgements. In particular, the significance of proposed project-induced changes on VECs must be clearly stated in the EIA Report (Environmental Impact Statement, EIS). The thresholds for significant effects on VECs (i.e., both positive and negative) must be related in terms of applicable criteria. Quantifiable reference to the magnitude, geographical extent, duration, frequency, reversibility and ecological context of the potential environmental effects is required. Significance must be determined in the context of project-specific and cumulative environmental effects and after taking into account the implementation of appropriate mitigation/optimization measures.

Significant effects on species (i.e., tolerance levels related to organisms in the environment), must take into account effects at the population-level. For species designated as endangered, effects on an individual constitute a population-level effect.

2.4 Cumulative Environmental Effects

The term cumulative environmental effects refers to those effects, over a defined period of time and distance, resulting or likely to result from the proposed project, in combination with other past, present, or likely (imminent) future projects or activities. An assessment of cumulative environmental effects must be conducted as part of the EIA study, in consideration of identified VECs.

The goal of the cumulative effects assessment will be to place project-related and status quo induced impacts, their significance, and approaches to their management in the context of the “bigger picture,” and must include (but is not limited to):

- identification of regional issues of concern;
- a comprehensive description of how VECs were selected;
- a clear justification for the spatial and temporal boundaries used to address cumulative effects;
- a clear description of the analysis undertaken to assess the cumulative effects on the selected VECs (i.e., both positive and negative), and presentation of the results;
- a clear description of how mitigation measures address the cumulative environmental impacts; and
- the rationale for determining whether residual cumulative effects on VECs are significant.

2.5 Mitigation, Contingency and Compensation

The EIA study must describe general and specific measures that are technically and economically feasible for the proponent (NBDSS) to implement, to optimize any positive environmental effects and mitigate any negative effects resulting or potentially resulting from the proposed project/status quo (i.e., maximize positive effects, and eliminate, prevent, avoid or minimize adverse effects). This must include a description of contingency measures (including emergency response plans) that have been designed to address potential accidents and malfunctions that could result in spills or unplanned releases of contaminants or products to the environment. Specific circumstances under which mitigative measures will be implemented must be clearly defined by the proponent. Mitigation options must be considered in a hierarchical manner with a clear priority placed on proactive measures for impact avoidance and pollution prevention opportunities. Opportunities to contribute to a regional approach to management of cumulative effects must also be identified (refer to Section 2.4 above).

An outline for contingency plans must also be provided:

- for use in the event of an environmental emergency attributable to the project, within the spatial boundaries of the study; and
- for use in the event of significant impacts, attributable to the project, which are detected through monitoring (this plan must be designed to be implemented should impacts be detected through monitoring).

The study must also consider compensation mechanisms to be used in the event that any unforeseen, accidental, or residual environmental effects occur (including opportunity costs). These compensation mechanisms/plans must be developed through consultation with federal and provincial agencies and other stakeholders, as appropriate. Compensation must be recognized as a last resort, but may be required if deliberate project-related effects cannot be otherwise mitigated.

2.6 Commitment to Monitoring and Follow-Up

A well-defined program of monitoring and follow-up initiatives regarding environmental effects resulting or potentially resulting from the proposed project must be outlined in the EIA Report. NBDSS must describe all of their proposed monitoring and follow-up programs, including their objectives, content, and implementation and reporting schedules. Monitoring programs will be required to:

- establish baseline conditions;
- determine regulatory compliance (compliance monitoring);
- test the predictions of the EIA (environmental effects monitoring, EEM); and
- evaluate the effectiveness of measures used to mitigate environmental effects (EEM).

Monitoring programs should include protocols that would guide interpretation of monitoring results and timely implementation of appropriate corrective actions.

Monitoring initiatives must be based upon accurate baseline information for the existing physical, biological and socio-economic environments. The proponent is expected to collect the necessary information through existing data sources (“data mining”) or through primary research such as fieldwork and laboratory testing, as required.

Where the EIA predictions are not based on objective information, monitoring programs must be designed, where possible, to collect relevant data not previously available.

