



GUIDELINES FOR THE PREPARATION OF AN ENVIRONMENTAL IMPACT STATEMENT

pursuant to the

Canadian Environmental Assessment Act, 2012

SPRINGBANK OFF-STREAM RESERVOIR PROJECT

ALBERTA TRANSPORTATION

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DISCLAIMER

This document is not a legal authority, nor does it provide legal advice or direction; it provides information only, and must not be used as a substitute for the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) or its regulations. In the event of a discrepancy, CEAA 2012 and its regulations prevail. Portions of CEAA 2012 have been paraphrased in this document, but will not be relied upon for legal purposes.

Abbreviations and Short Forms

CEAA 2012	<i>Canadian Environmental Assessment Act, 2012</i>
Agency	Canadian Environmental Assessment Agency
EA	environmental assessment
EIS	environmental impact statement
VC	valued component

Part 1 - Background

1. INTRODUCTION

The purpose of this document is to identify for the proponent the minimum information requirements for the preparation of an Environmental Impact Statement (EIS) for a designated project¹ to be assessed pursuant to the *Canadian Environmental Assessment Act, 2012* (CEAA 2012). This document specifies the nature, scope, and extent of the information required. Part 1 of this document defines the scope of the environmental assessment and provides guidance and general instruction on the preparation of the EIS. Part 2 outlines the minimum information that must be included in the EIS.

CEAA 2012 requires an assessment of the potential effects of a proposed project as identified in section 5 of CEAA 2012. The Canadian Environmental Assessment Agency (the Agency) or a review panel will use the proponent's EIS and other information received during the EA process to prepare an EA Report that will inform the issuance of a decision statement by the Minister of Environment and Climate Change. Therefore the EIS must include a full description of the changes the project will cause to the environment that may result in adverse effects on areas of federal jurisdiction (i.e. section 5 of CEAA 2012) including changes that are directly linked or necessarily incidental to any federal decisions that would permit the project to be carried out. It is the responsibility of the proponent to provide sufficient data and analysis on potential changes to the environment to ensure a thorough evaluation of the environmental effects of the project by the Agency or a review panel.

2. GUIDING PRINCIPLES

2.1. Environmental assessment as a planning tool

Environmental Assessment (EA) is a planning tool used to ensure that projects are considered in a careful and precautionary manner in order to avoid or mitigate possible environmental effects and to encourage decision makers to take actions that promote sustainable development.

2.2. Public participation

One of the purposes identified in CEAA 2012 is to ensure opportunities for meaningful public participation during an EA. CEAA 2012 requires that the Agency or review panel provide the public with an opportunity to participate in the EA and an opportunity to comment on the draft EA report. Meaningful public participation is best achieved when all parties have a clear understanding of the proposed project as early as possible in the review process. The proponent is required to provide current information about the project to the public and especially to the communities likely to be most affected by the project.

2.3. Engagement with Indigenous Groups

A key objective of CEAA 2012 is to promote communication and cooperation with Indigenous peoples which includes, First Nations, Inuit, and Métis. The proponent is expected to engage with Indigenous groups that may be affected by the project, as early as possible in the project planning process. The proponent will provide

¹ In this document, "project" has the same meaning as "designated project" as defined in the *CEAA, 2012*.

Indigenous groups with opportunities to learn about the project and its potential effects, make their concerns known about the project's potential effects, and discuss measures to mitigate those effects. The proponent is strongly encouraged to work with Indigenous groups in establishing an engagement approach. The proponent will make reasonable efforts to integrate Aboriginal traditional knowledge into the assessment of environmental effects.

Information gathered through the EA process and associated engagement by the proponent with Indigenous groups will be used to inform decisions under CEEA 2012. In providing information to the Agency or to a review panel, the proponent will respect any confidentiality commitments made to Indigenous groups (see section 4.3.2). This information will also contribute to the Crown's understanding of potential adverse impacts on potential or established Aboriginal or treaty rights protected under section 35 of the *Constitution Act, 1982* ("section 35 rights"), and related interests, and the effectiveness of measures proposed to avoid or minimize those impacts.

For more information on how Aboriginal traditional knowledge can be obtained, incorporated, and aid in the preparation of the EIS, please refer to the Agency's reference guide entitled "Considering Aboriginal traditional knowledge in environmental assessments conducted under the *Canadian Environmental Assessment Act, 2012*".

2.4. Application of the precautionary approach

In documenting the analyses included in the EIS, the proponent will demonstrate that all aspects of the project have been examined and planned in a careful and precautionary manner in order to avoid significant adverse environmental effects and impacts to section 35 rights.

3. SCOPE OF THE ENVIRONMENTAL ASSESSMENT

3.1. Designated Project

On April 28, 2016, Alberta Transportation, the proponent of the Springbank Off-Stream Reservoir Project provided a project description to the Agency. Based on this project description, the Agency has determined that an environmental assessment is required under CEEA 2012 and will include the construction, operation, decommissioning, and abandonment of the following project components and activities:

Main Works

- Diversion structure, including diversion inlet, sluiceway / service spillway, and floodplain berm;
- Diversion channel;
- Off-stream reservoir;
- Off-stream storage dam, including embankment and water control/release structures;
- Outlet works, including any channels and water control/release structures before and at the release point to the Elbow River; and
- Road realignments and modifications to existing roads, bridges, and access roads Project design components related to environmental effect mitigation, such as sediment control and fish movement.

Associated Works and Activities

- Site clearing, earthmoving, leveling, and excavation;
- Borrow areas;
- Installation and subsequent removal of temporary structures used to divert water during construction so as to construct instream works in the dry;
- Construction activities and accommodations, including waste disposal, temporary work areas, and laydowns/stockpile sites;
- Post-flood recovery activities, throughout the Project components including the reservoir, diversion channel, and roads;
- Identification, modification and/or protection of pipelines and transmission lines intersecting the Project area, (information presented should include the works required and parties responsible for these works);
- Power supply to Project site and available alternatives to preferred option;
- Works for erosion and sediment release control; and
- Waste disposal for all waste streams.

3.2. Factors to be considered

Scoping establishes the parameters of the EA and focuses the assessment on relevant issues and concerns. Part 2 of this document specifies the factors to be considered in this environmental assessment, including the factors listed in subsection 19(1) of CEAA 2012:

- 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 physical activities that have been or will be carried out;
- the significance of effects;
- comments from the public;
- mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project;
- the requirements of the follow-up program in respect of the project;
- the purpose of the project;
- alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternatives;
- any change to the project that may be caused by the environment;
- the results of any relevant regional study pursuant to CEAA 2012; and

- any other matter relevant to the EA that the Minister of Environment and Climate Change requires to be taken into account, should the EA be referred to an environmental assessment by review panel².

3.3. Scope of factors³

3.3.1. Changes to the Environment

Environmental effects occur as interactions between actions (the carrying out of the project or decisions made by the federal government in relation to the project) and receptors in the environment, and subsequently between components of the environment (e.g., change in water quality that may affect fish).

Under CEEA 2012, an examination of environmental effects that result from changes to the environment as a result of the project being carried out or as a result of the federal government exercising any power duty or function that would allow the project to be carried out must be considered in the EIS.

In scoping the potential changes to the environment that may occur, proponents should consider any potential changes in the physical environment such as changes to air quality, water quality and quantity, and physical disturbance of land that could be reasonably be expected to occur.

3.3.2. Valued components to be examined

Valued components (VCs) refer to environmental, biophysical or human features that may be affected by a project. The value of a component not only relates to its role in the ecosystem, but also to the value people place on it. For example, it may have been identified as having scientific, social, cultural, economic, historical, archaeological or aesthetic importance.

The EIS will identify the VCs linked to section 5 of CEEA 2012, including the ones identified in Part 2 (section 6.3) that maybe affected by changes in the environment, as well as species at risk and their critical habitat as per the requirement outlined in section 79 of the *Species at Risk Act*. Section 5 of CEEA 2012 defines environmental effects as:

- A change that may be caused to fish and fish habitat, marine plants and migratory birds;
- A change that may be caused to the environment on federal lands, in another province or outside Canada;
- With respect to Aboriginal peoples, an effect of any change caused to the environment on:
 - ✓ health and socio-economic conditions;
 - ✓ physical and cultural heritage;
 - ✓ the current use of lands and resources for traditional purposes;

² Any additional factors to be considered that the Minister may require to be taken into account would be included in the Terms of Reference for the Review Panel.

³ Should the project be referred to an environmental assessment by review panel, section 19(2) of CEEA 2012 indicates that the Minister of Environment and Climate Change shall set the scope of the factors to be considered in the environmental assessment. In addition to the information contained in the EIS Guidelines, the Minister may provide additional direction in the Terms of Reference for the Review Panel.

- ✓ any structure, site or thing that is of historical, archaeological, paleontological or architectural significance;
- For projects requiring a federal authority to exercise a power or function under another Act of Parliament;
 - ✓ a change, other than the ones mentioned above, that may be caused to the environment and that is directly linked or necessarily incidental to the exercise of the federal power or function.
 - ✓ the effect of that change, other than the ones mentioned above, on:
 - health and socio-economic conditions;
 - physical and cultural heritage; and
 - any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

The final list of VCs to be presented in the EIS will be completed according to the evolution and design of the project and reflect the knowledge acquired on the environment through public consultation and engagement with Indigenous groups. The EIS will describe what methods were used to predict and assess the adverse environmental effects of the project on these VCs.

