

Additional Information Requirements For Projects Involving Dams, Impoundments and/or Causeways

Pursuant to Section 5(2) of the *Environmental Impact Assessment Regulation* of the Clean Environment Act, this document is intended to assist proponents in preparing a registration submission for projects involving the above-mentioned sector. It should be read in conjunction with the General Information Requirements as outlined in the latest version of the Registration Guide. Note that the following items are requirements **in addition to** those outlined in the Registration Guide. The information requested in the Registration Guide must also be provided. For further assistance, please contact the Project Assessment and Approvals Branch, Department of Environment at (506)-444-5382.

After reviewing a registration submission, the Technical Review Committee may require other information beyond the items listed below and in the Registration Guide.

Note: If your project involves any of the following components please contact the Canadian Environmental Assessment Agency, Atlantic Region at (902) 426-0564 to determine if your project requires a comprehensive study under the Canadian Environmental Assessment Act: a) expansion of a dam or dyke that would result in a 35% increase in the surface area of a reservoir, or b) a dam or dyke with a reservoir surface area of 1,500 hectares or more.

Definition

This guideline is applicable to all facilities or developments involving the construction/operation, modification or removal of a dam, impoundment or causeway.

A complete list of potential triggers for project registration is provided in Schedule "A" of the Regulation. To determine if registration is required for a specific project, please contact the Project Assessment and Approvals Branch at the number listed above.

1.0 THE PROPONENT

See Registration Guide

2.0 THE UNDERTAKING

(v) Siting Considerations:

Provide the results of a site-selection study, including the following :

- A description of any potential alternatives to the project and their feasibility (e.g., if the impounded area is being created for water supply, discuss the feasibility of any alternatives to the project, such as the use of groundwater);

- A description of all alternative sites that were considered and the existing environmental components potentially affected by each alternative; and
- An explanation of the rationale for the chosen option.

(vi) Physical Components and Dimensions of the Project:

Provide a detailed description of the proposed project, addressing the requirements contained in the Registration Guide. For this class of project the required information includes but is not limited to:

- details on the site layout (i.e., show the proposed dam/causeway/impoundment location and the location of other required construction areas. Include dimensions of these features – e.g., the size and maximum depth of any impounded areas);
- details on the design of the proposed dam/causeway (i.e., layout, geometry, core and facing material, spillway location and design, etc.);
- accessibility of site, including any additional access routes to be constructed (indicate if additional routes are temporary or permanent);
- if additional access routes are required to be constructed, provide details on any stream crossings (i.e., temporary/permanent, culvert, bridge, etc.);
- the dam classification according to the Canadian Dam Safety Guidelines (available on the internet at the address provided in Appendix “A” of the Registration Guide).

(vii) Construction Details:

Provide a detailed description of the proposed construction activities and methods, addressing the requirements contained in the Registration Guide. For this class of project the required information includes but is not limited to the following:

- Describe the location of any stock piles, spoil piles and/or waste rock storage areas (include the dimensions as well);
- If drilling or blasting is anticipated, provide details on where, how much, anticipated charge size, location of adjacent streams to potential blast sites, etc.;
- Provide preliminary details on construction of any stream diversions;
- Describe clearing and grubbing activities, including fate of any merchantable timber and topsoil removed during these activities;

- Discuss any excavation associated with dam construction, (i.e., depth, width, excavation method etc.);

(viii) Operation and Maintenance Details:

Provide a detailed description of the proposed project's operation and maintenance characteristics, addressing the requirements contained in the Registration Guide. For this class of project the required information includes but is not limited to:

- Describe the various operational activities in sufficient detail for the review committee to gain a full understanding of the project. Include in the description all proposed operation, maintenance and inspection activities (e.g. inspection and maintenance schedules, seasonal manipulation of water levels, sluice gate operation for high flow by-pass, turbine operation and maintenance, etc.). Other monitoring initiatives such as water chemistry, dissolved oxygen monitoring, etc should be listed. Provide information on contingency plans and emergency response plans (e.g. in the event of a water-control structure breach). Describe the frequency of dam safety review as dictated under the Canadian Dam Safety Guidelines.

(ix) Future Modifications, Extensions or Abandonment:

- Provide detailed information on any planned future modifications, extensions or abandonment/decommissioning plans for the proposed project, including predicted timeframes and contingency requirements (e.g., what is proposed for the dam structure and impoundment, following the end of the operational life of the proposed project?).
- Describe any reclamation or restoration plans for the site following the end of the operational life of the project, in consideration of the objective of returning any impacted areas to functioning habitats/ecosystems.