Monitoring and follow-up programs must include protocols to guide interpretation of monitoring results and timely implementation of appropriate corrective actions.

2.7 Public, Aboriginal and Other Stakeholder Consultation

NBDSS must continue to consult with persons and organizations potentially affected by the proposed project (or already affected by the presence of the dam), and must continue to inform and engage individuals, Aboriginal groups/communities, interest groups, and other stakeholders in this

assessment. This will include local governments and specific groups with mandates/initiatives encompassing the Eel River watershed (e.g., communities such as Balmoral, Charlo, Dalhousie, Eel River Crossing, the Eel River Bar First Nation, Local Service Districts, NB Power, Bowater, etc). NBDSS will be expected to hold appropriate public and other consultation events (e.g., study updates, open-houses, etc), with the following consultation objectives:

- to ensure that the potentially affected public and other stakeholders are engaged in meaningful discussion and are well informed prior to the government's decision, as to the nature and extent of environmental effects attributable to the proposed project and status quo (i.e., both positive and negative effects);
- to ensure that the values and concerns of the public and other stakeholders are incorporated and adequately addressed in the study; and
- to obtain expertise (where applicable), including community knowledge and Aboriginal traditional knowledge from various stakeholders and Aboriginal communities and organizations.

The EIA must document the dates and formats for public and other stakeholder consultation undertaken, the material presented, the opportunity for receiving input, a summary review of any concerns expressed, and how these concerns were addressed. It must be clear how the input from consultations was used in the assessment and what changes to the process or project were made as a result of comments provided.

2.8 Terms of Reference (TOR)

The proponent must submit detailed TOR in response to the Final EIA Guidelines. The TOR must clearly describe the methods proposed for carrying out the EIA, and the means by which NBDSS will consult with the public, Aboriginal communities, and other stakeholders during the course of the EIA process.

The Proponent is required to provide, as part of the TOR, a cross-referenced index (Concordance or Disposition Table) showing where the content and issues of the Final EIA Guidelines have been addressed. The TRC will examine the TOR and comments/deficiencies may be provided to the proponent to address prior to finalization.

In addition, the TOR must outline the components of any proposed field programs, any anticipated challenges/obstacles to be encountered, proposed modelling approaches (if applicable), identify key members of the study team, and fully describe all specific tasks to be completed as part of the study.

3.0 CONDUCT OF THE STUDY AND CONTENT OF REPORT

The EIA Report (Environmental Impact Statement - EIS) must be written in the clearest language possible. Where the complexity of the issues addressed requires the use of technical language, a glossary defining technical words and acronyms must be included. The International System of Units (SI) must be used throughout the report and all supporting documents. The study must include consideration of, but is not limited to, the regulations, guidelines and associated documents listed in Appendix A.

The following titles may be used as a framework for the development of the EIA Report:

- Executive Summary
- Introduction
- Regulatory Framework (e.g., Application of Regulation 87-83/CEAA)
- Scope of the Project
- Scope of the Environmental Assessment
- Purpose and Description of the Project
- Identification & Analysis of Alternatives
- Description of the Existing Environment
- Environmental Effects (including effects of malfunctions and accidents & cumulative effects) and Mitigation Measures
- Significance of Residual Effects
- Public, Aboriginal, and Other Stakeholder Consultation
- Monitoring Initiatives and Follow-Up Programs
- Conclusion/Recommendation

3.1 Project Purpose, Scope and Detailed Description

The report must clearly outline the project purpose (i.e., provide clear justification for the project), in order to allow for a thorough evaluation of the potential environmental effects of the proposal (i.e., both positive and negative).