The VCs will be described in sufficient detail to allow the reviewer to understand their importance and to assess the potential for environmental effects arising from the project activities. The EIS will provide a rationale for selecting specific VCs and for excluding any VCs or information specified in these guidelines. Challenges may arise regarding particular exclusions, so it is important to document the information and the criteria used to make each determination. Examples of justification include primary data collection, computer modelling, literature references, public participation, engagement with Indigenous groups, and expert input or professional judgement. The EIS will identify those VCs, processes, and interactions that either were identified to be of concern during any workshops or meetings held by the proponent or that the proponent considers likely to be affected by the project. In doing so, the EIS will indicate to whom these concerns are important and the reasons why, including environmental, Indigenous focused, social, economic, recreational, and aesthetic considerations. If comments are received on a component that has not been included as a VC, these comments will also be summarised, along with the relationship to potential adverse environmental effects and impacts to section 35 rights.

3.3.3. Spatial and Temporal boundaries

The spatial and temporal boundaries used in the EA may vary depending on the VC. The proponent is encouraged to consult with the Agency, federal and provincial government departments and agencies, local government and Indigenous groups, and take into account public comments when defining the spatial boundaries used in the EIS.

The EIS will describe the spatial boundaries to be used in assessing the potential adverse environmental effects of the project and provide a rationale for each boundary. Spatial boundaries will be defined taking into account the appropriate scale and spatial extent of potential environmental effects, community and Aboriginal traditional knowledge, current land and resource use by Indigenous groups, ecological, technical and social and cultural considerations.

The temporal boundaries of the EA will span all phases of the project determined to be within the scope of this environmental assessment as specified under section 3.1 above. Community and Aboriginal traditional knowledge should factor into decisions around temporal boundaries.

If the temporal boundaries do not span all phases of the project, the EIS will identify the boundaries used and provide a rationale.

4. PREPARATION AND PRESENTATION OF THE ENVIRONMENTAL IMPACT STATEMENT

4.1. Guidance

The proponent is encouraged to consult relevant Agency policy and guidance⁴ on topics to be addressed in the EIS, and with the Agency during the planning and development of the EIS.

Submission of regulatory and technical information necessary for federal authorities to make their regulatory decisions during the conduct of the environmental assessment, but not required for the purposes of the EA decision, is at the discretion of the proponent. Although that information is not necessary for the EA decision, the proponent is encouraged to submit it concurrent with the EIS.

A table of concordance, which cross references the information presented in the EIS with the information requirements identified in the EIS Guidelines, will be provided. The proponent will provide copies of the EIS and its summary in both of Canada's official languages for distribution, including paper and electronic versions in an unlocked, searchable PDF format, as directed by the Agency.

4.2. Study strategy and methodology

The proponent is expected to respect the intent of these guidelines and to consider the effects that are likely to arise from the project (including situations not explicitly identified in these guidelines), the technically and economically feasible mitigation measures that will be applied, and the significance of any residual effects. Except where specified by the Agency, the proponent has the discretion to select the most appropriate methods to compile and present data, information and analysis in the EIS as long as they are justifiable and replicable.

It is possible these guidelines may include matters which, in the judgement of the proponent, are not relevant or significant to the project. If such matters are omitted from the EIS, the proponent will clearly indicate it, and provide a justification so the Agency, federal authorities, Indigenous groups, the public and any other interested party have an opportunity to comment on this decision. Where the Agency disagrees with the proponent's decision, it will require the proponent to provide the specified information.

The assessment will include the following general steps:

- ✓ identifying the activities and components of the project;
- ✓ predicting potential changes to the environment
- ✓ predicting and evaluating the likely effects on identified valued components;
- ✓ identifying technically and economically feasible mitigation measures for any significant adverse environmental effects;
- ✓ determining any residual environmental effects; and
- ✓ determining the potential significance of any residual environmental effect following the implementation of mitigation.

For each VC, the EIS will describe the methodology used to assess project-related effects. The EIS will document how scientific, engineering, community knowledge, and Aboriginal traditional knowledge were used to reach conclusions. Assumptions will be clearly identified and justified. All data, models and studies will be

⁴ Visit the Canadian Environmental Assessment Agency website: www.ceaa-acee.gc.ca/default.asp?lang=En&n=F1F30EEF-1

documented such that the analyses are transparent and reproducible. All data collection methods will be specified. The uncertainty, reliability and sensitivity of models used to reach conclusions must be indicated.

The EIS will identify all significant gaps in knowledge and understanding related to key conclusions, and the steps to be taken by the proponent to address these gaps. Where the conclusions drawn from scientific, engineering and technical knowledge are inconsistent with the conclusions drawn from community knowledge and Aboriginal traditional knowledge, the EIS will present each perspective on the issue and a statement of the proponent's conclusions.

The EIS will include a description of the environment (both biophysical and human), including the components of the existing environment and environmental processes, their interrelations as well as the variability in these components, processes and interactions over time scales appropriate to the likely effects of the project. The description will be sufficiently detailed to characterize the environment before any disturbance to the environment due to the project and to identify, assess and determine the significance of the potential adverse environmental effects of the project. This data should include results from studies done prior to any physical disruption of the environment due to initial site clearing activities. The information describing the existing environment may be provided in a stand-alone chapter of the EIS or may be integrated into clearly defined sections within the effects assessment of each VC. This analysis will include environmental conditions resulting from historical and present activities in the local and regional study area.

In describing and assessing effects to the physical and biological environment, the proponent will take an ecosystem approach that considers both scientific and community knowledge and Aboriginal traditional knowledge and perspectives regarding ecosystem health and integrity. The proponent will consider the resilience of relevant species populations, communities and their habitats. The assessment of environmental effects on Aboriginal peoples, pursuant to paragraph 5(1)(c) of CEEA 2012, will undergo the same rigour and type of assessment as any other VC (including setting of spatial and temporal boundaries, identification and analysis of effects, identification of mitigation measures, determination of residual effects, identification and a clear explanation of the methodology used for assessing the significance of residual effects and assessment of cumulative effects). Criteria for evaluating impacts to potential or established section 35 rights should also consider input sought by the proponent and/or provided by Indigenous groups.

The proponent will consider the use of both primary and secondary sources of information regarding baseline information, changes to the environment and the corresponding effect on health, socio-economics, physical and cultural heritage and the current use of lands and resources for traditional purposes. Primary sources of information include traditional land use studies, socio-economic studies, heritage surveys or other relevant studies conducted specifically for the project and its EIS. Often these studies and other types of relevant information are obtained directly from Indigenous groups. Secondary sources of information include previously documented information on the area, not collected specifically for the purposes of the project, or desk-top or literature-based information. The proponent will provide Indigenous groups the opportunity to review and provide comments on the information used for describing and assessing effects on Aboriginal peoples (further information on engaging with Indigenous groups is provided in Part 2, Section 5 of this document). Where there are discrepancies in the views of the proponent and Indigenous groups on the information to be used in the EIS, the EIS will document these discrepancies and the rationale for the proponent's selection of information.

If the baseline data have been extrapolated or otherwise manipulated to depict environmental conditions in the study areas, modelling methods and equations will be described and will include calculations of margins of error and other relevant statistical information, such as confidence intervals and possible sources of error. Where possible, relevant data collected from Indigenous groups should be incorporated into models and reflected in model outputs. The proponent will provide the references used in creating their approach to baseline data gathering, including identifying where appropriate, the relevant federal or provincial standards. The proponent is encouraged to discuss the timeframe and considerations for its proposed baseline data with the Agency prior to submitting its EIS.

The assessment of the effects of each of the project components and physical activities on the VCs, in all phases, will be based on a comparison of the biophysical and human environments between the predicted future conditions with the project and the predicted future conditions without the project. In undertaking the environmental effects assessment, the proponent will use best available information and methods. All conclusions will be substantiated. Predictions will be based on clearly stated assumptions. The proponent will describe how each assumption has been tested. With respect to quantitative models and predictions, the EIS will document the assumptions that underlie the model, the quality of the data and the degree of certainty of the predictions obtained.

4.3. Use of information

4.3.1. Government expert advice

Section 20 of CEAA 2012 requires that every federal authority with specialist or expert information or knowledge with respect to a project subject to an EA make that information or knowledge available to the Agency or review panel. The Agency will advise the proponent of the availability of pertinent information or knowledge or expert and specialist knowledge received from other federal authorities or other levels of government so that it can be incorporated into the EIS.

4.3.2. Community knowledge and Aboriginal traditional knowledge

Sub-section 19(3) of CEAA 2012 states that “the environmental assessment of a designated project may take into account community knowledge and Aboriginal traditional knowledge”. For the purposes of these guidelines, community knowledge and Aboriginal traditional knowledge refers to knowledge acquired and accumulated by a local community or an Indigenous group.

The proponent will incorporate into the EIS the community and Aboriginal traditional knowledge to which it has access or that is acquired through public participation and engagement with Indigenous groups, in keeping with appropriate ethical standards and obligations of confidentiality. The proponent will integrate Aboriginal traditional knowledge into all aspects of its assessment including both methodology (e.g., establishing spatial and temporal boundaries, defining significance criteria) and analysis (e.g., baseline characterization, effects prediction, development of mitigation measures). Agreement should be obtained from Indigenous groups regarding the use, management and protection of their existing traditional knowledge information during and after the EA. For more information on how Aboriginal traditional knowledge can be obtained, incorporated, and aid in the preparation of the EIS, please refer to the Agency’s reference guide entitled “Considering

Aboriginal traditional knowledge in environmental assessments conducted under the *Canadian Environmental Assessment Act, 2012*⁵.

4.3.3. Existing information

In preparing the EIS, the proponent is encouraged to make use of existing information relevant to the project. When relying on existing information to meet requirements of the EIS guidelines, the proponent will either include the information directly in the EIS or clearly direct the reader to where it may obtain the information (i.e., through cross-referencing). When relying on existing information, the proponent will also comment on how the data were applied to the project, separate factual lines of evidence from inference, and state any limitations on the inferences or conclusions that can be drawn from the existing information.

