



Province of British Columbia

Water Act

Peace Order
Water Act
Section 88

File No. 76975-35/Peace

WHEREAS British Columbia Hydro and Power Authority (BC Hydro) is the operator of the G.M. Shrum and Peace Canyon Generating Stations, W.A.C. Bennett and Peace Canyon Dams, and Williston Lake and Dinosaur Lake reservoirs, in respect of which it holds Conditional Water Licences 27721, 27722, 42203, 43431 and 49679;

WHEREAS BC Hydro has engaged in public consultation to determine values for system parameters and to develop operating procedures which may provide benefits as described below;

WHEREAS the licensee has submitted the Peace Project Water Use Plan, which recommends changes to the operations of the G.M. Shrum and Peace Canyon hydro-electric facilities and works which are intended to benefit fish, wildlife, industry, recreation, local residents and shoreline conditions;

WHEREAS the Peace Project Water Use Plan proposes a monitoring programme to determine whether the works and operating the project in accordance with the operating parameters and procedures in the Plan will provide the expected benefits;

WHEREAS I have accepted the Peace Project Water Use Plan dated August, 2007; and

WHEREAS the following terminology is used in this Order:

Force Majeure is an unplanned partial or complete failure of, or damage to, generation or transmission equipment or related assets and facilities, including unavailability of same due to statutory, regulatory, and legal processes and orders, that results in a reduction in the actual or expected generation resources available to the BC Hydro system.

Low System Supply is a period of one or more years in which inflows (energy equivalent) into BC Hydro reservoirs are significantly less than average.

I HEREBY ORDER THAT:

1. In the event that operation below 655.32 metres (2150 feet) GSC as measured in the vicinity of Water Survey of Canada Gauge 07EF002 is expected at Williston Lake reservoir, the licensee is required to:
 - a. obtain approval from the Comptroller of Water Rights at least six months prior to the expected date the reservoir would be drafted below 655.32 metres;
 - b. obtain approval from the Comptroller of Water Rights as soon as possible in case of a force majeure event or low system supply event, to draft below 655.32; and
 - c. if approval is granted, hold public meetings in the region as soon as practical to communicate the rationale for operations below 655.32 metres.
2. In the event of a force majeure or low system supply event, the licensee may draft Williston Lake reservoir below 654.41 metres (2147 feet) GSC to a specified lower elevation provided that prior approval is received from the Comptroller of Water Rights.
3. Pursuant to the results of studies as outlined in Schedule A 1, the Comptroller of Water Rights may reduce the elevation constraint in clause 2 above from 654.41 metres (2147 feet) GSC to some other level not lower than 652.27 metres (2140 feet) GSC.
4. The licensee shall make reservoir releases to provide a minimum flow of 283.17 cubic metres per second (10,000 cubic feet per second) in the Peace River as measured in the vicinity of Water Survey Canada Gauge 07EF001, near Hudson's Hope.
5. The licensee shall communicate in a timely manner with federal and provincial fisheries agencies and affected First Nations in the event that a spill from either W.A.C. Bennett Dam or Peace Canyon Dam:
 - a. has a 25% or greater probability of occurring within the following 14 days;
 - b. has increased in probability by 10% or more within the previous 24 hours; or
 - c. is occurring or has occurred.

6. The licensee shall submit, for approval by the Comptroller, terms of reference for works, feasibility and monitoring studies for:
 - a. Williston Lake reservoir as described in Schedule A;
 - b. Dinosaur Lake reservoir as described in Schedule B;
 - c. Peace River as described in Schedule C; and
 - d. protocols in the event of spills, as described in Schedule D.
7. Within 9 months of the date of this order, the licensee shall submit, for approval by the Comptroller, terms of reference for
 - a. an archaeological overview assessment of the drawdown zones of each of the Williston Lake and Dinosaur Lake reservoirs and within the Peace River channel between the Peace Canyon Dam and the confluence with the Alces River; and
 - b. non-intrusive erosion monitoring of archaeological resources located in each of the Williston Lake and Dinosaur Lake reservoir drawdown zones and within the Peace River channel between the Peace Canyon Dam and the confluence with the Alces River.
8. With respect to the maintenance and provision of records the licensee must:
 - a) keep records of
 - i) generation discharge from G.M. Shrum and Peace Canyon Generating Stations;
 - ii) spill discharge from W.A.C. Bennett and Peace Canyon Dams; and
 - iii) elevations on Williston Lake and Dinosaur Lake reservoirs.
 - b) provide a written report to the Comptroller of Water Rights on or before February 1 of each year summarizing the records from the previous calendar year; and
 - c) provide on request of the Comptroller of Water Rights records collected under 8a).
9. The licensee may operate the works in an alternate manner in the event of an emergency, dam safety requirement, or extreme hydrological event.

10. All emergency operations or other deviations from operations ordered above shall be reported to the Comptroller of Water Rights in a timely manner.

Dated at Victoria, B.C., this 9th day of August, 2007.



