



**PUBLIC UTILITY DISTRICT NO. 1 of CHELAN COUNTY**

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July 11, 2014

**VIA ELECTRONIC FILING**

Honorable Kimberly D. Bose, Secretary  
Nathaniel J. Davis, Sr., Deputy Secretary  
FEDERAL ENERGY REGULATORY COMMISSION  
888 First Street, NE  
Washington, DC 20426

RE: Lake Chelan Hydroelectric Project No. 637 (Project)  
Report on Chelan River Water Surface Ramping Rate Deviation for Reach 4 Stream  
Habitat Channel

Dear Secretary Bose and Deputy Secretary Davis:

This letter is to provide you with Public Utility District No. 1 of Chelan County's (Chelan PUD) follow-up report on a Chelan River water surface ramping rate deviation that occurred on June 10, 2014, on the Chelan River. This deviation was first reported by email to the Federal Energy Regulatory Commission (FERC) Portland Office (Douglas Johnson and Erich Gaedeke) and Washington Department of Ecology (Ecology) Central Regional Office (Charles McKinney and Patricia Irle) on June 11, 2014.

License Requirement

Article 405 requires Chelan PUD to implement the instream flows, ramping rates, and tailrace flows as set forth in Article 7 of the Lake Chelan Settlement Agreement and Chapter 7 of the Comprehensive Plan attached to the settlement agreement. The specific Chelan River water surface ramping rate requirement that is the subject of this deviation report is that, "during the period when fry may be present, ramping rates will be set at approximately two inches per hour, until biological evaluations have determined the ramping rates necessary to prevent stranding of fish in the Chelan River".

Chelan PUD issued notifications of the Chelan River water surface ramping rate deviation in accordance with FERC's Order Modifying and Approving Operations Compliance and Monitoring Plan, Article 405, issued November 30, 2007. When a ramping rate deviation occurs, Chelan PUD is required to notify FERC and Ecology of the deviation within 48 hours of the time that Chelan PUD became aware of the deviation. Following the initial notification, Chelan PUD

is required to file a report with the Commission within 30 days of any deviation from Chelan River water surface ramping rate requirements. The report shall, to the extent possible, identify the cause, severity, and duration of the incident, any observed or reported adverse environmental impacts resulting from the incident, a description of any corrective measures implemented at the time of occurrence and the measures implemented or proposed to ensure that similar incidents do not recur; and comments or correspondence, if any, received from the resource agencies and others regarding the incident.

#### Summary of Deviation and Environmental Effects

The Chelan River water surface ramping rate deviation occurred during the afternoon of June 10 while ramping spill down from 517 cfs to 258 cfs. Flow from the spillway, which was set at 300 cfs at the beginning of the operation, was decreased at a rate of 100 cfs per hour for three successive hours, while flow from the Low Level Outlet was increased from 211 cfs to 280 cfs during the last hour to buffer the downstream effects of the spillgate closure. Water surface elevations in the Chelan River decreased because spill was reduced. Water surface elevations measured at the Chelan River Reach 4 canal outlet structure decreased by 3.6", 4.7" and 3.8" after each of the three hourly flow adjustments, which exceeded the 2" maximum per hour ramping rate currently required in Section 3.2 of the Chelan River Biological Evaluation and Implementation Plan. Decreases in Chelan River water surface elevations are limited to 2" per hour in order to minimize potential stranding of small fish. Ramping rates are expected to be evaluated and potentially revised over time pending review of ramping rate studies. The reason the water surface decreased faster than the allowable rate is that spill was ramped down faster than planned, which was caused by a misinterpretation of a spill reduction ramping rate table.

No fish stranding or mortality is expected to have occurred as a result of this event. Recently emerged Chinook fry, which were present at high densities in the Habitat Channel on May 14, would by June 10 have grown to larger size and no longer be inhabiting the shoreline margins where stranding could occur. Also, the 3,500 cfs flows from late May - early June likely resulted in most Chinook fry moving to quieter waters downstream in the tailrace and Columbia River prior to this ramping rate deviation. No Chinook fry or steelhead fry were observed during a snorkel survey conducted on June 17. There was no steelhead spawning observed in the Reach 4 Habitat Channel in 2014, thus there would not have been any steelhead fry present.

#### Remedial Action

Ramping rate spill reduction tables have been used as guidance to operations personnel for several years. In this case, the initial spill reduction was initiated per the table which resulted in the first deviation. Subsequent spill reductions, at 100 cfs per hour, were due to a misinterpretation of the spill reduction table. To prevent further ramping rate deviations while developing a better method to guide operations, an interim reduced ramping rate spill reduction table was developed and implemented June 24, 2014. Original and interim maximum spill reduction ramping rate tables are shown below. The interim spill reduction ramping rate table has a slower, more conservative ramping rate than required, in order to provide an operating

margin of safety. Use of the interim spill reduction ramping rate table since June 24 has been successful in preventing further ramping rate deviations to date.

Chelan PUD is also investigating improvements to control system programming in order to automate spill reductions in incremental steps over time, rather than the hourly stair-step approach that requires manual operations.