4.3.4. Confidential information

In implementing CEAA 2012, the Agency is committed to promoting public participation in the environmental assessment of projects and providing access to the information on which environmental assessments are based. All documents prepared or submitted by the proponent or any other stakeholder in relation to the environmental assessment are included in the Canadian Environmental Assessment Registry and made available to the public on request. For this reason, the EIS will not contain information that:

- is sensitive or confidential (i.e., financial, commercial, scientific, technical, personal, cultural or other nature), that is treated consistently as confidential, and the person affected has not consented to the disclosure; or,
- may cause harm to a person or harm to the environment through its disclosure.

The proponent will consult with the Agency regarding whether specific information requested by these guidelines should be treated as confidential.

4.4. Presentation and organization of the Environmental Impact Statement

To facilitate the identification of the documents submitted and their placement in the Canadian Environmental Assessment Registry, the title page of the EIS and its related documents will 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
- the date

The EIS will be written in clear, precise language. A glossary defining technical words, acronyms and abbreviations will be included. It will include charts, diagrams, tables, maps and photographs, where appropriate, to clarify the text. Perspective drawings that clearly convey the various components of the project will also be provided. Wherever possible, maps will be presented in common scales and datum to allow for comparison and overlay of mapped features.

⁵ <http://ceaa-acee.gc.ca/default.asp?lang=en&n=C3C7E0D3-1>

For purposes of brevity and to avoid repetition, cross-referencing is preferred. The EIS may make reference to the information that has already been presented in other sections of the document, rather than repeating it. The exception to this preference is the cumulative effects assessment, which should be provided in a stand-alone section. Detailed studies (including all relevant and supporting data and methodologies) will be provided in separate appendices and will be referenced by appendix, section and page in the text of the main document. The EIS will explain how information is organized in the document. This will include a list of all tables, figures, and photographs referenced in the text. A complete list of supporting literature and references will also be provided. A table of concordance, which cross references the information presented in the EIS with the information requirements identified in the EIS Guidelines, will be provided. The proponent will provide copies of the EIS and its summary for distribution, including paper and electronic version in an unlocked, searchable PDF format, as directed by the Agency.

4.5. Summary of the Environmental Impact Statement

The proponent will prepare a summary of the EIS in both of Canada's official languages (French and English) to be provided to the Agency at the same time as the EIS and which will include the following:

- A concise description of all key components of the project and related activities;
- A summary of the consultation conducted with Indigenous groups, the public, and government agencies, including a summary of the issues raised and the proponent's responses;
- An overview of expected changes to the environment
- An overview of the key environmental effects of the project and proposed technically and economically feasible mitigation measures; and
- The proponent's conclusions on the residual environmental effects of the project after taking mitigation measures into account and the significance of those effects.

The summary is to be provided as a separate document and should be structured as follows:

1. Introduction and environmental assessment context
2. Project overview
3. Alternative means of carrying out the project
4. Public consultation
5. Engagement with Indigenous Groups
6. Summary of environmental effects assessment for each VC, including:
 - a. description of the baseline;
 - b. anticipated changes to the environment
 - c. anticipated effects
 - d. mitigation measures
 - e. significance of residual effects
7. Follow-up and monitoring programs proposed

The summary will have sufficient details for the reader to learn and understand the project, potential environmental effects, mitigation measures, and the significance of the residual effects. The summary will include key maps illustrating the project location and key project components.

Part 2 – Content of the Environmental Impact Statement

1. INTRODUCTION AND OVERVIEW

1.1. The proponent

In the EIS, the proponent will:

- provide contact information (e.g. name, address, phone, fax, email);
- identify itself and the name of the legal entity that would develop, manage and operate the project;
- describe corporate and management structures;
- specify the mechanism used to ensure that corporate policies will be implemented and respected for the project; and
- identify key personnel, contractors, and/or sub-contractors responsible for preparing the EIS.

1.2. Project Overview

The EIS will describe the project, key project components and associated activities, scheduling details, the timing of each phase of the project and other key features. If the project is a part of a larger sequence of projects, the EIS will outline the larger context.

The overview is to identify the key components of the project, rather than providing a detailed description, which will follow in Section 3 of this document.

1.3. Project Location

The EIS will contain a description of the geographical setting in which the project will take place. This description will focus on those aspects of the project and its setting that are important in order to understand the potential environmental effects of the project. The following information will be included:

- the UTM coordinates of the main project site;
- current land use in the area;
- distance of the project facilities and project components to any federal lands;
- the environmental significance and value of the geographical setting in which the project will take place and the surrounding area;
- environmentally sensitive areas, such as national, provincial and regional parks, ecological reserves, wetlands, estuaries, and habitats of federally or provincially listed species at risk and other sensitive areas;
- local and Indigenous communities and residences; and,
- traditional territories, treaty lands, Indian reserve lands and Métis harvesting regions and/or settlements.

1.4. Regulatory framework and the role of government

The EIS will identify:

- any federal power, duty or function that may be exercised that would permit the carrying out (in whole or in part) of the project or associated activities;
- the environmental and other regulatory approvals and legislation that are applicable to the project at the federal, provincial, regional and municipal levels;
- government policies, resource management, planning or study initiatives pertinent to the project and/or EA and their implications;
- any treaty or self-government agreements, existing or known to be under negotiation, with Indigenous groups that are pertinent to the project and/or EA;
- any relevant existing or draft land use plans, land zoning, transportation infrastructure plans, or community plans; and
- any regional, provincial and/or national objectives, standards or guidelines that have been used by the proponent to assist in the evaluation of any predicted environmental effects.

2. PROJECT JUSTIFICATION AND ALTERNATIVES CONSIDERED

2.1. Purpose of the project

The EIS will describe the purpose of the project by providing the rationale for the project, explaining the background, the problems or opportunities that the project is intended to satisfy and the stated objectives from the perspective of the proponent. If the objectives of the project are related to broader private or public sector policies, plans or programs, such as, but not limited to, provincial and/or municipal flood mitigation plans and strategies, this information will also be included.

The EIS will identify and describe the potential additional, alternative, or modified uses, objectives, or applications of the project.

The EIS will also describe the predicted environmental, economic, and social costs and benefits of the project. This information will be considered in assessing the justifiability of any significant adverse residual environmental effects, if such effects are identified.

2.2. Alternative means of carrying out the project

The EIS will identify and consider the effects of alternative means of carrying out the project that are technically and economically feasible. The proponent will complete the assessment of alternative means in accordance with the Agency's *Operational Policy Statement entitled "Addressing "Purpose of" and "Alternative Means" under the Canadian Environmental Assessment Act, 2012"*. In its alternative means analysis, the proponent will address, at a minimum, the following project components:

- location of the project;
- project component configurations;
- routing and realignment of access roads;
- modifications to pipelines and transmission lines (if under care and control of the proponent);
- construction methods for instream components;

- reservoir capacity selection;
- project design components related to environmental effect mitigation, such as sediment control, navigation, and fish movement; and
- any other relevant key project components.

The analysis of alternative means of carrying out the project will also consider project operation and parameters for the regulation of flow rates.

The Agency recognizes that projects may be in the early planning stages when the EIS is being prepared. Where proponents have not made final decisions concerning the placement of project infrastructure, the technologies to be used, or that several options may exist for various project components, they are strongly encouraged to conduct an environmental effects analysis at the same level of detail assessment of the various options available (alternative means) within the EIS.

An analysis of alternative means of meeting the project purposes or objectives will also be presented in relation to potential environmental effects under CEAA 2012.

3. PROJECT DESCRIPTION

3.1. Project components

The EIS will describe the project, by presenting the project components (as identified in section 3.1), associated and ancillary works, and other characteristics that will assist in understanding the environmental effects. This will include:

- maps, at an appropriate scale, of the project location, the project components, boundaries of the proposed site with UTM coordinates, the major existing and proposed infrastructure, adjacent land uses, and any important environmental features.
- permanent and temporary linear infrastructures (road, railroad, pipelines, power supply), identifying the route of each of these linear infrastructures, the location and types of structure used for stream crossings;
- storage areas for explosives, fuels, chemicals, contaminated soils, wastewater, solid waste, and hazardous wastes;
- energy supply (source, quantity); and
- waste disposal (type of waste (including hazardous), method of disposal, quantity).

3.2. Project activities

The EIS will include descriptions of the construction, operation, decommissioning, and abandonment associated with the proposed project. This will include descriptions of the activities to be carried out during each phase, the location of each activity, expected outputs, and an indication of the activity's magnitude and scale.

Although a complete list of project activities should be provided, the emphasis will be on activities with the greatest potential to have environmental effects. Sufficient information will be included to predict

environmental effects and concerns identified by the public and Indigenous groups. Highlight activities that involve periods of increased environmental disturbance or the release of materials into the environment.

The EIS will include information regarding the proposed project lifespan and the potential for future expansion or modification.

The EIS will include a summary of the changes that have been made to the project since originally proposed, including the benefits of these changes to the environment, Indigenous Peoples, and the public.

The EIS will include a schedule including time of year, frequency, and duration for all project activities.

The information will include a description of:

3.2.1. Site preparation and construction

- site clearing, excavation;
- if blasting, then list frequency and methods, type of explosive used, and storage of explosives;
- borrow materials requirements (source, quantity, and characterization);
- water management, including water diversions, dewatering or deposition activities required (location, methods, timing);
- equipment requirements (type, quantity);
- construction accommodations (location, capacity, wastewater treatment);
- contribution to atmospheric emissions, including emissions profile (type, rate and source);
- waste management and recycling;
- storage and management of hazardous materials, fuels and residues. Characterization and management of workforce, including transportation, work schedules and lodging; and
- progressive restoration and reclamation.

3.2.2. Operation

- equipment requirement;
- criteria used to determine the start, stop, and nature of operations;
- water management throughout each project component, including a detailed water management plan;
- contribution to atmospheric emissions, including emissions profile (type, rate and source);
- waste management and recycling;
- characterization and management of workforce, including transportation, work schedules and lodging; and
- ongoing and post-flood recovery and/or maintenance, of each project component.

