

BC Hydro Contact:

Vancouver Island Community Relations

Phone: 250 755-7173

Project Team:

Trade-off Analyst and Facilitator: Tony Wong, Quintry Management Consulting Inc.

Resource Valuation Task Manager: Daryl Fields

Aboriginal Relations Task Manager: John Emery

Power Facilities Task Manager: Tom Veary

Power Studies Task Manager: Gillian Kong

Community Relations Task Manager: Stephen Watson

Environment/Recreation Task Manager: Adam Lewis, Ecofish Research Ltd.

Project Manager:

Sue Foster

Phone: 604 528-2737

Fax: 604 528-2905

E-mail: sue.foster@bchydro.com

This report was prepared for and by the Ash River Water Use Plan Consultative Committee, in accordance with the provincial government's *Water Use Plan Guidelines*.

The report expresses the interests, values and recommendations of the Committee and is a supporting document to BC Hydro's Ash River Water Use Plan that will be submitted to the Comptroller of Water Rights for review under the *Water Act*.

The technical data contained within the Report was gathered solely for the purposes of developing the aforementioned recommendations, and should not be relied upon other than for the purposes intended.

EXECUTIVE SUMMARY

A Water Use Plan (WUP) is a technical document that, once reviewed by provincial and federal agencies and accepted by the provincial Comptroller of Water Rights, defines how water control facilities will be operated. The purpose of a water use planning process is to develop recommendations defining a preferred operating strategy using a multi-stakeholder consultative process.

The Ash River water use planning Consultative Committee process was initiated in September 2000 and completed in June 2002. The consultative process followed the steps outlined in the 1998 provincial government's *Water Use Plan Guidelines*. This report summarizes the consultative process and records the areas of agreement and disagreement arrived at by the Ash River Water Use Plan Consultative Committee (Consultative Committee). It is the basis for the draft Ash River Water Use Plan. Both the Ash River Consultative Committee Report and the draft Ash River Water Use Plan will be submitted to the Comptroller of Water Rights.

Ash River hydroelectric facility

The Ash River hydroelectric facility is located approximately 40 km northwest of Port Alberni on central Vancouver Island. The Ash River flows south, between Strathcona Park to the west and the Beaufort mountain range to the east, into the Stamp and Somass Rivers, and eventually into the Alberni Inlet.

The Ash River hydroelectric facility is a one reservoir system. Water flows from an intake on the south side of Elsie Lake Reservoir through 7.4 km of tunnels and penstocks to the powerhouse on the north shore of Great Central Lake.

The Consultative Committee

The Ash River Water Use Plan Consultative Committee consisted of fifteen representatives. Interests included power, fish, wildlife, First Nations archaeology and traditional use, recreation, consumptive use and water quality, and flood control. The representatives included BC Hydro, provincial and federal agencies, Tseshah First Nation, Hupacasath First Nation, local stakeholders and industry. The main Consultative Committee and Subcommittees held a total of 23 meetings, ultimately reaching unanimous acceptance of a preferred operating alternative for the Ash River hydroelectric facility, and a specified monitoring program.

The Consultative Committee explored issues and interests affected by the operations of BC Hydro's Ash River hydroelectric facilities and agreed to the following objectives for the Ash River Water Use Plan:

- First Nations
Maximize protection of archaeological resources and opportunities for study and traditional use in Elsie Lake Reservoir drawdown zone; and maximize traditional use in the Ash River below the Elsie Dam.

- Fisheries
Maximize the abundance of fish in Elsie Lake Reservoir and in the Ash River below Elsie Dam.
- Flood Management
Minimize adverse effects of flooding on personal safety and property.
- Power
Maximize the value of power generation produced at the Ash River hydroelectric facilities.
- Recreation
Maximize recreational opportunities in Elsie Lake Reservoir and in the Ash River below Elsie Dam.
- Wildlife
Maximize the area of riparian habitat around Elsie Lake Reservoir

Consensus on a preferred operating alternative

The Consultative Committee developed 28 water use objectives. Performance measures were identified based on these objectives. Where possible, performance measures were modelled quantitatively. In other cases, they were described qualitatively. Operating alternatives were then developed to address the various objectives. In total, 13 operating alternatives were run through BC Hydro's operations model and the consequences for each objective were discussed by the Committee based on the agreed-to performance measures. Of the 13 alternatives, four received varying levels of acceptance from Committee members. While several Committee members chose more than one option, one operating alternative, Alternative C, was unanimously accepted, on the condition of the specified monitoring programs, by all Committee members present on 25 June 2002.¹

The Consultative Committee recommends that the Ash River hydroelectric facility be operated as designed subject to the following operating constraints (Table 1).

¹ On 8 May 2003 Hupacasath First Nation sent a letter to BC Hydro providing comments on the final Ash River Water Use Plan Consultative Committee Report. In the letter, they declared that they were withdrawing acceptance of Alternatives C, J and I2 and fully support Alternative K.

Table 1: Recommended Operating Constraints for the Ash River Hydroelectric Facility

Facility	Operating Variable	Target	When	Comments
Elsie Dam	Minimum discharge into Ash River from Elsie Dam	3.5 m ³ /s	1 May to 31 October	Discharge measured at hollow cone valve and/or sluice gate
		5.0 m ³ /s	1 November to 30 April	
		10 m ³ /s	Two 48 hour periods between 1 August and 30 September ¹	
	Maximum discharge into Ash River	No constraint	Year Round	
	Maximum Ramping Rate	As per BC Hydro Ramping Strategy	Year Round	
Elsie Reservoir	Maximum Reservoir Level	No constraint	Year Round	No constraint on reservoir elevations
	Minimum Reservoir Level	No constraint	Year Round	
Power Intake	Diversion flow	No constraint	Year Round	No constraint on power diversion
	Maximum annual diversion volume	No constraint	Year Round	

1. Migration pulse flows: ramp discharge from Elsie Dam to increase flow in the Ash River up to 10 m³/s, measured at Moran Creek gauge, then back down to 3.5 m³/s over a 48 hour period. Induce two pulses during the summer steelhead migration period (1 August to 30 September) with each pulse coinciding with natural increases inflows from precipitation.

