

126 FERC ¶ 62,137  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Public Utility District No. 1 of Chelan County

Project No. 637-051

Order Amending License

(Issued February 20, 2009)

1. On July 7, 2008, Public Utility District No. 1 of Chelan County (Chelan PUD), licensee for the Lake Chelan Hydroelectric Project, FERC No. 637, filed an application for amendment of the project license. Chelan PUD proposes to replace two existing 24-megawatt (MW) turbine generator units with two new 29.6-MW turbine generator units. The project is located on the Chelan River, near the City of Chelan, in Chelan County, Washington. The project occupies federal lands administered by the U.S. Forest Service (Forest Service) and U.S. Department of the Interior, National Park Service (Park Service).

BACKGROUND

2. The license for the Lake Chelan Project was issued on November 6, 2006.<sup>1</sup> The project facilities include: (1) a 490-foot-long concrete gravity dam with a maximum height of about 40 feet and containing a 202-foot-wide spillway section equipped with eight, 20-foot-wide by 14-foot-high Taintor gates and a 10-foot-wide sluiceway; (2) a reinforced concrete intake structure containing seven, 17-foot-wide inlet openings protected by manually cleaned, steel trashracks; (3) an unused intake structure containing ten, 17-foot-wide inlet openings without trashracks, and connected to a short 17-foot-diameter tunnel stub (designed for possible future expansion); (4) Lake Chelan, a 32,560-acre reservoir at normal maximum water surface elevation of 1,100 feet mean sea level,<sup>2</sup> with a gross storage capacity of 15.8 million acre-feet and a useable storage of 677,400 acre-feet between elevations 1,079 and 1,100 feet; (5) a water conveyance system consisting of: a 10,578-foot-long, 14-foot-diameter concrete tunnel at 0.3 percent grade; a 1,000-foot-long, steel-lined tunnel at 35 percent grade; and a 45-foot-diameter by 25-

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<sup>1</sup> 117 FERC ¶ 62,129, Order on Offer of Settlement and Issuing New License, issued November 6, 2006.

<sup>2</sup> All elevations in this document are referenced to the U.S. Geological Survey 1912 datum.

foot-high steel surge tank; (6) an indoor, above ground, 140-foot-long by 100-foot-wide by 124-foot high, reinforced concrete powerhouse; (7) two, vertical-axis, Francis-type turbines each rated at 34,000 horsepower and connected to a 24,000-kilowatt (kW) generator for a total nameplate capacity of 48,000 kW; (8) a switchyard containing two, 3-phase main transformers, eight 115-kilovolt circuit breakers; and (9) other appurtenant facilities.

### PROPOSED AMENDMENT

3. Chelan PUD proposes to replace the two existing 24-MW turbine generator units that are nearing the end of their useful life. The units would be replaced with two new 29.6-MW turbine generator units. The proposed upgrades would increase the total installed capacity of the project from 48 MW to 59.2 MW. The total hydraulic capacity of the project would increase from 2,308 cubic feet per second (cfs) to 2,500 cfs. Chelan PUD estimates that the average annual energy generation by the project would increase from the existing 380,871 megawatt-hours (MWh) to about 416,400 MWh after the upgrades are completed.

### CONSULTATION

4. Prior to filing the application to amend the license, Chelan PUD distributed a draft amendment application for review and comment. Chelan PUD distributed the draft amendment application via certified mail on March 19, 2008, to the following resource agencies and Indian Tribes: U.S. Fish and Wildlife Service (FWS), Forest Service, Park Service, National Marine Fisheries Service (NOAA Fisheries), Washington State Department of Ecology (Ecology), Washington Department of Fish and Wildlife (WDFW), U.S. Bureau of Indian Affairs, Confederated Tribes of the Colville Reservation, Yakama Nation, and Confederated Tribes of the Umatilla Indian Reservation (Umatilla Tribes). Chelan PUD also held a meeting on May 6, 2008, with all interested parties to discuss the proposed license amendment and the draft application. Comments on the draft amendment application were received from WDFW and Ecology. Chelan PUD incorporated or responded to all of the comments in the final amendment application that was filed with the Commission.

### PUBLIC NOTICE

5. On August 19, 2008, the Commission issued a public notice of the amendment application. In response, timely motions to intervene were filed by Ecology and American Whitewater. Timely comments were filed by the U.S. Department of the Interior, Office of the Secretary (Interior) and Umatilla Tribes. Chelan PUD filed reply comments.