Glen Davidson, P.Eng.
Deputy Comptroller of Water Rights

Schedule A

Williston Lake Reservoir

Industry engineering feasibility and design study

1. The licensee shall submit within 6 months of the date of this Order, for approval by the Comptroller, terms of reference for an engineering feasibility and design study to determine practical and cost-effective solutions to the following issues associated with lower reservoir levels:
 - a. *water supply at Abitibi newsprint and Pope & Talbot pulp mills;*
 - b. *effluent disposal at Abitibi newsprint mill, Pope & Talbot pulp mill and District of Mackenzie; and*
 - c. *log supply for Canfor and Abitibi sawmills.*

Fish and Wildlife Habitat

2. The licensee shall submit within 9 months of the date of this Order, for approval by the Comptroller, terms of reference for the following works:
 - a. *develop a wetlands inventory and create trial wetlands at specific sites around Williston Lake reservoir to improve foreshore habitat for fish and wildlife; and*
 - b. *improve fish access on two trial tributaries around Williston Lake reservoir and maintenance of access through a debris survey and effective debris management.*

Shoreline

3. The licensee shall submit within 9 months of the date of this Order, for approval by the Comptroller, terms of reference to:
 - a. *conduct a dust source survey and reduce the duration and magnitude of dust storms around Williston Lake reservoir by way of dust control trials;*
 - b. *control shoreline erosion in front of the Tsay Keh Village;*
 - c. *conduct a debris survey and targeted debris removal; and*
 - d. *map the reservoir between full pool and 652.27 metres (2140 feet) GSC.*

Reservoir Access

4. The licensee shall submit within 9 months of the date of this Order, for approval by the Comptroller, terms of reference for a feasibility study on reservoir access, evaluating improvements to access points as follows:
 - a. *Peace Reach: relocation of access at Dunlevy and improvement of access at Elizabeth Creek;*

- b. *Finlay Reach: new access at Ingenika and Fort Ware, and improvements to the Tsay Keh Village barge landing and*
 - c. *Parsnip Reach: improvement of access at Finlay Bay, 6-Mile Bay, Black Water or Manson Dump, Alexander Mackenzie's Landing Standberg and Cutthumb Bay.*
5. The licensee shall submit within 9 months of the date of this Order, for approval by the Comptroller, terms of reference for maintenance and enhancement of reliable and safe navigational access at sites on Williston Lake Reservoir through a combination of:
- a. *targeted debris removal following the survey in 3(c) above,*
 - b. *signage to provide location information of access facilities and hazards associated with operations; and*
 - c. *radio repeater station(s) to enhance communication to boaters.*

Effectiveness Monitoring

6. The licensee shall submit within 12 months of the date of this Order, for approval by the Comptroller, terms of reference for the following effectiveness monitoring programmes on Williston Lake reservoir to determine:
- a. *the effect of the operation of Williston Lake reservoir on silt deposition in the Finlay River at Deserter's Canyon;*
 - b. *the benefits of the trial wetlands for fish and wildlife in 2 a above;*
 - c. *the benefits of the trial tributary habitat enhancements in 2.b above;*
 - d. *the benefits of the dust control programme in 3 a above;*
 - e. *the effectiveness of erosion control measures in 3 b above;*
 - f. *recreation use and benefits at improved or new access sites identified in 4 a, b, and c above; and*
 - g. *the change in debris trends associated with the extent, movement and recruitment of debris and the effectiveness of targeted debris removal in 5 a above.*

Implementation

7. The licensee shall implement the above works, feasibility and monitoring studies in accordance with the terms of reference accepted by the Comptroller of Water Rights and shall report progress on these projects to the Comptroller annually until their conclusion.

Schedule B

Dinosaur Lake Reservoir

Fish Habitat

1. The licensee shall submit within 9 months of the date of this Order, for approval by the Comptroller, terms of reference for:
 - a. *a survey to establish the extent and number of tributaries affected by debris fields and reservoir operations; and*
 - b. *a subsequent feasibility study to determine whether works can improve access for fish at a number of tributaries.*

Reservoir Access

2. The licensee shall submit within 12 months of the date of this Order, for approval by the Comptroller, terms of reference for:
 - a. *a study to evaluate improved access by relocating and improving the dock at Hudson's Hope Park; and*
 - b. *a study to evaluate signage at Hudson's Hope Park to display information about the current reservoir levels.*

Effectiveness Monitoring

3. The licensee shall submit within 12 months of the date of this Order, for approval by the Comptroller, terms of reference for the following monitoring programme:
 - a. *effectiveness of any tributary enhancement works resulting from 1.b above.*

Implementation

4. The licensee shall implement the above works, feasibility and monitoring studies in accordance with the terms of reference accepted by the Comptroller of Water Rights and shall report progress on these projects to the Comptroller annually until their conclusion.