The EIA Report must provide a complete and accurate description of the project from planning through decommissioning of the dam (including any post-decommissioning activities), supported with appropriate maps and diagrams. Emphasis will be placed on describing those aspects of the project (including accidents and malfunctions) that have a reasonable probability of occurrence that could be expected to affect the environment. This description must include, but is not limited to:

- the history of the Eel River Dam, and applicable general information on the construction and operation of tidal barriers;
- overview of the environmental impacts that have occurred over time due to the construction & presence of the dam;

- proposed methods for removal of the dam and associated infrastructure (e.g., fishway, etc.);
- proposed modifications/additions to existing infrastructure;
- transportation/handling and storage systems of hazardous materials required for decommissioning;
- transportation, handling and storage systems of wastes/by-products from decommissioning;
- the decommissioning methodology;
- a detailed description of the decommissioning phase proposed, focussing on options/strategies that have been proven elsewhere;
- appropriate regulatory standards/specifications which the project will meet;
- proposed secondary containment systems (if applicable);
- the layout and detailed description of associated infrastructure (e.g., access/road infrastructure);
- upsets of environmental control equipment which may change the nature of site runoff, emissions and/or effluent; and
- a detailed description of all health & safety, and environmental protection measures, including contingency plans (e.g., emergency response plans - fire prevention/control equipment, spill response, flooding and tidal surge protection measures, etc.).

As applicable, the project description will include all the elements necessary to support the assessment of existing (for the status quo or null or do nothing alternative) and potential environmental effects of removal of the dam, as outlined in Section 4.0 of these Guidelines.

3.2 Identification and Analysis of Alternatives

Using the approach indicated below, the study must evaluate alternatives to the project as proposed (i.e., leaving the dam in place), and alternative means of carrying out the project (i.e., different methods for removing/decommissioning the dam). This analysis will contribute to a further understanding of the project rationale and to alternative methods of implementing the project, and will facilitate decision-making related to the proposal.

The analysis must include a comparison of alternatives to the project and alternative means of carrying out the project and an assessment of the potential environmental effects, as follows:

- (a) The null or "do nothing" alternative (not removing the dam and ancillary infrastructure). The study must examine the implications of not proceeding with the project with reference to environmental (both biophysical and socio-economic) factors/effects.
- (b) The analysis must include consideration of alternative means of carrying out the proposed project/decommissioning that are technically and economically feasible, and the environmental effects of any such alternative means.

3.3 Description of the Existing Environment (Biophysical & Socio-economic)

Section 31.1(1) of the Clean Environment Act, defines "environment" as:

- (a) air, water, or soil
- (b) plant and animal life including human life, and
- (c) the social, economic, cultural and aesthetic conditions that influence the life of humans or a community as they are related to the matters described in (a) and (b).

The EIA Report must describe the existing environment focusing on identified VECs (Valued Environmental Components) within the study boundaries. This description must reflect the dynamics of environmental components (biophysical, social, and economic), and identify trends in the context of predicted changes over time.

A description of the existing environment in the study area must consider, but is not limited to, the following:

- Atmospheric environmental components, including climatic and ambient air quality data;
- Terrestrial physical environmental components, including topography, geology, watershed hydrology, groundwater resources, and seismic activity;
- Terrestrial biological environmental components, including species at risk and their habitats (flora and fauna), species migratory patterns, ecologically sensitive or significant areas, and protected areas/critical habitat features. Migratory bird descriptions must include when each species is likely to be present in the study area and areas typically used for nesting, foraging, and/or staging;
- Wetlands;
- Aquatic physical environmental components (freshwater, estuarine, and marine), including bathymetric/geomorphologic, hydrodynamic, water quality, sediment and ice regime, and coastal and oceanographic data;
- Aquatic biological environmental components (freshwater, estuarine, and marine), including fish, fish habitat, fishery resources, species at risk and their habitats, species migratory patterns, ecologically sensitive or significant areas, and protected areas/critical habitat features (e.g., Environmentally Significant Area #006: Eel River Cove);
- Socio-economic environmental components, including demographic data (e.g., population and labour force), local economy, past, current and foreseeable land use (e.g., current surface water supply/use), recreational activities/infrastructure, zoning restrictions, regional fishing operations, the seasonal variations of fishing activities, physical and cultural heritage, any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, transportation and associated infrastructure, existing public health and safety concerns, and ambient noise levels (near potentially affected habitation). With specific reference to fisheries, the description must include a socio-economic profile of each identified fishery);
- Current use of land and resources for traditional purposes by Aboriginal persons; and
- Current emission and effluent volumes and characteristics, including any points of discharge from storm water and sewer treatment and collection systems (both routine and upset/emergency scenarios).