3.2.3. Decommissioning and abandonment

- the preliminary outline of a decommissioning and reclamation plan for any components associated with the project;
- the ownership, transfer and control of the different project components;
- the responsibility for monitoring and maintaining the integrity of any remaining structures and the hydrological function of the surrounding environment; and
- for permanent facilities, a conceptual discussion on how decommissioning and abandonment could occur, and a description of any progressive restoration or reclamation plans.

4. PUBLIC PARTICIPATION AND CONCERNS

The EIS will describe the ongoing and proposed participation and the information sessions that the proponent will hold or that it has already held on the project. It will provide a description of efforts made to distribute project information and provide a description of information and materials that were distributed during the consultation process. The EIS will indicate the methods used, where the consultation was held, the persons and organizations consulted, the concerns voiced and the extent to which this information was incorporated in the design of the project as well as in the EIS. The EIS will provide a summary of key issues raised related to the environmental assessment as well as describe any outstanding issues and ways to address them.

5. INDIGENOUS ENGAGEMENT AND CONCERNS

For the purposes of developing the EIS, the proponent will engage with Indigenous groups that may be affected by the project, to obtain their views on:

- Effects of changes to the environment on Aboriginal peoples (health and socio-economic conditions; physical and cultural heritage, including any structure, site or thing that is of historical, archaeological, paleontological or architectural significance; and current use of lands and resources for traditional purposes) pursuant to paragraph 5(1)(c) of CEEA 2012, and
- Potential adverse impacts of the project on Section 35 rights, title and related interests, in respect of the Crown's duty to consult, and where appropriate, accommodate Aboriginal peoples.

With respect to the effects of changes to the environment on Aboriginal peoples, the assessment requirements are outlined in Part 2, sections 6.1.9 and 6.3.4 of these Guidelines. With respect to potential adverse impacts of the project on section 35 rights, title and related interests, the EIS will document for each group identified in section 5.1 of these Guidelines (or in subsequent correspondence from the Agency):

- Section 35 rights⁶, title and related interests, when this information is directly provided by a group to the proponent, the Agency or is available through public records including:

⁶ The 2011 *Updated Guidelines for Federal Officials to Fulfill the Duty to Consult (the Guidelines)* defines Aboriginal rights as: practices, traditions and customs integral to the distinctive culture of the Aboriginal group claiming the right that existing prior to contact with the Europeans (Van de Peet). In the context of Métis groups, Aboriginal rights means practices, traditions, and customs integral to the distinctive culture of the Métis group that existed prior to effective European control, that is, prior to the time when Europeans effectively established political and legal control in the claimed area (*Powley*). Generally, these

- Geographical extent, nature, frequency and timing of the practice or exercise of the right; and,
- Maps and data sets (e.g., fish catch numbers);
- Potential adverse impacts of each of the project components and physical activities, in all phases, on section 35 rights, including title and related interests. This assessment is to be based on a comparison of the exercise of the identified rights, title and related interests between the predicted future conditions with the project and the predicted future conditions without the project. Include the perspectives of Indigenous groups on the impacts assessment methodology and conclusions;
- Measures identified to mitigate or accommodate potential adverse impacts of the project on potential or established section 35 rights, including title and related interests. These measures will be written as specific commitments that clearly describe how the proponent intends to implement them, and may go beyond mitigation measures that are developed to address potential adverse environmental effects;
- Potential adverse impacts on potential or established section 35 rights, including title and related interests that have not been fully mitigated or accommodated as part of the EA and associated engagement with Indigenous groups. The proponent will also take into account the potential adverse impacts that may result from the residual and cumulative environmental effects. Include the perspectives of Indigenous groups.

The information sources, methodology and findings of the assessment of CEAA 2012 paragraph 5(1)(c) effects may be used to inform the assessment of potential adverse impacts of the project on Section 35 rights, title and related interests. However, there may be distinctions between the adverse impacts on Section 35 rights, title and related interests and paragraph 5(1)(c) effects. The proponent will carefully consider the potential distinction between these two aspects and, where there are differences will include the relevant information in its assessment.

In terms of gathering views from Indigenous groups with respect to both environmental effects of the project and the potential adverse impacts of the project on potential or established section 35 rights, including title and related interests, the EIS will document:

- VCs suggested by Indigenous groups for inclusion in the EIS, whether they were included, and the rationale for any exclusions;
- specific suggestions raised by each Indigenous group for mitigating the effects of changes to the environment on Aboriginal peoples or mitigating or accommodating potential adverse impacts of the project on potential or established section 35 rights, including title and related interests;
- views expressed by each Indigenous group on the effectiveness of the mitigation or accommodation measures;

rights are fact and site specific. For greater certainty, the Guidelines also define Aboriginal title as an Aboriginal right. Visit the Indigenous and Northern Affairs Canada website at: www.aadnc-aandc.gc.ca/eng/1100100014680/1100100014681*

- from the proponent’s perspective, any potential cultural, social and/or economic impacts or benefits to each Indigenous group identified that may arise as a result of the project. Include the perspectives of Indigenous groups;
- any other comments, specific issues and concerns raised by Indigenous groups and how they were responded to or addressed;
- changes made to the project design and implementation directly as a result of discussions with Indigenous groups;
- where and how Aboriginal traditional knowledge was incorporated into the environmental effects assessment (including methodology, baseline conditions and effects analysis for all VCs) and the consideration of potential adverse impacts on potential or established section 35 rights, including title and related interests and related mitigation measures; and
- any additional issues and concerns raised by Indigenous groups in relation to the environmental effects assessment and the potential adverse impacts of the project on potential or established section 35 rights, including title and related interests.

A suggested format for providing some of the information above is the creation of a tracking table of key issues raised by each Indigenous group, including the concerns raised related to the Project, proposed mitigation options, and where appropriate, a reference to the proponent’s analysis in the EIS. Information provided related to potential adverse impacts on potential or established section 35 rights will be considered by the Crown in meeting its common law duty to consult obligations as set out in the *Updated Guidelines for Federal Officials to Fulfill the Duty to Consult* (2011).

5.1. Indigenous Groups to Engage & Engagement Activities

With respect to engagement activities, the EIS will document:

- the engagement activities undertaken with Indigenous groups prior to the submission of the EIS, including the date and means of engagement (e.g., meeting, mail, telephone);
- any future planned engagement activities; and,
- how engagement activities by the proponent allowed Indigenous groups to understand the project and evaluate its effects on their communities, activities, Section 35 rights and other interests.

In preparing the EIS, the proponent will ensure that Indigenous groups have access to timely and relevant information on the project and how the project may adversely impact them. The proponent will structure its engagement activities to provide adequate time for Indigenous groups to review and comment on the relevant information, and will provide an anticipated engagement schedule. Engagement activities are to be appropriate to the groups’ needs and should be arranged through discussions with the groups. The EIS will describe all efforts, successful or not, taken to solicit the information required from Indigenous groups to support the preparation of the EIS.

The proponent will ensure that views of Indigenous groups are recorded. The proponent will keep detailed tracking records of its engagement activities, recording all interactions with Indigenous groups, the issues

raised by each Indigenous group and how the proponent addressed the concerns raised. The proponent will share these records with the Agency.

The proponent should consider translating information for Indigenous groups into the appropriate Indigenous language(s) in order to facilitate engagement activities during the environmental assessment.

For the Indigenous groups expected to be most affected by the project, the proponent is expected to strive toward developing a productive and constructive relationship based on on-going dialogue with the groups in order to support information gathering and the effects assessment. These groups include:

- Tsuut'ina Nation
- Stoney Nakoda Nations (Bears paw First Nation, Chiniki First Nation, Wesley First Nation)
- Blood Tribe First Nation
- Piikani Nation
- Siksika Nation
- Ermineskin Cree Nation
- Louis Bull Tribe
- Samson Cree Nation
- Montana First Nation
- Foothills Ojibway First Nation
- Métis Nation of Alberta, Region 3

For the above groups, the proponent will strive to use primary data sources and hold face-to-face meetings to discuss concerns. The proponent will facilitate these meetings by making key EA summary documents (baseline studies, EIS, key findings, plain language summaries) accessible in advance. The proponent will ensure there are sufficient opportunities for individuals and groups to provide oral input in the language of their choice. If possible, the proponent should consider translating information for these Indigenous groups into the appropriate Indigenous languages(s) in order to facilitate engagement activities during the EA process.

For Indigenous groups that may also be affected by the project, but to a lesser degree, the proponent will ensure these groups are notified about key steps in the EIS development process and of opportunities to provide comments on key EA documents and/or information to be provided regarding their community. The proponent will still ensure these groups are reflected in the baseline information and assessment of potential effects or impacts in the EIS. These Indigenous groups include:

- Ktunaxa National Council
- Metis Nation, British Columbia

The groups referenced above may change as more is understood about the environmental effects of the project and/or if the project or its components change during the EA. The Agency reserves the right to alter the list of Indigenous groups that the proponent will engage as additional information is gathered during the assessment.

Upon receipt of knowledge or information of potential effects to an Indigenous group not listed above, the proponent shall provide that information to the Agency or review panel at the earliest opportunity.