Schedule C

Peace River

Fish and Wildlife Habitat

1. The licensee shall submit within 9 months of the date of this Order, for approval by the Comptroller, terms of reference for the following works and feasibility studies between Peace Canyon Dam and the Pine River confluence:
 - a. *improve fisheries habitat and productivity in Peace River side channels by modifying several trial side channels to improve rearing habitat*
 - b. *identify and map areas of flood plain and side channel inundation at flows less than 2000 cubic metres per second; and*
 - c. *identify and assess riparian habitat.*

River Access

2. The licensee shall submit within 9 months of the date of this Order, for approval by the Comptroller, terms of reference for a study to improve boat ramp access to the river at
 - a. *Lynx Creek;*
 - b. *Halfway River;*
 - c. *Peace Island Park; and*
 - d. *Clayhurst/Blackfoot Regional Park.*
3. The licensee shall submit within 9 months of the date of this Order, for approval by the Comptroller, terms of reference for maintenance and enhancement of reliable and safe navigational access between Peace Canyon Dam and the Pine River confluence through
 - a. *radio repeater station(s) to enhance communication to boaters.*

Effectiveness Monitoring

4. The licensee shall submit within 12 months of the date of this Order, for approval by the Comptroller, terms of reference for the following effectiveness monitoring programmes on Peace River between Peace Canyon Dam and the confluence with the Pine River:
 - a. *conduct a creel survey to monitor impacts from sport fishing;*
 - b. *monitor population trends for whitefish, bull trout and arctic grayling;*
 - c. *monitor changes in periphyton communities as affected by changes in flow from Peace Canyon Dam;*

- d. *monitor side channel fisheries habitat in Peace River to assess the efficacy of the trial side channel enhancements and*
- e. *the effect of Peace Canyon flow releases on water turbidity and temperature at the Spectra Energy facility, Canfor-Taylor pulp mill and the District of Taylor water supply¹.*

Implementation

- 5. The licensee shall implement the above works, feasibility and monitoring studies in accordance with the terms of reference accepted by the Comptroller of Water Rights and shall report results to the Comptroller annually until their conclusion.

¹ in partnership with Canfor Forest Products, District of Taylor and Spectra Energy

Schedule D

Spill Protocol Management Plans

In preparation of a spill

1. The licensee shall submit within 6 months of the date of this Order, for approval by the Comptroller, terms of reference, for the following spill preparation management programmes for the area downstream of W.A.C. Bennett to the confluence with the Pine River:
 - a. *establish a network of baseline total gas pressure and temperature stations.*
2. The licensee shall implement the programmes in 1 above in accordance with the terms of reference accepted by the Comptroller of Water Rights.

In the event of a spill

3. The licensee shall submit within 6 months of the date of this Order, for approval by the Comptroller, terms of reference for the following monitoring programmes to be implemented in the event of a spill:
 - a. *fish stranding below Peace Canyon Dam at specific sites up to the confluence of the Pine River during total discharge at the dam that exceeds a daily average of 2000 cubic metres per second for at least 2 days;*
 - b. *spillway entrainment at W.A.C. Bennett Dam during spillway discharge that exceeds a daily average of 205 cubic metres per second for at least 2 days;*
 - c. *changes in riparian habitat vegetation for 2 years following a total discharge from the Peace Canyon facility that exceeds a daily average of 2500 cubic metres per second for at least 2 days;*
 - d. *side channel response in terms of habitat and morphological changes following an event when total discharge from the Peace Canyon facility that exceeds a daily average of 2500 cubic metres per second for at least 2 days;*
 - e. *spill hydrology and operating conditions prior, during and after any of the following spill events:*
 - i. *spill discharge from W.A.C. Bennett Dam that exceeds a daily average of 205 cubic metres per second for at least 2 days; or*
 - ii. *spill discharge from the Peace Canyon facility that exceeds a daily average of 2000 cubic metres per second for at least 2 days or that exceeds a daily average of 500 cubic metres per second for at least 7 days.*

- f. *total gas pressure and temperature downstream of W.A.C. Bennett and Peace Canyon dams when spill discharge at*
 - i. *W.A.C. Bennett Dam that exceeds a daily average of 205 cubic metres per second for at least 2 days;*
 - ii. *spill discharge from the Peace Canyon facility that exceeds a daily average of 2000 cubic metres per second for at least 2 days;*
 - iii. *spill discharge from Peace Canyon Dam that exceeds a daily average of 500 cubic metres per second for at least 7 days or*
 - iv. *spill discharge from Peace Canyon Dam that exceeds a daily average of 1500 cubic metres per second for at least 2 days .*
 - g. *identify and map areas of flood plain and side channel inundation at flows that exceeds a daily average of 2000 cubic metres per second;*
 - h. *assess wildlife stranding during and following total discharge from Peace Canyon facility that exceeds a daily average of 2000 cubic metres per second for at least 2 days;*
 - i. *relative abundance and distribution of fish in Peace Arm of Williston Lake reservoir following a spill event when spill discharge from GM Shrum that exceeds a daily average of 205 cubic metres per second for at least 2 days.*
4. The licensee shall implement the programmes in 3 above whenever a spill event occurs as variously defined above, in accordance with the terms of reference accepted by the Comptroller of Water Rights and shall provide timely data on these studies to federal and provincial fish agencies and report results to the Comptroller annually.