In developing the description of the existing environmental setting, field investigations may be required to address information deficiencies and facilitate the assessment.

In addition, due to the unique nature of this EIA study (i.e., the assessment of the potential effects of a restoration or “undevelopment” project), a similar description of pre-dam conditions (i.e., pre-1963) must be included to support the assessment.

3.4 Cross-Referenced Index

To assist the readers, a cross-referenced index (i.e., Concordance or Disposition Table), which shows where the content and issues outlined in the Final EIA Guidelines are addressed in the report, is required. This index must be submitted with the Draft EIA Report/EIS.

4.0

POTENTIAL IMPACTS

Presented here are a number of specific issues for study. However, this framework does not limit the assessment. Should additional relevant issues, concerns, or potentially significant environmental effects be identified through discussion with members of the TRC, regulatory agencies, the public, Aboriginal groups/communities, or other stakeholders, NBDSS must incorporate these issues into the assessment. The assessment must include consideration of, but is not limited to, the regulations, guidelines and associated documents listed in Appendix A

The capacity of renewable resources that are likely to be significantly affected by the project (either positively or negatively) to meet the needs of the present and those of the future should also be considered. Cumulative environmental effects should be considered individually for each identified VEC.

All existing and potential environmental effects (i.e., both positive and negative) resulting from the continued presence of the dam, and potential project-related environmental effects from the proposed decommissioning of the dam (including potential effects resulting from accidents or malfunctions), must be included in the assessment. A comparison of net positive and negative impacts must also be included.

4.1 Impacts (Effects) on the Marine Environment

VECs to be considered in the marine environment will include (but are not to be limited to) fish and fish habitat, and fisheries resources in areas potentially affected by the project.

The impact of the proposed project on marine water quality and the benthic environment will be assessed. Predict the environmental effect of any potential deterioration and/or improvement in water quality on marine environment VECs.

Evaluate the impact (both positive and negative) to VECs in the marine environment from the release of any deleterious substances (including sediment) resulting from project activities. The implications of potential water quality improvements must also be considered.

Describe the procedures for the development and the anticipated components of an environmental protection/emergency response plan, including spill prevention, and spill response contingency planning.

4.2 Effects on the Estuarine Environment

Assess the environmental effects of the proposed project on the estuarine environment, including (but not limited to) characteristics of the tidal regime, channel dimensions and shape, ice and sediment movement, water quality, fish and fish habitat within the environmental assessment boundaries.

The impact of project activities on estuarine water quality and the benthic environment will be assessed. Predict the environmental effect of any potential deterioration/improvement in water quality on estuarine environment VECs.

4.3 Effects on the Freshwater Environment

Assess the environmental effects of the proposed project on the freshwater environment (including impoundment), including (but not limited to) water quality, fish and fish habitat within the environmental assessment boundaries.

The impact of project activities on freshwater quality and the benthic environment will be assessed. Predict the environmental effect of any potential deterioration/improvement in water quality on freshwater environment VECs

4.4 Effects on Species at Risk (Flora & Fauna)

Assess the environmental effects of the proposed project on species considered to be at risk under national, provincial and regional classification systems (i.e., endangered, threatened, species of special conservation status, and rare species). Include consideration of any species at risk (flora and fauna) known to occur within the zones of influence of the proposed project and for which there are potential project-VEC interactions anticipated that could result in significant environmental effects.

The following information sources on species at risk in the general project area must be consulted:

- Atlantic Canada Conservation Data Centre (AC CDC);
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC; List - most recent update available);
- Species at Risk Act (SARA) Registry;
- New Brunswick Museum;
- NBDNR;
- Canadian Wildlife Service (CWS) of Environment Canada; and
- Local naturalist and interest groups.

In addition, the proposed project must be assessed for the potential for re-establishment of species designated as at risk, if applicable.

The assessment must also describe mitigative measures proposed to prevent or minimize impacts to species at risk.

4.5 Effects on Terrestrial and Wetland Environments

Assess the potential environmental effects of the proposed project on terrestrial and wetland environments (i.e., where there is potential for significant project/VEC interaction). Predict the potential effects on wetland VECs resulting from the proposed project.