Previous Spill Reduction Instructions and Table

Decreasing Spill Ramping Rate Restrictions

- Only reduce spill during daylight hours (to aid fish movement from potential entrapment areas).
- Except for Plant Safety and System Reliability, following are License Compliance ramping rate restrictions when reducing spill:

Chelan Hydro	
Maximum Spill Reduction Ramping Rates	
Total Spill* cfs	Ramp Rate cfs/hr
1000 < Total Spill	250
500 < Total Spill <= 1000	100
400 < Total Spill <= 500	50
220 < Total Spill <= 400	30
80 < Total Spill <= 220	20

\* Total Spill = Low Level Outlet + Spill Gates

Interim Revised Spill Reduction Table Implemented June 24, 2014

Chelan Hydro	
Maximum Spill Reduction Ramping Rates	
Total Spill* cfs	Ramp Rate cfs/hr
1000 < Total Spill	200
500 < Total Spill <= 1000	50
400 < Total Spill <= 500	25
220 < Total Spill <= 400	25
80 < Total Spill <= 220	20

\* Total Spill = Low Level Outlet + Spill Gates

*Ms. Kimberly D. Bose, Secretary  
Mr. Nathaniel J. Davis, Sr., Deputy Secretary  
Federal Energy Regulatory Commission*

Please contact me or Steven Hays at (509) 661-4181 should you have any questions regarding this incident.

Thank you,



Michelle Smith  
Licensing & Compliance Manager  
michelle.smith@chelanpud.org  
(509)661-4180

Attachment: Email from Chelan PUD to FERC and Ecology, June 11, 2014

cc: FERC, Erich Gaedeke and Doug Johnson  
Washington Department of Ecology, Pat Irle and Charlie McKinney  
Chelan River Fishery Forum

**From:** [Smith, Michelle](#)  
**To:** ["Douglas Johnson"](#); ["Erich Gaedeke"](#)  
**Cc:** [Sokolowski, Rosana](#); [Truscott, Keith](#); [Hudson, Kirk](#); [Odell, Brian](#); [Garrison, Dan](#); [Osborn, Jeff](#); [Hays, Steve](#)  
**Subject:** Lake Chelan Project No. 637 Notification of Ramping Rate Deviation  
**Date:** Wednesday, June 11, 2014 2:47:20 PM

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Doug and Erich,

This email is to notify you of a ramping rate deviation, which occurred yesterday in the Chelan River. A formal report will be filed within 30 days. The deviation was minor and no fish stranding or mortality is expected to have occurred as a result of this event. Notification to the Washington Department of Ecology is included below.

Please let me know if you have any questions or need additional information at this time.

Thank you,

Michelle

***Michelle Smith***

License and Environmental Compliance Manager

Chelan County PUD

Wenatchee, WA

(509) 661-4180 (office)

(509) 668-7172 (cell)

-----Original Message-----

**From:** Hays, Steve  
**Sent:** Wednesday, June 11, 2014 2:00 PM  
**To:** 'Irlle, Pat (ECY)'  
**Cc:** 'Charlie McKinney (cmck461@ECY.WA.GOV)'; Coffin, Chris (ECY);  
Smith, Michelle  
**Subject:** Lake Chelan Project No. 637 Ramping Rate Deviation

This email is to provide you notification regarding a ramping rate deviation, which occurred in the Chelan River near Chelan Falls. A detailed report will be filed within 30 days.

Since May 15, flows in the Chelan River have ranged from 202 cfs to 3,500 cfs, with the peak flows lasting from late May to early June.

Chelan River flows have been managed to accomplish refill of Lake Chelan to meet target elevations and reduce risk of high spill levels that could damage fish habitat in the Chelan River. As spring runoff has diminished the snowpack, spill flows into the Chelan River have been reduced in stages as Lake Chelan refill has progressed, with current Chelan River flows returning to approximately 200 cfs today.

The deviation occurred during the afternoon of June 10 while ramping flows from 517 cfs down to 258 cfs. Flow from the spillway, which was set at 300 cfs at the beginning of the operation, was decreased at a rate of 100 cfs per hour for three successive hours, while flow from the Low Level Outlet was increased from 211 cfs to 280 cfs during the last hour to buffer the downstream effects of the spillgate closure. Water surface elevations measured at the Chelan River Reach 4 canal outlet structure decrease by 3.6", 4.7" and 3.8" after each of the three hourly flow adjustments. Ramping rates are currently set for 2" per hour, pending review of ramping rate studies.

No fish stranding or mortality is expected to have occurred as a result of this event. Recently emerged Chinook fry, which were present at high densities in the Habitat Channel on May 14, would by June 10 have grown to larger size and no longer be inhabiting the shoreline margins where stranding could occur. Also, the 3,500 cfs flows from late May - early June likely resulted in most Chinook fry moving to quieter waters downstream in the tailrace and Columbia River prior to this ramping rate deviation. There was no steelhead spawning observed in the Reach 4 Habitat Channel in 2014, thus there would not have been any steelhead fry present.

If you have any questions or require additional information, please contact Steven Hays at (509)661-4181.

Thank you

Steven Hays

Fish and Wildlife Senior Advisor

[steve.hays@chelanpud.org](mailto:steve.hays@chelanpud.org)

(509) 661-4181