6. EFFECTS ASSESSMENT

6.1. Project setting and baseline conditions

Based on the definition of the project described in section 3 (Part 1), the EIS will present baseline information in sufficient detail to enable the identification of how the project could affect the VCs and an analysis of those effects. Should other VCs be identified during the conduct of the EA, the baseline condition for these valued components will also be described in the EIS. To determine the appropriate spatial boundaries to describe the baseline information, refer to section 3.3.3 (Part 1). As a minimum, the EIS will include a description of:

6.1.1. Atmospheric Environment

- ambient air quality in the project areas and the results of a baseline survey of ambient air quality, including the following contaminants, expressed in concentration units in keeping with guidelines: total suspended particulates, fine particulates (PM_{2.5}), particulate matters up to 10 micrometers in size (PM-10), diesel particulate, sulfur oxide (SO_x), volatile organic compounds (VOCs) and nitrogen oxide (NO_x);
- identify and quantify existing greenhouse gas emissions⁷ by individual pollutant measured as kilotonnes of CO₂ equivalent per year in the project study areas, and current provincial/territorial/federal limits for greenhouse gas emissions targets;
- current ambient daytime and night time noise levels at key receptor points (e.g. Indigenous communities), including the results of a baseline ambient noise survey. Information on typical sound sources, geographic extent and temporal variations will be included;
- existing ambient night-time light levels at the project site and at any other areas where project activities could have an effect on light levels. The EIS will describe night-time illumination levels during different weather conditions and seasons; and
- historical records of relevant meteorological information (e.g. total precipitation (rain and snow); mean, maximum and minimum temperatures; and typical wind speed and direction).

6.1.2. Geology and geochemistry

- the bedrock and host rock geology of the deposit, including a table of geologic descriptions, geological maps and cross-sections of appropriate scale;
- geomorphology, topography and geotechnical characteristics of areas proposed for construction of major project components;
- the geochemical characterization of road cuts, blast materials, and excavated materials such as waste rock and potential construction material (e.g. borrow materials) in order to predict and mitigate metal leaching and acid rock drainage⁸;

⁷ Greenhouse gas emissions include: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃).

- the geochemical characterization of sediment within the Elbow;
- geological hazards that exist in the areas planned for the project facilities and infrastructure, including:
 - ✓ slope erosion and the potential for ground and rock instability, and subsidence during and following project activities;
 - ✓ history of seismic activity in the area; and
 - ✓ isostatic rise or subsidence;
- sites that may be of paleontological and paleobotanical interest;
- a description of regional and local geological structures, including major and local features, their formation, and general distribution; and
- baseline concentrations of contaminants of concern⁹ within the local, regional, and downstream receiving environments;

6.1.3. Topography and soil

- baseline mapping and description of landforms and soils within the local and regional project area;
- soil maps depicting soil type distribution and diversity and properties (soil pH, organic matter, depths of horizon);
- potential for soil instability and erosion; and
- suitability of topsoil and overburden for use in the rehabilitation of disturbed areas;

6.1.4. Groundwater and Surface Water

- local and regional hydrogeology, including:
 - ✓ the hydrogeological context, including the delineation of key stratigraphic and hydrogeologic boundaries, spatial distribution of major features, flow characteristics;
 - ✓ the physical properties of the hydrogeological units (e.g., hydraulic conductivity, transmissivity, saturated thickness, storativity, porosity, specific yield);
 - ✓ the groundwater flow patterns and rates;
 - ✓ a delineation and characterization of groundwater - surface water interactions including the locations of groundwater discharge to surface water and surface water recharge to groundwater, and interactions with respect to water quality and quantity;
 - ✓ variations in surface water quality, including seasonal changes in runoff entering watercourses;
 - ✓ temporal changes in groundwater flow (e.g., seasonal and long term changes in water levels);

⁸ The manual produced by the Mine Environment Neutral Drainage (MEND) Program, entitled, MEND Report 1.20.1, "Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials", Version 0 - December 2009 is a recommended reference for use in acid rock drainage and metal leaching prediction.

⁹ Contaminants of concern include, but are not limited to, selenium, sulphate, cadmium, nitrate, calcite, and mercury.

- ✓ a discussion of the hydrogeologic, hydrologic, geomorphic, climatic and anthropogenic controls on groundwater flow;
 - ✓ any local and regional groundwater well and/or groundwater resource use, including potable water and agricultural water uses, and a description of their current use and potential for future use;
 - ✓ all groundwater monitoring wells that may provide data relevant to the project, including their locations;
 - ✓ any monitoring protocols in place for collection of existing groundwater data; and
 - ✓ an appropriate hydrogeologic model for the project area, including major structures such as the diversion structures, off-stream reservoir, that discusses hydrogeological systems, flow regimes, analyses sensitivity to climactic variations (e.g. seasonal recharge) and hydrogeologic parameters (e.g. hydraulic conductivity) and includes a discussion of model assumptions.
- hydrology and water quality of the Elbow River watershed, including;
 - ✓ the delineation of drainage basins, at appropriate scales (water bodies and watercourses), including intermittent streams, flood risk areas and wetlands, boundaries of the watershed and subwatersheds, overlaid by key project components;
 - ✓ regional and local hydrology, including maps and relevant diagrams;
 - ✓ historic hydrology conditions, including a description of flood patterns that discusses flood extent and periodicity;
 - ✓ for each affected water body and watercourse, the total surface area, bathymetry, maximum and mean depths, water level fluctuations, type of substrate (sediments), discharge data at monthly, seasonal and annual flow rates and sediment transport characteristics;
 - ✓ any seasonal water quality data (e.g. water temperature, turbidity, pH, dissolved oxygen, total suspended solids (TSS), chemistry, nutrients, metals, methyl mercury, dissolved/total organic carbon, biochemical oxygen demand (BOD)/carbonaceous biochemical oxygen demand (CBOD), pesticides, aquatic indicators, sediment quality) and analytical interpretation at several representative local stream and water body monitoring stations established throughout the project site;
 - ✓ seasonal and interannual variation of baseline surface water quality;
 - ✓ sediment quality and quantity;
 - ✓ comparison of baseline datasets against applicable guidelines and standards, including the identification of exceedances and trends;
 - ✓ any local and regional potable surface water resource; and
 - ✓ ice formation and break-up processes on the Elbow River.

6.1.5. Fish and fish habitat

For potentially affected surface waters:

- a characterization of fish populations on the basis of species and life stage, abundance, distribution, and movements, including information on the surveys carried out and the source of data available (e.g. location of sampling stations, catch methods, date of catches, species);

- a description of primary and secondary productivity of aquatic resources (e.g. benthic communities, aquatic invertebrates, feeder species, aquatic plants) in terms of abundance, distribution, general life cycles, movements, and seasonal availability;
- a description of habitat by homogeneous section, including the length of the section, width of the channel from the high water mark (bankful width), water depths, type of substrate (sediments), aquatic and riparian vegetation, habitat types and functions, cover components, and photos;
- a description of instream flow needs and habitat preferences for resident fish species in the Elbow River and its tributaries;
- natural obstacles (e.g. falls, beaver dams) or existing structures (e.g. water crossings) that hinder the free passage of fish;
- maps, at a suitable scale, indicating the surface area of potential or confirmed fish habitat for spawning, nursery, feeding, overwintering, migration routes, etc. This information should be linked to water depths (bathymetry) to identify the extent of a water body's littoral zone;
- fish or invertebrate species at risk that are known to be present; and
- type and location of suitable habitats for fish species at risk that appear on federal and provincial lists and that are found or are likely to be found in the study area.

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

6.1.6. Migratory birds and their habitat¹⁰

- birds and their habitats that are found or are likely to be found in the study area. This description may be based on existing sources, but supporting evidence is required to demonstrate that the data used are representative of the avifauna and habitats found in the study area. The existing data must be supplemented by surveys, if required;
- abundance, distribution, movements, seasonal habitat use and presence, and life stages of migratory and non-migratory birds (including waterfowl, raptors, shorebirds, marsh birds and other land birds) likely to be affected in the project area based on existing information, or surveys, as appropriate, to provide current field data; and
- year-round migratory bird use of the area (e.g., winter, spring migration, breeding season, fall migration), based on preliminary data from existing sources and surveys to provide current field data if appropriate.

6.1.7. Species at Risk

- a list of all potential or known federally listed species at risk that may be affected by the project (fauna and flora), using existing data and literature as well as surveys to provide current field data;

¹⁰ Surveys should be designed with reference to the Canadian Wildlife Service's guidance such as Technical Report No. 508, *A Framework for the Scientific Assessment of Potential Project Impacts on Birds* (Hanson et al. 2009). Appendix 3 of the Framework provides examples of project types and recommended techniques for assessing impacts on migratory birds.

- a list of all federal species designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) for listing on Schedule 1 of the *Species at Risk Act*. This will include those species in the risk categories of extirpated, endangered, threatened and special concern.¹¹
- any published studies that describe the regional importance, abundance and distribution of species at risk including recovery strategies or plans. The existing data must be supplemented by surveys if required; and
- residences, seasonal movements, movement corridors, habitat requirements, key habitat areas, identified critical habitat and/or recovery habitat (where applicable) and general life history of species at risk that may occur in the project area, or be affected by the project.

6.1.8. Riparian, Wetland, and Terrestrial Environments

- characterization of soils in the excavation area, in terrestrial and riparian environments, with a description of past uses;
- characterization of the shoreline, banks, current and future flood risk areas, and wetlands (fens, marshes, peatlands, mudflats and eelgrass beds, etc.), including the location and extent of wetlands likely to be affected by project activities according to their size, type (wetland class and form, Canadian Wetland Classification System, National Wetlands Working Group, 1997), the description of their ecological function (ecological, hydrological, wildlife, socioeconomic, etc.) and species composition; and
- identification of ecosystems that are sensitive or vulnerable to changes or alterations to water quality and quantity, plant and animal species (abundance, distribution and diversity) and their habitats, with a focus on species at risk or with special status that are of social, economic, cultural or scientific significance as well as invasive alien species.

6.1.9. Aboriginal Peoples

With respect to potential effects on Aboriginal peoples and the related VCs, baseline information will be provided for each Indigenous group identified in section 5 of these Guidelines (and any groups identified after these guidelines are finalized). Baseline information will describe and characterize the elements in paragraph 5(1)(c) of CEAA 2012 based on the spatial and temporal scope selected for the assessment according to the factors outlined in Part 1, section 3.3.3. Baseline information will also characterize the regional context of each of the paragraph 5(1)(c) of CEAA 2012 elements to support the assessment of project related effects and cumulative effects. Baseline information will be sufficient to provide a comprehensive understanding of the current state of each VC.

