



Water Development Plan Template

(Updated September 2005)

Note: For any application with a proposed diversion rate of over 25,000 gallons a day, a development plan must be completed.

Development Plans must consist, at a minimum, of the following information. Where deficient, the application may be returned.

INTRODUCTION

This section contains a description of the basic purpose of the project, normal operation characteristics and any unique or important design consideration associated with the site or project characteristics.

DESIGN ASPECTS

This section contains a description of all works associated with the proposal. Stamped, engineered plans may be required for complex projects. The general arrangement of the project and its components must be described and referenced to the maps and drawings provided. Preliminary or conceptual design drawing will be accepted for Waterworks and General Power Uses only.

Works required for a Waterpower Project include all those components needed to generate electricity and convey it to the user. For those projects connecting to the provincial grid, the point of transmission line connection to the grid is the end of the works that will be licensed under the *Water Act*.

The following list may be used as a guide for the description of the various components:

Generic list:

- Intakes on all streams to be diverted
- Pumps
- Exclusion fences
- Fish passage requirements
- Water recycling or conservation measures
- Staging areas for the construction of the works
- Access roads to be used only for construction.

For waterpower projects, provide a description for each of the components listed above plus the following:

- Intake, penstock, and powerhouse
- Tailrace
- Access roads required for operation and maintenance of completed Project
- Switchyard and transmission lines.

For projects involving dams, provide the generic list items from previous page plus:

- Dam for the purpose of storage of water
- Area flooded by the storage or impoundment of water (Note: An intake that impounds water above the natural boundary of the stream is considered to be flooding land, and the area of such flooded land must be identified)
- Reservoir debris removal and management.

RESERVOIR INFORMATION

If the project utilizes a reservoir, this section will include bathymetric information including elevation/capacity curves and any key water levels. Also, there should be some consideration given to the reservoir rim for slope stability.

GEOTECHNICAL CONSIDERATIONS

This section contains a description and assessment of the site geology and any subsurface explorations from test pits; bore holes; field tests; laboratory tests; and classification of samples.

SEISMIC CONSIDERATIONS

This section contains a description of the considerations given to potential seismic activity that may impact the project.

PROJECT-RELATED CONSIDERATIONS

This section contains a description and assessment of flooding and erosion concerns around the project location.

LAND RELATED ISSUES

Affected Lands

All of the Crown land and privately owned land that is required for every aspect of the Project is to be described with the legal description and parcel identification number. This includes the land on which the works will be located and any corridors that will be required for access roads, transmission lines, etc.

The proponent must indicate whether the various pieces of land required for the project are located on Crown or private land, and the manner in which an interest in the land is to be obtained. This interest can range from an agreement to purchase from a private landowner(s), to an application for Crown land.

The proponent should conduct a search at the Land Title Office for the correct legal description and ownership of all parcels of land required for the Project. Known Crown land encumbrances (i.e. power lines, commercial recreation activities) must be indicated. Transportation and utility corridors that may be affected should also be described.

The land required for the Project must be shown on maps and drawings.

WATER RELATED ISSUES

Water Quantity

This section contains a description and assessment of water availability from the water source or watershed and the quantity required for the Project.

Minimum Requirements:

- Period of time and amount of water required for the Project;
 - Any reserves or restrictions on the source;
 - Climatic information;
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- Watershed characteristics including area, aspect, and slope;
 - A listing of all sources of inflow to the reservoir;
 - Flow estimation methodologies;
 - Hydrographs, and key indicator values such as Mean Annual Discharge, maximum and minimum values;
 - Flow duration for those streams that do not contain water year round. Also, please indicate when the water ceases to flow;
 - Any other related hydrologic information.
1. For Waterworks projects, provide the minimum requirements plus:
 - Monthly licensed water demand for existing system, if in operation and how much extra will be required under this application;
 - Projected population growth and /or residential growth graphs;
 - Historic Water uses (maximum daily, average day, and annual);
 - Projected water demand for 10 and 25-year horizons.
 2. For those projects associated with Dams, include the minimum requirements plus:
 - The inflow design flood for those projects with dams;
 - Design flood water level of the proposed reservoir, under specified conditions;
 - The return period of the design flood;
 - Area-Elevation Curves;
 - Flow estimates of water availability using a mass (flow summation) curve and water balance models.

Water Quality

This section contains a description of any factors to affect water quality including temperature.

Instream Requirements

This section contains a description and assessment of fish species, distribution, timing and any other fish-related requirements.

This section should also contain any information related to recreation use, aesthetics and cultural uses.

Please include any information related to mitigating impacts and address concerns or issues raised through communications with fish management agencies (ie. Fish and Wildlife Branch, Fisheries and Oceans).

Affected Water Users

Please describe any known water users downstream with consideration to effects on their water usage, interruption, compensation and notification.

CONSTRUCTION ACTIVITIES

A Construction Schedule and methodology should be proposed in this section. Please describe how any instream work will be done and timed such that water quality and quantity impacts are minimized.

For Waterpower Projects, the timeframe for constructing and commissioning the Project should be indicated. This timeframe can be absolute if the Project has an energy purchase agreement

with a customer for the output of the project. Otherwise the timeframe can be relative to other factors that may affect the construction schedule, such as seasons of the year.

In addition, waterpower projects may require the use of an independent professional engineer to provide design review and ensure construction adheres to design. Any information related to the independent engineer may be included in this section.

SAFETY ASPECTS

Downstream Consequences

This section contains a general description of the areas downstream of the Project that could be affected by floodwater from failure of the works or impact on navigational issues.

1. For those projects involving dams:
 - An estimation of the magnitude of the dam break flood hydrographs resulting from various hypothetical dam failure scenarios occurring with the reservoir at normal storage elevation and maximum storage elevation.
 - For those structures that pose risk to human life, an inundation map delineating the maximum extent of flooding anticipated by a sudden breach. The mapping will continue downstream until the expected flooding is within the 100-year floodplain elevation.
 - The downstream hazard classification as defined by Schedule 1 of the Dam Safety Regulation which reflects the current and proposed conditions of development in downstream areas and a description of how the downstream impacts relate to the chosen rating. The most serious potential consequences of failure of those listed shall be used to establish the appropriate downstream hazard classification. Please note the Regional Dam Safety Officer is responsible for deciding the final consequence rating.

FUTURE MONITORING

List the types of records to be kept including environmental aspects, conservation, and power production. Include how the quantity of water will be measured and controlled by the licensee or agents.

For large reservoir systems and General Waterpower Projects, an operation order or rule will be required. Licensees regulated by an operation rule or order will be required to keep records on water levels, flow and /or use and submit them upon request. This section will address development and frequency issues related to the development of these rules and any other operation and maintenance aspects.

RELATED CONSIDERATIONS

Archaeological Assessment

This section contains a description and assessment of archaeological information known or found, any First Nations consultation, and any mitigation necessary.

Environmental Monitors

An environmental monitor may be required. Any information on the use of an environmental monitor will be placed in this section, e.g., stop work authority, frequency of site visits, required checks, etc.

Remaining Environmental Considerations

This section contains any remaining concerns, which have not previously been addressed. This may include aspects involving wildlife that may be affected by this proposal.

SUMMARY AND CONCLUSION

The project should be summarized in this section. This section will also contain copies of documents, plans or written confirmation obtained by consulted agencies.