



# Province of British Columbia

## *Water Act*

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### Order *Water Act* Sections 87 and 88

File No. 2001985

WHEREAS British Columbia Hydro and Power Authority (BC Hydro) is the holder of Conditional Water Licence 110107 and Conditional Water Licence 114268, which authorise the diversion, storage and use of water for power purpose at the Cheakamus power development; and

WHEREAS the works have been regulated by an Order dated April 6<sup>th</sup>, 1999; and

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

WHEREAS the licensee has submitted the Cheakamus Project Water Use Plan, which recommends changes to the operations of the Cheakamus power development for fish, wildlife, recreation, power and for flood routing benefits; and

WHEREAS I have accepted the Cheakamus Project Water Use Plan dated October 1, 2005; and

WHEREAS the Cheakamus Project Water Use Plan proposes a monitoring program to determine if operating the works in accordance with the operating parameters and procedures in the Water Use Plan will provide the expected benefits;

I HEREBY ORDER THAT:

1. The Section 39 order, file no. 2001985, dated April 6, 1999, is revoked.
2. The works authorised under clause (h) of Conditional Water Licence 110107 be operated in accordance with the following procedures:
  - a) To reduce flood risk downstream of Daisy Dam, between October 1 and December 31 the target maximum reservoir level shall be 373.5m, measured at Daisy Lake Dam using the local datum;

- b) For fisheries habitat, the licensee shall release from Daisy Lake Dam a minimum flow of:
    - i) 3.0 cubic metres per second from November 1 to December 31;
    - ii) 5.0 cubic metres per second from January 1 to March 31;
    - iii) 7.0 cubic metres per second from April 1 to October 31;
  - c) For fisheries habitat and recreational use, the licensee shall release additional flows to those specified in 2b) above in order to maintain a minimum flow at the location of Water Survey of Canada (WSC) gauge 08GA043 near Brackendale of:
    - i) 15.0 cubic metres per second from November 1 to March 31;
    - ii) 20.0 cubic metres per second from April 1 to June 30,
    - iii) 38.0 cubic metres per second from July 1 to August 15,;
    - iv) 20.0 cubic metres per second from August 16 to August 31, unless directed by the Comptroller to maintain flows at 38 m<sup>3</sup>/s for the benefit of recreation;
    - v) 20.0 cubic metres per second from September 1 to October 31;
  - d) Ramping rates shall not exceed the maximum rates prescribed in Schedule "A" attached;
3. The licensee shall install, maintain and operate a staff gauge at the Ashlu River Bridge in accordance with WSC standards;
  4. The licensee shall submit to the Comptroller within one year of the date of this Order, terms of reference with a proposed budget and schedule to monitor;
    - i) Salmonid spawner abundance and smolt output in the Cheakamus River, and in its side channels;
    - ii) Juvenile and resident adult rainbow abundance in relation to habitat features in the Cheakamus River;
    - iii) Steelhead spawning abundance and timing, and daily stream temperatures from the beginning of spawning to the end of fry emergence;
    - iv) Stage changes on the Squamish River as observed daily at the Ashlu River Bridge;
    - v) Stranding at the tailrace of the Cheakamus powerhouse;
    - vi) Stranding downstream of Daisy Lake Dam in relation to rate of change of stage at or near minimum flow releases;
    - vii) Groundwater levels in side channels to the Cheakamus River in relation to mainstem flows;
    - viii) Benthos, periphyton and nutrient levels at sites on the Cheakamus River monitored in 1996 and 2000; and
    - ix) Changes in channel morphology, gravel quantity and quality, and vegetation distribution on the Cheakamus River below Daisy Lake Dam; and
    - x) The benefits to recreational fishing access associated with increasing minimum flows from 3.0 to 5.0 cubic meters per second between January 1 to March 31.
  5. The licensee shall implement monitoring in accordance with the terms of reference accepted by the Comptroller of Water Rights under 4 above, and shall provide annual monitoring reports to the Comptroller until the conclusion of each monitoring study;

6. With respect to the maintenance of provision of records the licensee must:
  - a) keep records of:
    - i) Daisy Lake Reservoir elevations;
    - ii) Discharge from Daisy Lake Dam into the Cheakamus River;
    - iii) Discharge from Cheakamus River generating station; and
    - iv) Cheakamus River flow as measured at WSC gauge 08GA043.
  - b) provide a written report to the Comptroller on or before February 1 and August 1 of each year summarising the records from the previous six months; and
  - c) provide on request from the Comptroller records collected under 6a.
7. 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;
8. All emergency operations or other deviations from those ordered above shall be reported to the Comptroller of Water Rights in a timely manner.

Dated at Victoria, B.C., this 17th day of February, 2006.



Glen Davidson, P. Eng  
Deputy Comptroller of Water Rights

## Schedule "A"

### RAMPING RATES

1. With respect to the Cheakamus River below Daisy Lake Dam, BC Hydro shall limit changes to flow rates according to the following table:

<b>Total Discharge from Daisy Lake Dam</b>	<b>Maximum Rate of Increase</b>	<b>Maximum Rate of Decrease</b>
Less than 10 m <sup>3</sup> /s	13 m <sup>3</sup> /s per 15 minutes	1.0 m <sup>3</sup> /s per 60 minutes
10-62 m <sup>3</sup> /s	13 m <sup>3</sup> /s per 15 minutes	13 m <sup>3</sup> /s per 60 minutes
Greater than 62 m <sup>3</sup> /s	13 m <sup>3</sup> /s per 10 minutes	13 m <sup>3</sup> /s per 10 minutes

2. The above ramping rates will be reviewed following results of the monitoring outlined in 4 vi) of the order.
3. During reduction of load at the Cheakamus powerhouse between loads of 40 MW and 10 MW, the rate of reduction shall not exceed 10 MW every 5 minutes. Turbine ramping rates will be reviewed following results of the monitoring outlined in 4 iv) and v) of the order.