Baseline information for current use of lands and resources for traditional purposes will focus on the traditional activity (e.g., hunting, fishing, trapping, plant gathering) and include a characterization of all attributes of the activity that can be affected by environmental change. This includes identifying species of importance and assessing the quality and quantity of preferred traditional resources and locations, timing (e.g., seasonality, access restrictions, distance from community), ambient/sensory environment (e.g., noise, air

¹¹ Proponents are encouraged to consult COSEWIC's annual report for a listing of the designated wildlife species: http://www.cosewic.gc.ca/eng/sct0/index_e.cfm#sar

quality, visual landscape, presence of others), and cultural environment (e.g., historical/generational connections, preferred areas). Specific aspects that will be considered include, but are not limited to:

- location of traditional territory (including maps where available);
- location of reserves and communities;
- location of hunting camps and cabins;
- drinking water sources (permanent, seasonal, periodic, or temporary);
- consumption of country foods;
- commercial activities (e.g. fishing, trapping, hunting, forestry, outfitting);
- recreational uses;
- traditional uses currently practiced or practiced in recent history;
- fish, wildlife, birds, plants or other natural resources of importance for traditional use;
- places where fish, wildlife, birds, plants or other natural resources are harvested;
- access and travel routes for conducting traditional practices;
- frequency, duration or timing of traditional practices;
- cultural values associated with the area affected by the project and the traditional uses identified;
- areas of concentration of migratory animals, such as breeding, denning and/or wintering areas;
- ungulates, furbearers, amphibians, small mammals, and their habitat;
- existing or proposed protected areas, special management areas, and conservation areas in the regional study area;
- wetlands most likely to be affected by project activities according to their location, size, type (wetland class and form), species composition and ecological function (Canadian Wetland Classification System, National Wetlands Working Group, 1997);
- key plant communities and animals that rely on wetlands; and
- any other potential human receptor sites, including seasonal and temporary locations, and potentially affected population size.

Baseline information for health¹² and socio-economic conditions will include the functioning and health of the socio-economic environment, encompassing a broad range of matters that affect communities in the study area in a way that recognizes interrelationships, system functions and vulnerabilities. Specific aspects that will be considered include, but are not limited to:

- drinking and recreational water sources (permanent, seasonal, periodic, or temporary);

¹² The proponent should refer to Health Canada's *Useful Information for Environmental Assessments* document in order to include the appropriate baseline information relevant to human health. This document can be obtained at http://www.hc-sc.gc.ca/ewh-semt/pubs/eval/environ_assess-eval/index-eng.php

- consumption of country foods (also known as traditional foods) including food that is trapped, fished, hunted, harvested or grown for subsistence or medicinal purposes, outside of the commercial food chain;
- which country foods are consumed by which Indigenous groups, how frequently, and where these country foods are harvested;
- commercial activities (e.g. fishing, trapping, hunting, forestry, outfitting); and
- recreational uses.

Baseline information for physical and cultural heritage¹³ (including any site, structure or thing of archaeological, paleontological, historical or architectural significance) will consider all elements of cultural and historical importance to Indigenous groups in the area and is not restricted to artifacts considered under provincial heritage legislative requirements. Specific aspects that will be considered include, but are not limited to:

- burial sites;
- cultural landscapes;
- sacred, ceremonial or culturally important places, objects or things; and
- archaeological potential and/or artifacts places.

Any other baseline information that supports the analysis of predicted effects on Indigenous Peoples will be included as necessary. The EIS will also indicate how input from Indigenous groups was used in establishing the baseline conditions related to health and socio-economics, physical and cultural heritage and current use of lands and resources for traditional purposes.

6.1.10. Human environment

- the rural and urban settings likely to be affected by the project;
- transportation infrastructure likely to be affected by the project;
- the current use of land in the study area, including a description of agriculture, grazing, hunting, recreational and commercial fishing, trapping, gathering, outdoor recreation, use of seasonal cabins, outfitters;
- current use of all waterways and water bodies that will be directly affected by the project, including recreational uses, where available;
- location of and proximity of any permanent, seasonal or temporary residences or camps;

¹³ Heritage resources to be considered will include but not be limited to, physical objects (e.g. middens, culturally-modified trees, historic buildings), sites or places (e.g. burial sites, sacred sites, cultural landscapes) and attributes (e.g. language, beliefs).

- health and socio-economic conditions, including the functioning and health of the socio-economic environment, encompassing a broad range of matters that affect communities in the study area in a way that recognizes interrelationships, system functions and vulnerabilities;
- physical and cultural heritage, including structures, sites or things of historical, archaeological, paleontological or architectural significance; and
- any other potential human receptor sites, including seasonal and temporary locations, and potentially affected population size.

6.2. Predicted Changes to the Physical Environment

The assessment will include a consideration of the predicted changes to the environment as a result of the project being carried out or as a result of any powers duties or functions that are to be exercised by the federal government in relation to the project. These predicted changes to the environment are to be considered in relation to each phase of the project (construction, operation, decommissioning, and abandonment) and are to be described in terms of the geographic extent of the changes, the duration and frequency of change, and whether the environmental changes are reversible or irreversible.

6.2.1. Changes to the Atmospheric Environment

- the proponent will carry out appropriate atmospheric dispersion modelling of the main contaminants in order to estimate the contaminant concentrations present in the entire area that could potentially be affected by atmospheric emissions (see Part 2, section 6.1.1) resulting from various project-related activities (sources), including the use of heavy machinery during construction, and the deposition of sediment within any areas of the Project that will be temporarily flooded. The proponent will be required to compare anticipated air quality against the *Canadian Ambient Air Quality Standards* (CAAQS) for fine particulate matter;
- a description of all methods and practices that will be implemented to minimize and control atmospheric emissions, including fine particulate matter, throughout the project life cycle. If the best available technologies are not included in the project design, the proponent will need to provide a rationale for the technologies selected;
- an estimate of the direct greenhouse gas emissions associated with all phases of the Project as well as any mitigation measures proposed to minimize greenhouse gas emissions. This information is to be presented by individual pollutant and should also be summarized in CO₂ equivalent per year. The proponent is responsible for the following:
 - ✓ an estimate of the contribution of the project emissions at the local, provincial and federal scale must be provided. The proponent must indicate the category into which the project falls in terms of the relative magnitude of its contribution to GHG emissions (project with low, medium or high emission rates);
 - ✓ an estimate of any changes, associated with project components or activities, to the carbon sequestration capacity of the project area;
 - ✓ a GHG emissions management plan should also be provided;
 - ✓ all estimated emissions and emission factors used should be justified;

- ✓ provide the estimation or derivation method and all assumptions and emission intensity factors should be disclosed and described;
- ✓ compare and assess the level of estimated emissions to the regional, provincial and federal emission targets;
- ✓ an estimate of upstream GHG emissions, including information related to the project's electrical demand and sources of electrical power for facilities and equipment, i.e., the project's main source and any other additional sources (generators, etc.), as appropriate; and
- ✓ emission factors for all upstream stages should be recent and pertinent to the region;
- changes in ambient noise levels;
- odours resulting from the reservoir; and
- changes in night-time light levels.

6.2.2. Changes to Groundwater and Surface Water

- the proponent will carry out modelling as required to present and substantiate anticipated changes to groundwater and surface water in all operational scenarios;
- changes to total suspended solids (TSS), turbidity, oxygen level, water temperature, pH, dissolved oxygen, ice regime, water quality including metals, methyl mercury, nutrients, dissolved/total organic carbon, biochemical oxygen demand (BOD)/carbonaceous biochemical oxygen demand (CBOD), pesticides, aquatic indicators, sediment quality;
- changes to the hydrological and hydrometric conditions including instream flow conditions;
- changes to groundwater recharge/discharge areas and any changes to groundwater infiltration areas;
- temperature changes in surface water as a result of water diversion and retention;
- changes to the quality of drinking water sources;
- changes to water quality and quantity in the Elbow River and associated tributaries;
- changes to water quality and quantity and sediment quality and quantity associated with project-related:
 - erosion and sedimentation;
 - ammonium nitrate explosives;
 - excavation, blasting, and stock-piling of materials and wasterock;
 - wastes, wastewater, fuels, chemicals, hazardous materials, contaminated soils;
 - spills and releases; and
 - metal leaching and acid rock drainage; and
- changes to water quality and quantity and sediment quality and quantity should flood event(s) exceed capacity of the reservoir system.

6.2.3. Changes to Terrestrial Landscape

- overall description of changes related to landscape disturbance, including changes to vegetation and plant communities;
- changes to migratory and non-migratory bird habitat, with a distinction made between the two birds category, including losses and gains, structural changes and fragmentation of riparian habitat (aquatic grassbeds, intertidal marshes) of terrestrial environments and wetlands frequented by birds (types of cover, ecological unit of the area in terms of quality, quantity, diversity, distribution and functions.
- Changes to habitat for federal listed species at risk listed in Part 2, 6.1.7; and
- Changes to key habitat for culturally important species and species important to Indigenous current use of resources.