6. In a letter dated September 17, 2008, Ecology stated that it administers the State of Washington's water management program and presents the views and recommendations

of the State regarding any federal license relating thereto at any proceeding conducted by the federal government. Ecology therefore requested intervention status to ensure that its interests and those of the public are represented in the proceeding.

7. By letter dated September 15, 2008, American Whitewater stated that it has interests in the preservation, restoration, and enhancement of the natural and recreational resources associated with the Chelan River. To ensure that its interests are represented in the proceeding, American Whitewater requested intervention status.

8. In a September 19, 2008 letter, Interior stated that it had reviewed the public notice of the amendment application for the Lake Chelan Project and it did not have any comments.

9. In a letter dated September 19, 2008, the Umatilla Tribes filed comments expressing concern with Chelan PUD's amendment application. The items of concern include the impacts of the proposed project modification on water quality, instream flows, and fisheries resources. The Umatilla Tribes also stated that, except for the final amendment application, it is not aware of any correspondence or communications from Chelan PUD regarding the proposed amendment. The Umatilla Tribes requested that further consultation on the proposed amendment be undertaken. The Umatilla Tribes' comments are discussed further in section D of the discussion below.

10. By letter dated October 10, 2008, Chelan PUD filed reply comments to the Umatilla Tribes' letter.

## DISCUSSION

### A. Water Quality Certification

11. Under section 401(a) of the Clean Water Act (CWA)<sup>3</sup>, the Commission may not issue a license for a hydroelectric project that authorizes any activity that may result in a discharge from the project unless the state water quality certifying agency either has issued a water quality certification for the project or has waived certification by failing to act on a request for certification within a reasonable period of time, not to exceed one year. Section 401(d) of the CWA provides that the certification shall become a condition of any federal license that authorizes construction or operation of the project.<sup>4</sup>

12. On July 3, 2008, Chelan PUD requested Water Quality Certification (WQC) from Ecology for its proposed license amendment. On November 19, 2008, Ecology issued a

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<sup>3</sup> 33 U.S.C. § 1341(a) (2006).

<sup>4</sup> 33 U.S.C. § 1341(d) (2006).

WQC for the proposed modification to the Lake Chelan Project, as described in the licensee's amendment application. The licensee filed this WQC with the Commission on November 24, 2008. The certification is included as Appendix A of this order, and is made part of the license for the project by ordering paragraph (C).

13. The WQC requires the licensee to comply with the conditions of the WQC dated June 1, 2004, issued for the current project license, and any amendments thereto. The WQC also states that the change in hydraulic capacity under the proposed hydraulic capacity increase shall not negatively affect temperature, turbidity, dissolved oxygen, total dissolved gas, or designated uses in the Chelan River (bypassed reach) or hydropower tailrace. Increasing the capacity of the turbines does not change the licensee's obligations to address temperature and fish uses under the existing license and the associated WQC. Also, the licensee's obligation to manage the lake level pursuant to the existing license shall remain unchanged.

#### B. Threatened and Endangered Species

14. Section 7(a)(2) of the Endangered Species Act of 1973<sup>5</sup> requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened or endangered species, or result in the destruction or adverse modification of their designated critical habitat.

15. Federally listed species that occur in the area of the Lake Chelan Project include bull trout, Upper Columbia River (UCR) steelhead, UCR spring-run Chinook salmon, Canada lynx, northern spotted owl, gray wolf, grizzly bear, and Ute ladies-tresses. By letters issued September 15, 2008, the Commission requested concurrence from the FWS and NOAA Fisheries that the proposed turbine replacement is not likely to adversely affect federally listed species. By letter dated October 24, 2008, the FWS concurred with the Commission's determination that the proposed action is not likely to adversely affect bull trout, Canada lynx, northern spotted owl, gray wolf, grizzly bear, and Ute ladies-tresses. To date, NOAA Fisheries has not responded. However, by letter dated May 14, 2008, to the licensee, NOAA Fisheries stated it has no objection to the proposed license amendment.

#### C. Environmental Review

16. The following section contains an assessment of the resources that may be affected by the proposed action, and staff's review of the potential effects of the proposed action.

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<sup>5</sup> 16 U.S.C. § 1536(a) (2006).