3.0 DESCRIPTION OF THE EXISTING ENVIRONMENT

Include all relevant environmental features as noted in the Registration Guide. Examples of issues that may be of particular relevance to this class of project include but are not limited to the following:

- The physical and natural features of the area, including use of the site by wildlife and birds, at different times of the year.
- Existing hydrology (watercourses - e.g., channel width, water depth, seasonal flow, water quality, etc.), fish/fish habitat, and wetlands (e.g., wetland type, functions provided, wetland boundary, etc.).
- The potential occurrence of species at risk (any species protected under the NB Endangered Species Act or federal Species at Risk Act that may be affected by the proposal.

- Recreational, commercial or Aboriginal fisheries that could be potentially affected by project development.
- Archaeological/heritage resources that could potentially be affected by the proposed project, including those resources that could become submerged following impoundment.
- Lands currently in use for traditional resource collection purposes by Aboriginal persons within the Project area. These may include Aboriginal Traditional Use Plants (i.e., traditional medicinal plants), spiritual areas, resource gathering, areas of interest (e.g., Maliseet Trail), etc.

4.0 SUMMARY OF ENVIRONMENTAL IMPACTS

All anticipated impacts should be described and discussed. These will depend on the scope and complexity of the project as well as the project location. See the Registration Guide for further information. Examples of impacts resulting from this class of project may include but are not limited to the following:

- Grubbing, clearing, draining, hauling and building are typical components of construction activities. In addition the construction, modification or decommissioning of a water-control structure (e.g., dam) can result in significant changes to hydrology and wildlife habitats. These activities can produce water, noise, air and solid waste pollution, and result in adverse environmental effects, including erosion and sedimentation, and impacts on water quality, fish habitat and wetlands. Operational activities can also negatively affect environmental components, typically through the generation of runoff, light, dust, noise and other emissions, and as a barrier to fish passage.

Other examples of potential impacts resulting from the construction/operation, modification or removal of a dam, impoundment or causeway, include:

- water quantity and quality impacts in the reservoir and downstream (e.g., the release and mobilization of methyl mercury and other heavy metals due to the submergence of vegetation, thermal impacts, changes in dissolved oxygen concentrations, changes in CO₂/pH regime, trophic upsurge, nitrogen supersaturation, leaching of minerals from submerged bedrock, etc.);
- changes to downstream channel morphology due to changes in silt content and flow regime;
- impacts to fish/fish habitat (e.g., barrier to fish passage);
- impacts on wildlife (e.g., habitat loss, displacement or alteration);
- impacts on wetlands;

- impacts on species at risk and critical habitat features;
- impacts on land-use and property values;
- impacts on infrastructure; and
- impacts to previously submerged habitat/lands.
- In addition to the foregoing, provide an assessment of the predicted effects the environment may have on the proposed undertaking. Environmental factors that typically may impact the project include climate and meteorological conditions, and geology (e.g., subsidence, seismic activity, reservoir ice cover, etc).

5.0 SUMMARY OF PROPOSED MITIGATION

Describe all mitigative measures that will be employed to minimize the potential environmental impacts identified above. These may include but are not limited to the following:

- Measures to control erosion & sedimentation (silt fencing, soil stabilization and armouring);
- Measures to address fish passage requirements (e.g., fishways, etc);
- Compensation plans for lost fish habitat in accordance with DFO requirements;
- Measures to address the release of methyl mercury and other metals from the submergence of vegetation (e.g., vegetation removal prior to impoundment development);
- Measures to address potential thermal and other impacts of an impoundment on downstream and reservoir water quality;
- The use of water sprays and/or dust suppressants to reduce dust generation;
- Limiting the removal of riparian zone vegetation;
- Developing a contingency plan to respond in the event that heritage resources are discovered;
- Minimizing the use of heavy equipment in and adjacent to associated watercourses and wetlands; and
- Monitoring noise levels near noise sensitive areas, etc.
- Note that an Environmental Protection Plan (EPP) is a valuable tool for ensuring minimization of environmental impacts during construction and operation, by linking

proposed mitigative measures to a geographic location. Typically, a site-specific EPP (including an erosion control and surface water management plan) will be required.

6.0 PUBLIC INVOLVMENT

See Registration Guide.

7.0 APPROVAL OF THE UNDERTAKING

See Registration Guide.

8.0 FUNDING

See Registration Guide.

9.0 SIGNATURE

See Registration Guide.

10.0 SUBMISSION INSTRUCTIONS

See Registration Guide.