6.3. Predicted Effects on Valued Components

Based on the predicted changes to the environment identified in section 6.2, the proponent is to assess the environmental effects of the project on the followings VCs. All interconnections between VCs and between changes to multiple VCs will be described:

6.3.1. Fish and Fish Habitat

- the identification of any potential adverse effects to fish or fish habitat as defined in subsection 2(1) of the *Fisheries Act*, including the calculations of any potential habitat loss (temporary or permanent) in terms of surface areas (e.g. spawning grounds, fry-rearing areas, feeding), and in relation to watershed availability and significance. The assessment will include a consideration of:
 - ✓ the geomorphological changes and their effects on hydrodynamic conditions and fish habitats (e.g. modification of substrates, dynamic imbalance, silting of spawning beds);
 - ✓ the modifications of hydrological and hydrometric conditions on fish habitat and on the fish species' life cycle activities (e.g. reproduction, fry-rearing, movements);
 - ✓ potential effects on riparian areas that could affect aquatic biological resources and productivity taking into account any anticipated modifications to fish habitat;
 - ✓ any potential imbalances in the food web in relation to baseline;
 - ✓ the potential risk of production, increase, interaction, and accumulation of contaminants, including methylmercury, in fish habitat and fish;
 - ✓ any potential for direct fish morbidity or mortality, including due to entrainment through physical works; and
 - ✓ water quality and sediment quality changes as a result of storing water in, and releasing water from, the off-stream reservoir;
- the effects of changes to the aquatic environment, including those identified under changes to groundwater and surface water, on fish and their habitat, including:
 - ✓ the anticipated changes in the composition and characteristics of the populations of various fish species, included shellfish and forage fish;

- ✓ any modifications in migration or local movements (upstream and downstream migration, and lateral movements) following the construction and operation of works;
- ✓ any reduction in fish populations as a result of potential overfishing due to increased access to the project area; and
- ✓ any modifications and use of habitats by federally or provincially listed fish species;
- a discussion of how project construction timing correlates to key fisheries windows for freshwater and anadromous species, and any potential effects resulting from overlapping periods; and
- a discussion of how vibration caused by blasting or other construction activities may affect fish behaviour, such as spawning or migrations.

6.3.2. Migratory Birds

- the identification of any potential direct and indirect adverse effects to migratory birds or their habitat, including staging and nesting areas, foraging grounds, and landing sites. The assessment will include a consideration of:
 - ✓ any potential for direct migratory bird mortality, morbidity, or nest destruction;
 - ✓ changes to the environment that may affect migration patterns, flyways, local movement, and seasonal habitat use;
 - ✓ any direct habitat loss, including a discussion of ecosystem availability and ecological context;
 - ✓ water quality and risk of exposure to contaminants
 - ✓ the potential for habitat fragmentation, loss of connectivity or other change causing a reduction of habitat quality;
 - ✓ changes to predator/prey relationships (including non-migratory predators) and species composition balance and how that may affect bird populations; and
 - ✓ indirect effects caused by increased disturbance (e.g. noise, light, presence of workers, electrical transmission lines) relative abundance movements, and losses or changes in migratory bird habitat, considering the critical breeding and migration periods for the birds.

6.3.3. Species at Risk

- identify the potential effects of the project on federally listed species at risk and those species listed by the Committee on the Status of Endangered Wildlife in Canada classified as extirpated, endangered, threatened or of special concern (flora and fauna) and their critical habitat.
- identify any potential direct or indirect effects on those identified species at risk.

6.3.4. Aboriginal Peoples

With respect to Aboriginal peoples, a description and analysis of how changes to the environment caused by the project will affect each group's:

- current use of land and resources for traditional purposes. This assessment will characterize the effect(s) on the use or activity (e.g., hunting, fishing, trapping, plant gathering) as a result of the underlying changes to the environment (i.e., how will the activity change if the project proceeds). The underlying changes to the environment will also be described, including, but not limited to:

- ✓ any changes to resources (fish, wildlife, birds, plants or other natural resources) used for traditional purposes (e.g. hunting, fishing, trapping, collection of medicinal plants, use of sacred sites);
 - ✓ any changes or alterations to access into the areas used for traditional purposes, including development of new roads, deactivation or reclamation of access roads and changes to waterways that affect navigation;
 - ✓ any changes to the environment that affect cultural value or importance associated with traditional uses or areas affected by the project (e.g. values or attributes of the area that make it important as a place for inter-generational teaching of language or traditional practices, communal gatherings, integrity of preferred practice areas);
 - ✓ how timing of project activities that have the potential to affect Indigenous Peoples (e.g. construction, blasting, discharges) interacts with the timing of traditional practices, and any potential effects resulting from overlapping periods;
 - ✓ any changes to the alienation of lands from Indigenous traditional use, including consideration of the regional context for traditional use, and the value of the project area in that regional context;
 - ✓ any changes to environmental quality (e.g. air, water, soil) or the sensory environment (e.g. noise, light, visual landscape), or perceived disturbance of the environment (e.g. fear of contamination of water or country foods) that could detract from Indigenous use of the area or lead to avoidance of the area by Indigenous peoples;
 - ✓ any changes to the environment resulting from the presence of worker or increased access to the area by non-Indigenous people (e.g. noise, competition for or pressure on resources); and
 - ✓ an assessment of the potential to return affected areas to pre-project conditions to support traditional practices;
- human health, considering, but not limited to potential changes in air quality, quality, and availability of country foods, drinking water quality, and noise exposure. When risks to human health due to changes in one or more of these valued components are predicted, a complete Human Health Risk Assessment (HHRA) examining all exposure pathways for pollutants of concern will be necessary to adequately characterize potential risks to human health;
 - socio-economic conditions, including but not limited to:
 - ✓ the use of navigable waters;
 - ✓ forestry and logging operations;
 - ✓ commercial fishing, hunting, trapping, and gathering activities;
 - ✓ commercial outfitters; and
 - ✓ recreational use.
 - physical and cultural heritage, and any structure, site or thing of historical, archaeological, paleontological or architectural significance to Indigenous groups, including, but not limited to:
 - ✓ the loss or destruction of physical and cultural heritage;
 - ✓ changes to access to physical and cultural heritage; and
 - ✓ changes to the cultural value or importance associated with physical and cultural heritage.
 - Other effects of changes to the environment on Indigenous Peoples should be reflected as necessary.

6.3.5. Other VCs (Selected because of federal lands, interprovincial, international concerns or related to issuance of a permit (if relevant))

Based on the changes to the environment that have been identified in section 6.2, additional VCs are to be selected based on the following:

- Interprovincial transboundary effects;
- Effects to federal lands; and
- Federal decisions under the *Navigation Protection Act* and the *Fisheries Act*.

6.4. Mitigation

Every EA conducted under CEAA 2012 will consider measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project. Under CEAA 2012, mitigation includes measures to eliminate, reduce or control the adverse environmental effects of a designated project, as well as restitution for damage to the environment through replacement, restoration, compensation or other means. Measures will be specific, achievable, measurable, and verifiable, and described in a manner that avoids ambiguity in intent, interpretation and implementation. Mitigation measures may be considered for inclusion as conditions in the EA decision statement and/or in other compliance and enforcement mechanisms provided by other authorities' permitting or licensing processes.

As a first step, the proponent is encouraged to use an approach based on the avoidance and reduction of the effects at the source. Such an approach may include the modification of the design of the project or relocation of project components.

The EIS will describe the standard mitigation practices, policies and commitments that constitute technically and economically feasible mitigation measures and that will be applied as part of standard practice regardless of location (including the measures directed at promoting beneficial or mitigating adverse socio-economic effects. The EIS will then describe the project's environmental protection plan and its environmental management system, through which the proponent will deliver this plan. The plan will provide an overall perspective on how potentially adverse effects would be minimized and managed over time. The EIS will further discuss the mechanisms the proponent would use to require its contractors and sub-contractors to comply with these commitments and policies and with auditing and enforcement programs.

The EIS will then describe mitigation measures that are specific to each environmental effect identified. Measures will be written as specific commitments that clearly describe how the proponent intends to implement them and the environmental outcome the mitigation is designed to address. Where mitigation measures have been identified in relation to species and/or critical habitat listed under the *Species at Risk Act*, the mitigation measures will be consistent with any applicable recovery strategy and action plans.

The EIS will specify the actions, works, minimal disturbance footprint techniques, best available technology, corrective measures or additions planned during the project's various phases to eliminate or reduce the significance of adverse effects. The impact statement will also present an assessment of the effectiveness of the proposed technically and economically feasible mitigation measures. The reasons for determining if the mitigation measure reduces the significance of an adverse effect will be made explicit.

The EIS will indicate what other technically and economically feasible mitigation measures were considered, and explain why they were rejected. Trade-offs between cost savings and effectiveness of the various forms of mitigation will be justified. The EIS will identify who is responsible for the implementation of these measures and the system of accountability.

Where mitigation measures are proposed to be implemented for which there is little experience or for which there is some question as to their effectiveness, the potential risks and effects to the environment should those measures not be effective will be clearly and concisely described. In addition, the EIS will identify the extent to which technology innovations will help mitigate environmental effects. Where possible, it will provide detailed information on the nature of these measures, their implementation, management and the requirements of the follow-up program.

Adaptive management is not considered as a mitigation measure, but if the follow-up program (refer to section 9) indicates that corrective action is required, the proposed approach for managing the action should be identified.

6.5. Significance of residual effects

After having established the technically and economically feasible mitigation measures, the EIS will present any residual environmental effects of the project on the VCs identified in section 6.3. The residual effects, even if very small or deemed insignificant will be described.

The EIS will then provide an analysis of the significance of the residual environmental effects that are considered adverse, using guidance described in section 4 of the Agency's Operational Policy Statement, *Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects under the Canadian Environmental Assessment Act, 2012*¹⁴.

The EIS will identify the criteria used to assign significance ratings to any predicted adverse effects. It will contain clear and sufficient information to enable the Agency or review panel, technical and regulatory agencies, Indigenous groups and the public to review the proponent's analysis of the significance of effects. The EIS will document the terms used to describe the level of significance.

The following criteria should be used in determining the significance of residual effects:

- magnitude;
- geographic extent;
- duration;
- frequency;
- reversibility;
- ecological and social context; and
- existence of environmental standards, guidelines or objectives for assessing the effect.