## 1. Water Resources

17. Lake Chelan lies within a 924-square-mile drainage basin located along the eastern slopes of the Cascade Mountains in North Central Washington. The lake is located within a deeply glaciated valley and is approximately 50.4 miles of the 75-mile-long basin. The lake has a volume of 15.8 million acre-feet based on a water surface elevation of 1,100 feet. The Stehekin River is the primary tributary to the lake. Lake Chelan drains easterly to the Columbia River either through releases at the project dam into a 3.9-mile-long bypassed reach of the Chelan River, or through a diversion at the dam into a 2.2-mile-long power tunnel, which passes water through the powerhouse for generation. The Chelan River at its confluence with the Columbia River conveys the combined flows of the powerhouse discharge from the tailrace and flows from the bypassed reach.

18. The lake consists of two distinct basins separated by a relatively shallow sill 135 feet below the surface of the lake at its narrowest part. The larger Lucerne Basin, comprising the upper 38.4 miles of the lake, has a maximum depth of 1,486 feet and contains over 92 percent of the total lake volume. The smaller Wapato Basin is relatively broad and shallow, with a length of 12 miles and a maximum depth of 400 feet.

### a. Water Quality

19. Lake Chelan is characterized as ultra-oligotrophic (low biological productivity and high water clarity) and has generally good water quality. The biological productivity of the lake is phosphorous limited. Levels of chlorophyll *a*, zooplankton, and benthic organisms have been reported as quite low, particularly in the Lucerne basin. Documented water-quality deficiencies in the lake have included elevated bacterial levels near water supply intakes, elevated metals (iron, zinc and arsenic) in Railroad Creek due to runoff from abandoned contaminated tailings at the Holden Mine and elevated pesticide residues in lake sediments and fish populations. There have also been releases of pesticides, especially dichloro-diphenyl-trichloroethane (DDT), and polychlorinated biphenyls (PCBs) into Lake Chelan. In 1998, Lake Chelan was listed as an Impaired and Threatened Water body due to the detection of elevated concentrations of DDT metabolites and PCBs in fish tissues. These levels are expected to decrease slowly over time as a result of natural decomposition and sedimentation processes.

20. Temperatures in Lake Chelan range seasonally from 2°C to 23°C at the surface. Both basins in Lake Chelan develop a seasonal thermocline at an average depth of 100 to 150 feet during the summer. Summer surface temperatures in the Wapato Basin reach 23°C, while summer temperatures in the upper portions of the Lucerne Basin average 15 to 16°C. Deep-water temperatures in both basins average 5 to 6°C throughout the year. Surface temperatures in the Wapato Basin are cooler in winter than in the Lucerne Basin due to the smaller volume, and lower heat retention capacity. The temperature of water flowing into the bypassed reach is determined by water temperatures in the lower end of

Lake Chelan. Water flowing through the penstock and discharged from the powerhouse into the tailrace is neither cooled nor heated in transit. Water spilled into the bypassed reach is subject to both cooling and heating effects. The degree of heating and cooling is primarily a function of the total flow (mass volume) released through the bypassed reach, the width to depth ratio of the river sections, the difference between the initial water temperature and the air temperature, and solar radiation.

#### b. Water Quantity

21. The majority of the precipitation within the watershed falls as snow and accumulates to create snowpack. Average annual precipitation may range from more than 150 inches per year near Dome Peak in the upper basin, to approximately 11 inches per year in the City of Chelan. The spring melt of winter snowpack primarily extends from April 15 through July 15, with the annual peak runoff occurring in June.

22. Consumptive uses of surface water in the Chelan watershed include irrigation and domestic and municipal water supply. Water rights have been allocated mainly within the Wapato Basin. The majority of existing consumptive surface-water rights are for irrigation.

#### i. Lake Level

23. The licensee manages the elevation of Lake Chelan, October 1 through May 1, based on monitoring of snowpack water content, lake level and projected project area precipitation, and runoff timing. Article 8 of the Lake Chelan Settlement Agreement requires the licensee to make every reasonable effort to comply with the following lake level management practices:

1. Maintaining minimum flows in the Chelan River (this has priority over lake levels);
2. Reducing high flows in the Chelan River (this has priority over lake levels);
3. Satisfying regulatory requirements for flow control (adjusting lake level);
4. Providing usable lake levels for recreation (which varies between elevations 1,090 and 1,098 feet depending on the slope of the shoreline and boat dock configurations);
5. Reducing shoreline erosion;
6. Preventing fish passage blockages (due to tributary barriers); and
7. Minimizing the effect of refill on attainment of flow objectives for salmon in the mainstem Columbia River.