4.6 Effects on Migratory Birds

Assess the potential environmental effects of the proposed project on migratory birds and migratory bird habitat. Include consideration of migratory birds that occur within the zones of influence of the project and for which there are potential project-VEC interactions that could result in significant environmental effects.

4.7 Effects on Air Quality and Climate

Assess the environmental effects of the proposed project on air quality. The generation of odour (e.g., from decomposition of previously submerged vegetation, etc), and the generation of wind-borne dust from the proposed project must be considered (including the need (if any) for dust monitoring).

Potential project emissions that will contribute to the atmospheric load of Greenhouse Gas (GHG) emissions must be assessed. Also, the potential loss or enhancement of carbon dioxide sinks will be discussed.

A discussion of any anticipated impacts of the proposed project on the local climate must be included.

4.8 Effects on Groundwater Resources

Assess the potential environmental effects of the proposed project on groundwater/drinking water supply resources.

4.9 Effects on Vessel Traffic/Navigation

Assess the potential environmental effects of the proposed project on vessel traffic/navigation (i.e., recreational, commercial, and other). This assessment must take into consideration existing and any predicted changes to vessel traffic.

4.10 Effects on Traffic Patterns/Road Infrastructure

Assess the environmental effects of the proposed project on traffic patterns/flows, including a

prediction with respect to current/future road infrastructure and use.

4.11 Effects on Infrastructure

The effects of the proposed project on existing (and planned) wastewater treatment lagoons and other infrastructure in the vicinity of the dam, including industrial outfalls (discharges), water supply conduits, drainage works, pipelines, dyke-land infrastructure, landfills, fibre-optic and power lines, and other public infrastructures must be examined. This includes the potential for leakage/spillage or mobilization of hazardous materials.

4.12 Effects on Aboriginal Land and Resource Use

Assess the effects of the proposed project on the current use of lands and resources for traditional purposes by Aboriginal persons (e.g., traditional fisheries, the Aboriginal Heritage Garden Project, etc).

4.13 Effects on Surface Water Supply

Assess the effects of the proposed project on current users of water from the impoundment (including how loss of this currently utilized freshwater source will be replaced).

4.14 Other Social & Economic Effects

The social and economic effects potentially resulting from the proposed project must be predicted. Evaluate the environmental effects of the proposed project on land use, including resource harvesting (i.e., within the defined environmental assessment boundaries of the project), and how any change in flood risk could affect land use.

Discuss any aesthetic/potential visual impacts of the proposed project on the Eel River. This must include identification of features recognized by the local public as being aesthetically preferred, and consideration of professional input related to aesthetics and landscape architecture.

The effect of the proposed project on existing tourism and recreational activities must also be included (e.g., hunting - the site is one of the few opportunities for waterfowl hunting in Northeastern NB; recreational land use - The Village of Eel River Crossing with financial support from NBDNR has established a trail on Crown Land adjacent to the impoundment above the dam; the sand bar below the dam - which supports an active provincial road and is also highly used for recreational purposes by local residents).

The effect of the proposed project on physical and cultural heritage, and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance must also

be included.

The effect of the proposed project on industries, including the fishing industry (e.g., salmon, clams, smelt, etc) must also be included.

The effect of the proposed project on land ownership must also be included (e.g., ownership of any previously submerged lands, etc).

4.15 Effects of the Existing Environment on the Project

The assessment must take into account how the existing environment could adversely affect the proposed project (e.g., acid rock drainage, severe meteorological conditions, seismic events, tidal influences, etc.).

Sensitivity of the proposed project to variations in meteorological conditions, including extreme events, must be fully investigated. Among the parameters to be considered are the effect of extreme precipitation events on site water management and the influence of wind, waves, ice, and flooding on infrastructure. In addition, the sensitivity of the proposed project to climate variability and climate change must be identified and discussed. Not only will the assessment look at the current climatic setting in the area, but must also include a consideration of the potential future climatic conditions due to climate changes in the foreseeable future.

Appendix A

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