¹⁴ Visit the Canadian Environmental Assessment Agency's website at: <http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=363DF0E1-1>

In assessing significance against these criteria the proponent will, where possible, use relevant existing regulatory documents, environmental standards, guidelines, or objectives such as prescribed maximum levels of emissions or discharges of specific hazardous agents into the environment. The EIS will contain a section which explains the assumptions, definitions and limits to the criteria mentioned above in order to maintain consistency between the effects on each VC.

In each case where significant adverse effects are identified, the EIS will set out the probability (likelihood) that they will occur, and describe the degree of scientific uncertainty related to the data and methods used within the framework of its environmental analysis.

6.6. Other effects to consider

6.6.1. Effects of potential accidents or malfunctions

The failure of certain works caused by human error or exceptional natural events (e.g. flooding, earthquake) could cause major effects. The proponent will therefore conduct an analysis of the risks of accidents and malfunctions, determine their effects and present preliminary emergency measures.

Taking into account the lifespan of different project components, the proponent will identify the probability of potential accidents and malfunctions related to the project, including an explanation of how those events were identified, potential consequences (including the environmental effects as defined in section 5 of CEAA 2012, and the significance of these effects), the plausible worst case scenarios, alternative accident scenarios, and the effects of these scenarios. Accidents or malfunctions associated with the presence and/or modification of existing or anticipated future overlapping infrastructure (e.g. pipelines, transmission lines) will be included in this assessment.

This assessment will include an identification of the magnitude of an accident and/or malfunction, including the quantity, mechanism, rate, form and characteristics of the contaminants and other materials likely to be released into the environment during the accident and malfunction events and would potentially result in an adverse environmental effect as defined in section 5 of CEAA 2012. The assessment should consider all seasons of the year and take into account site-specific sensitivities and potential pathways of effects.

The EIS will describe the safeguards that have been established to protect against such occurrences and the contingency and emergency response procedures in place if such events do occur.

6.6.2. Effects of the environment on the project

The EIS will take into account how local conditions and natural hazards, such as severe and/or extreme weather conditions and external events (e.g. flooding, drought, ice jams, landslides, avalanches, erosion, subsidence, fire, outflow conditions and seismic events) could adversely affect the project and how this in turn could result in effects to the environment (e.g., extreme environmental conditions result in malfunctions and accidental events). These events will be considered in different probability patterns (i.e. 5-year flood vs. 100-year flood).

The EIS will provide details of planning, design and construction strategies intended to minimize the potential environmental effects of the environment on the project.

6.6.3. Cumulative effects assessment

The proponent will identify and assess the project's cumulative effects using the approach described in the Agency's Operational Policy Statement entitled *Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012* and the guide entitled *Cumulative Effects Assessment Practitioners' Guide, 1999*¹⁵. The cumulative effects assessment will take into consideration regional flood mitigation works and strategies.

Cumulative effects are defined as changes to the environment due to the project combined with the existence of other past, present and reasonably foreseeable physical activities. Cumulative effects may result if:

- implementation of the project being studied may cause direct residual adverse effects on the valued components, taking into account the application of technically and economically feasible mitigation measures; and,
- the same valued components may be affected by other past, present or reasonably foreseeable physical activities.

Valued components that would not be affected by the project or would be affected positively by the project can, therefore, be omitted from the cumulative effects assessment. A cumulative effect on an environmental component may, however, be important even if the assessment of the project's effects on this environmental component reveals that the effects of the project are minor.

In its EIS, the proponent will:

- identify and provide a rationale for the valued components that will constitute the focus of the cumulative effects assessment, emphasizing this assessment on the VCs most likely to be affected by the project and other project and activities. To this end, the proponent must consider, without limiting itself thereto, the following environmental components likely to be affected by the project:
 - ✓ Elbow River, including its hydrology and seasonal flood processes;
 - ✓ fish and fish habitat, including bull trout, cutthroat trout and other valued fish species;
 - ✓ migratory birds;
 - ✓ species at risk; and
 - ✓ Indigenous Peoples;
- identify and justify the spatial and temporal boundaries for the cumulative effect assessment for each VC selected. The boundaries for the cumulative effects assessments will generally be different for each VC considered. These cumulative effects boundaries will also generally be larger than the boundaries for the corresponding project effects;
- identify the sources of potential cumulative effects. Specify other projects or activities that have been or that are likely to be carried out that could cause effects on each selected VC within the boundaries defined, and whose effects would act in combination with the residual effects of the

¹⁵ Visit the Canadian Environmental Assessment Agency's website at: www.ceaa-acee.gc.ca/

project. This assessment may consider the results of any relevant study conducted by a committee established under section 73 or 74 of CEEA 2012;

- assess the cumulative effects on each VC selected by comparing the future scenario with the project and without the project. Effects of past activities (activities that have been carried out) will be used to contextualize the current state of the VC. In assessing the cumulative effects on current use of lands and resources for traditional purposes by Indigenous Peoples, the assessment will focus on the cumulative effects on the activity (e.g., hunting, fishing, trapping, plant harvesting);
- describe the mitigation measures that are technically and economically feasible. 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 will identify these effects and the parties that have the authority to act. In such cases, the EIS will summarize the discussions that took place with the other parties in order to implement the necessary measures over the long term;
- determine the significance of the cumulative effects; and
- develop a follow-up program to verify the accuracy of the assessment or to dispel the uncertainty concerning the effectiveness of mitigation measures for certain cumulative effects.

The proponent is encouraged to consult with key stakeholders and Indigenous groups prior to finalizing the choice of VCs and the appropriate boundaries to assess cumulative effects.

7. SUMMARY OF ENVIRONMENTAL EFFECTS ASSESSMENT

The EIS will contain a table summarising the following key information:

- potential environmental effects;
- proposed mitigation measures to address the potential environmental effects; and
- potential residual effects and the significance of the residual environmental effects;

The summary table will be used in the EA Report prepared by the Agency or review panel. An example of a format for the key summary table is provided in Appendix 1 of this document.

In a second table, the EIS will summarize all key mitigation measures and commitments made by the proponent which will more specifically mitigate any significant adverse effects of the project on valued components (i.e., those measures that are essential to ensure that the project will not result in significant adverse environmental effects).

8. FOLLOW-UP AND MONITORING PROGRAMS

A follow-up program is designed to verify the accuracy of the effects assessment and to determine the effectiveness of the measures implemented to mitigate the adverse effects of the project. Considerations for developing a follow-up program include:

- whether the project will affect environmentally sensitive areas, VCs or protected areas or areas under consideration for protection;
- the nature of public concerns raised about the project;
- the accuracy of predictions;
- whether there is a question about the effectiveness of mitigation measures or the proponent proposes to use new or unproven techniques and technology;
- the nature of cumulative environmental effects;
- the nature of project;
- whether there was limited scientific knowledge about the effects in the EA; and
- identification of applicable guidelines and standards.

The goal of a monitoring program is to ensure that proper measures and controls are in place in order to decrease the potential for environmental degradation and impacts to Indigenous peoples during all phases of project development, and to provide clearly defined action plans and emergency response procedures to account for human and environmental health and safety, and potential impacts to Indigenous peoples.

The proponent will engage Indigenous groups in the preparation and execution of follow-up and monitoring programs as appropriate.

8.1. Follow-up Program

The duration of the follow-up program shall be as long as required for the environment to regain its equilibrium and to evaluate the effectiveness of the mitigation measures. The follow-up program should address any distinct requirements following construction, during non-flood event operations, and each after flood event operation of the project.

The EIS shall present a preliminary follow-up program in particular for areas where scientific uncertainty or Indigenous or public concern exists in the prediction of effects. This program shall include:

- objectives of the follow-up program and the VCs targeted by the program;
- list of elements requiring follow-up;
- number of follow-up studies planned as well as their main characteristics (list of the parameters to be measured, planned implementation timetable, etc.);
- intervention mechanism used in the event that an unexpected deterioration of the environment is observed;
- mechanism to disseminate follow-up results among the concerned populations;
- accessibility and sharing of data for the general population;

- opportunity for the proponent to include the participation of Indigenous groups and stakeholders on the affected territory, during the implementation of the program; and
- involvement of local and regional organizations in the design, implementation and evaluation of the follow-up results as well as any updates, including a communication mechanism between these organizations and the proponent.

8.2. Monitoring

The proponent will prepare an environmental monitoring program for all phases of the project. This program will help 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.

Specifically, the environmental impact statement shall present an outline of the preliminary environmental monitoring program, including the:

- identification of the interventions that pose risks to one or more of the environmental and/or valued components and the measures and means planned to protect the environment;
- description of the characteristics of the monitoring program where foreseeable (e.g., location of interventions, planned protocols, list of measured parameters, analytical methods employed, schedule, human and financial resources required);
- description of the proponent's intervention mechanisms in the event of the observation of non-compliance with the legal and environmental requirements or with the obligations imposed on contractors by the environmental provisions of their contracts; and
- guidelines for preparing monitoring reports (number, content, frequency, format) that will be sent to the authorities concerned.
- Opportunities for the participation of Indigenous peoples in monitoring during each phase of the Project.

Appendix 1 Example - Summary Table of Environmental Assessment

Valued Component affected	Area of federal jurisdiction ¹⁶ (v)	Project Activity	Potential effects	Proposed mitigation	Residual effect	Magnitude	Extent	Duration	Frequency	Reversibility	Other criteria used to determine significance	Significance of residual adverse effect
Fish and fish habitat												
Migratory birds												
Species at risk												
Current use of land and resource for traditional purpose	v 5(1)(c)(iii)											
Any other VCs identified												

¹⁶ Indicate by a check mark which valued components can be considered "environmental effects" as defined in section 5 of CEAA 2012, and specify which subsection of this Act is relevant. For example, for the VC "Use of land and resources by Indigenous people", the appropriate cell would indicate, section 5(1)(c)(iii).