



# Province of British Columbia

## *Water Act*

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### ORDER Section 88

File No. 078649 and 0139633

WHEREAS British Columbia Hydro and Power Authority (BC Hydro) is the operator of the Shuswap River power development, in respect of which it holds Final Water Licences 120948, 120949, 120950 and 120951 which authorise the storage, diversion and use of water for power purpose; and

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

WHEREAS the licensee has submitted the Shuswap River Water Use Plan, which recommends changes to the operation of the Shuswap River power development which are intended to benefit recreation and fisheries values in Sugar Lake Reservoir and fisheries and wildlife values, flood abatement and recreation in the Shuswap River below Sugar Lake Dam and Wilsey Dam; and

WHEREAS I have accepted the Shuswap River Water Use Plan dated August 18, 2005; and

WHEREAS the Shuswap River Water Use Plan proposes a monitoring program to determine whether operating the facility in accordance with the operating parameters and procedures in the Water Use Plan will provide the expected benefits;

#### I HEREBY ORDER THAT:

1. The licensee shall, subject to the Operation, Maintenance and Surveillance Manual requirements for stoplog operations, regulate Sugar Lake Reservoir to achieve the following elevations as measured at Sugar Lake Dam using the Geodetic Survey of Canada (GSC) datum:
  - a) Starting June 1, but not later than July 31, attain 600.61m or greater;
  - b) Starting August 1, but not later than August 31, attain 601.22m or greater;
  - c) Between April 1 and May 1, the reservoir will be drawn down to 596.00m or lower;
  - d) Achieving the above elevations will be secondary to meeting minimum flows below Wilsey Dam, as specified in condition 4.
2. The licensee shall release a minimum flow of 5.0 cubic meters per second from Sugar Lake Dam. When inflows are less than 5.0 cubic metres per second and the reservoir lower than 594.70m, all inflows shall be released.

3. The licensee shall operate Sugar Lake Dam to meet the ramp rates specified in Schedule A attached.
4. Sufficient water shall be released from Wilsey Dam and powerhouse to provide the following minimum flows as measured at the location of Water Survey of Canada (WSC) Hydrometric Gauge 08LC003:
  - a) 13.0 cubic metres per second from January 1 to August 14;
  - b) 16.0 cubic metres per second from August 15 to December 31;
  - c) If the above flows cannot be met, minimum flow releases shall be equal to the sum of local inflows to Wilsey Dam plus available discharge from Sugar Dam.
5. The licensee shall maintain and operate to WSC standards a hydrometric station to improve flood forecasting ability.
6. The licensee shall investigate sources of flow disruptions at Wilsey Dam, identify options for changing existing works or installing new works that will further reduce flow disruptions, and submit a report on the findings to the Comptroller within 18 months of the date of this order.
7. BC Hydro shall, within six months of the date of issue of this order, develop and submit for acceptance terms of reference with a proposed budget and schedule for a program to monitor:
  - a) the effects of Sugar Lake Reservoir elevations at or near 601.72m on shoreline erosion;
  - b) the effects of Sugar Lake Reservoir operations on archaeological sites located in the drawdown zone and shoreline erosion areas;
  - c) the additional forecasting benefits resulting from the operation of the hydrometric station referenced in condition 5;
  - d) the relationship between flows and flooding from Wilsey Dam to Mabel Lake;
8. Following review and acceptance in writing of the terms of reference developed in accordance with 7 above by the Comptroller of Water Rights the licensee shall undertake the monitoring program as directed.
9. BC Hydro shall prepare and submit to the Comptroller of Water Rights in the time period set out in the accepted terms of reference an annual report summarizing the data collected from the monitoring studies.
10. With respect to the maintenance and provision of records the licensee must:
  - a) keep records of:
    - i. Sugar Lake Reservoir elevations
    - ii. Shuswap River discharge at the location of WSC gauges 08LC 018 and 08LC003.
  - b) provide a written report to the Comptroller of Water Rights on or before February 1 and August 1 of each year summarizing the records from the previous 6 months.
  - c) provide on request from the Comptroller of Water Rights records collected under 10.a.
11. The licensee may operate the works in an alternate manner in the event of an emergency, a dam safety requirement, or an extreme hydrologic event.

12. 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 12th day of October, 2005.

A handwritten signature in black ink, appearing to read 'G. Davidson', written in a cursive style.

Glen Davidson, P. Eng  
Deputy Comptroller of Water Rights

## SCHEDULE A

### Maximum Ramp Rates for Sugar Lake Dam

The objective is to limit the rate of change of stage in the river downstream of Sugar Lake Dam caused by gate operations at the dam. Stage will be measured at WSC 08LC018. The stage/discharge rating curve as published by WSC will be used to calculate the maximum rate of change in discharge permissible from the LLO gates at Sugar Lake Dam. The discharge rating curves for the gates at Sugar Lake Dam, as referenced in the Operation, Maintenance and Surveillance Manual, will be used to calculate the maximum rate of change of gate openings permissible at Sugar Lake Dam. The following table provides maximum rates of change of stage to be used for calculating maximum rates of change of gate openings at Sugar Lake Dam.

Time of Year	Fisheries Life History Stage	Hourly Down Ramp Rate of Change of Stage		Hourly Up Ramp Rate of Change of Stage	Daily Down Ramp Rate of Change of Stage	Daily Up Ramp Rate of Change of Stage
		Day	Night	Day/Night		
1 April – 31 July	Fry Emergence	2.5 cm/h	2.5 cm/h	5 cm/h	15 cm/day	15 cm/day
1 August – 30 September	Rearing	2.5 cm/h	5 cm/h	5 cm/h	15 cm/day	15 cm/day
1 October – 31 March	Winter Rearing	0	5 cm/h	5 cm/h	15 cm/day	25% of previous day's discharge

Up ramp rates may be exceeded when Sugar Lake level is above the free crest spill level, which varies depending on the number of stoplogs installed, or when free spill is expected within the next 72 hours.

Night ramping will be initiated no earlier than 2 hours before sunset.

Day ramping will be initiated no earlier than sunrise.