Consequences of the preferred alternative

The expected outcomes of the final recommended operating alternative are summarized in Table 2. Benefits over the existing water licence, include increased power revenue, increased opportunities to address archaeological and heritage issues, improved habitat for fish in the Ash River, and increased riparian habitat for wildlife around Elsie Lake Reservoir.

Although the Consultative Committee had an interest in minimizing impacts to fish resources in Great Central Lake and the Upper Stamp River, the Committee acknowledged that this issue was outside of the scope of the BC Hydro Ash River Water Use Plan. Nonetheless, an additional benefit of the Ash River water use planning process is agreement to develop a communications protocol between BC Hydro and NorskeCanada. Under the protocol, BC Hydro will provide advanced notice to NorskeCanada of planned changes to operations that will affect water delivered into Great Central Lake.

The communications protocol will also lead to a definition of *threshold of critical low flow* which will trigger discussions between BC Hydro, NorskeCanada, Fisheries and Oceans Canada and the Ministry of Water, Land and Air Protection. The four organizations, in consultation with the Water Comptroller, will make recommendations on how to adjust operations on both the Ash River and Great Central Lake systems to

protect fish resources in both systems in times of very low flows. In the event that changes are required to BC Hydro’s operations, Hydro would have to apply to the provincial Water Comptroller for authorization. At the conclusion of the Ash River Water Use Plan consultative Committee process, the Great Central Lake Committee needed to conduct further studies and analysis to define this threshold of critical low flow.

Hupacasath First Nation also requested that a communications protocol with BC Hydro be developed to provide Hupacasath First Nation with advance notice when the reservoir is expected to drop below 318.5 m creating opportunities for archaeological study in the Elsie Lake Reservoir drawdown zone.

Table 2: Expected Outcome of the Ash River Water Use Alternative C Relative to Existing Water Licence

Water Use Interest	Consequences
Power Generation	+ Increased power revenue of +\$600,000 per year on average (approximately 6% increase) over current water licence.
First Nation Archaeology and Traditional Use	+ Opportunity to address archaeology and heritage issues through the monitoring program.
Fish in Elsie Lake Reservoir	+ Increased trout rearing habitat in tributaries to the reservoir.
Fish in Ash River	+ Increased rearing and spawning habitat for fish in the Ash River including a nearly 14-fold increase in steelhead parr rearing habitat just below Elsie Dam relative to existing licensed flows. ¹ + Increased opportunities for fish to migrate past Lanterman Falls and Dickson Falls. + Increased minimum flows in the Ash River.
Wildlife	+ Increase in riparian habitat around Elsie Lake Reservoir.
Flood control	o Neutral - No change in expected number of flooding-days for property along the Somass River compared to expected number of flooding-days under current water licence (i.e., Alternative C does not make flooding worse).
Reservoir recreation	- Potential loss. The recommended operating alternative is expected to hold the reservoir at lower elevations during 24 May to Thanksgiving than under the current water licence. This may change the type of or reduce the quality of the recreation experience at the reservoir.

The actual flows released for fish at present and over the past five years (1996-2000) are substantially higher than the licensed flows and are similar to flows under Alternative C.

Monitoring Program

The Consultative Committee discussed sources of uncertainty associated with implementing the preferred operating alternative. Through the water use planning process and trade-off process, the Committee discussed six monitoring programs to address these uncertainties. Of these six programs, two satisfied the eligibility criteria for monitoring studies under the Water Use Plan Program. These included a monitoring program to address protection of archaeological artifacts in the Elsie Lake Reservoir drawdown zone and a program to assess the effectiveness of pulsed flows to promote adult steelhead migration which may be beneficial for other species (i.e. Coho and Chinook), in the Ash River.

The Consultative Committee recommends that an Ash River Water Use Monitoring Advisory Committee be formed consisting of representatives of:

- BC Hydro
- Fisheries and Oceans Canada
- Hupacasath First Nation
- Tseshaht First Nation
- Ministry of Water, Land and Air Protection
- Ministry of Sustainable Resource Management
- Community representatives (from existing Committee, if possible)
- Representative of local government (from existing Committee, if possible)

The Consultative Committee recommends that the mandate of the Ash River Water Use Plan Monitoring Advisory Committee is to:

- Review and agree to study terms of reference
- Review annual study results and assess need to recommend an early Ash River Water Use Plan review (in Year 5).
- Recommend improvements to monitoring programs within existing water use planning budgets. The Monitoring Advisory Committee may seek additional resources to contribute to the monitoring program.
- Determine annually whether there are recommendations to BC Hydro on operational changes within the constraints of the water licence.
- Support periodic communication with the public (e.g., newsletter, annual reports).
- Ensure publication of monitoring reports.
- Nurture cooperation and collaboration to improve the environmental database and to build common understanding (ongoing).

Review Period

- Five years after the implementation of the Ash River Water Use Plan, the Ash River Water Use Plan Monitoring Advisory Committee will review the results of the monitoring program and assess the need to recommend to BC Hydro an early review of the Ash River Water Use Plan. Alternatively, if the studies suggest that a review of the Ash River Water Use Plan is not needed, the Monitoring Advisory Committee can recommend when a review should be assessed.