24. Pursuant to Article 8 of the Lake Chelan Settlement Agreement, the licensee is required to operate the project, to the extent practicable, to obtain the following minimum lake elevations by the dates specified as follows:

Minimum Lake Elevation	
<b>Day</b>	<b>Minimum Elevation (feet)</b>
May 1	1087.6
June 1	1094.0
July 1	1098.0
August 1	1099.0
September 7	1098.7
October 1	1097.2

ii. Flows in the Chelan River

25. For the past 80 years, the Chelan dam has diverted water from 4.1 miles of the Chelan River. Almost the entire length of the Chelan River is bypassed by the Lake Chelan Project. However, pursuant to the new license for the project, the licensee is currently constructing a low level outlet at the dam to provide minimum flows to the Chelan River.

26. The bypassed reach can be divided into four reaches based on gradient, confinement, and fluvial geomorphological characteristics.<sup>6</sup> Reach 1 extends from the diversion dam (Lake Chelan outlet) downstream for 2.29 miles and has a low gradient (1 percent) bed composed of large cobbles and small boulders. Reach 2 is 0.75 mile long and is much narrower than Reach 1. Reach 3 is 0.38 mile in length and is characterized by a steep gradient (9 percent) channel that is located in a narrow canyon. Reach 4 is a 0.49-mile-long section that extends from the mouth of the canyon to the powerhouse tailrace. It has a low gradient (0.4 percent) and a fairly unconfined channel.

27. As required by Article 7 of the Lake Chelan Settlement Agreement, the year round minimum flow for the bypassed reach is 80 cfs, with a spring/early summer flow increase to mimic the natural hydrograph. The spring/early summer flow increase is variable, depending on the level of water, snow deposition and runoff forecast. In dry years, when runoff is predicted to be less than normal (within the 80 percent exceedance range of historical runoff volumes), then only the 80 cfs minimum flow would be released. In average water years, when the runoff is predicted to be normal (within the 21-79 percent exceedance range or 60 percent of the years based on historical records), a 200 cfs minimum flow would be released from May 15 through July 15. The exact timing of the

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<sup>6</sup> The four reaches are described in detail in the Commission's Final Environmental Assessment for Hydropower License for the Lake Chelan Project, issued on October 10, 2003.

flow increases could change depending on climatic conditions (spring temperatures or rain) and biological evaluations. In wet years, when runoff is predicted to be greater than normal (within the 20 percent exceedance level), a 320 cfs minimum flow would be released from mid-May through mid-July.

28. Additional flow of 240 cfs is provided to Reach 4 during the salmon spawning and steelhead spawning periods, with such flow either pumped from the powerhouse tailrace or released from the Lake Chelan Dam. These instream flows were established to provide a functional aquatic ecosystem to support native fish species in Reaches 1 and 2, and to provide enhanced conditions for salmon spawning and rearing in Reach 4. The requirements for minimum flow in the bypassed reach are summarized as follows:

Chelan River Flow

<b>Reach</b>	<b>Dry year</b>	<b>Average year</b>	<b>Wet year</b>
1, 2 & 3	80 cfs all months	80 cfs July 16-May 14	80 cfs July 16-May 14
		May 14 ramp up to 200 cfs	May 14 ramp up to 320 cfs
		200 cfs May 15 - July 15	320 cfs May 15 - July 15
		July 16 ramp down to 80 cfs	July 16 ramp down to 80 cfs
4 (spawning flow)	80 cfs + 240 cfs pumped March 15 to May 15 and Oct. 15 to Nov. 30	320 cfs by combination of spill & pumping March 15 to May 15 and Oct. 15 to Nov. 30 - Incubation flow as needed	320 cfs by combination of spill & pumping March 15 to May 15 and Oct. 15 to Nov. 30 - Incubation flow as needed

### c. Effects of Proposed Action on Water Resources

#### i. Flows through the Powerhouse

29. The existing turbines at the project have a hydraulic capacity of 1,154 cfs each, whereas, the two new turbines would have a hydraulic capacity of 1,250 cfs each. This would increase the hydraulic capacity by 192 cfs, or 8.3 percent. At full gate and maximum head, the new turbines would be capable of discharging a combined maximum flow of 2,500 cfs, whereas, the existing turbines have a combined maximum discharge capacity of 2,308 cfs.

30. The Lake Chelan Project is typically operated to optimize performance and efficiency. The existing turbines are typically operated at their most efficient point of 1,100 cfs each or 2,200 cfs combined. The licensee states that each new unit would



typically be operated near 1,194 cfs, for a combined total of 2,388 cfs. This would yield a change in typical operation of 188 cfs.

31. During the fall and winter period, when the lake is being drawn down for generation, flood control, and to allow for natural removal of tributary barriers, the powerhouse would typically be operated at flows near 2,388 cfs (maximum). Depending on runoff forecasts and lake level management, the powerhouse may continue to be operated near 2,388 cfs through the refill period (early runoff with average or greater snowpack) or powerhouse flow may be reduced to meet refill targets.

32. During the spring and summer period, when inflow is less than powerhouse capacity, the powerhouse flow would be reduced to maintain lake levels in the same manner as currently required. This increase in powerhouse capacity could result in the powerhouse operating for somewhat fewer hours during the summer and during the spring refill period, since the amount of flow taken from lake storage (or inflow used for generation) for any given period of time would be greater than prior to the turbine upgrades.

33. During an average flow year, typical flow through the powerhouse in fall and winter is expected to increase by 188 cfs. There is no expected change in unit starts or stops during fall and winter. During spring and summer, generation would continue to be intermittent as there is often not enough water available for continuous maximum generation. After the turbine upgrades, average flow is expected to increase during periods of generation. Because more water can be used in a shorter period of time, spring and summer operations would have longer periods of reduced generation and lower flows to manage lake level and spill objectives, and a slight increase in the number of unit starts and stops.

34. During low flow years, the same changes in powerhouse flows are expected to occur as described above, with the exception that intermittent or reduced flow operations may begin in the winter due to the lack of sufficient inflow. During high flow years, intermittent operations would typically be limited to late summer.

#### ii. Lake Level Management

35. For average and low flow years, increased powerhouse flows during the fall and winter could increase the rate of lake level drawdown. Lower lake elevation in the fall could cause lake levels to be lower earlier than in the past. A faster drawdown rate (approximately 0.2 feet per month of drawdown) should increase the ability to manage lake levels in a manner that removes or diminishes tributary barrier sites, as required by Article 6 of the Lake Chelan Settlement Agreement (Lake Chelan Fishery Plan). The increase in capacity/flow would not change the licensee's spring and summer lake level requirements as previously outlined in the discussion of minimum lake elevation.

### iii. Instream Flows in the Chelan River

36. During average and low flow years, the change in powerhouse flow would not affect minimum flows as required by the license. Drafting of the lake during the fall, winter, and spring reduces the volume of spill to the Chelan River, but pursuant to the license, minimum Chelan River flow would continue to be required. The reduction in spill flows would increase the ability of the licensee to avoid scouring flow levels that could damage Reach 4 habitat.

### iv. Summary

37. The licensee's proposal to replace the existing turbines, subsequently increasing the hydraulic capacity by 192 cfs, would not cause any adverse impacts to water quality or quantity. The environmental requirements of the new license would remain in effect. Minimum instream flows and lake level requirements would not change, and water quality requirements would still need to be met pursuant to the WQC. Ecology believes, as stated in the November 19, 2008 WQC, that the best approach is to proceed with the ten-year adaptive management plan, which allows a sufficiently lengthy period of time to determine what level of water quality standards support fish and which water temperature is reasonable and feasible to achieve. Increasing the capacity of the turbines would not change the licensee's obligations to address temperature and fish habitat under the existing license and WQC. It also would not change the licensee's obligation to manage lake levels and minimum instream flows pursuant to the existing license.

## 2. Fisheries Resources

38. Lake Chelan supports cold-water fish species, especially salmonid species, such as landlocked sockeye salmon, landlocked Chinook salmon, rainbow trout, cutthroat trout, lake trout, and burbot. Other fish species include smallmouth bass, pygmy and mountain whitefish, bluegill, northern pikeminnow, suckers, minnows, and sculpins.

39. The Chelan River extends from the dam, downstream to the Columbia River for approximately 3.9 miles. Almost all of the entire length of the Chelan River is bypassed by the project. The bypassed reach can be divided into four reaches, based on gradient, confinement, and fluvial geomorphological characteristics, as previously described.

40. The powerhouse tailrace is a 1,700-foot-long channel adjacent to the lower end of the bypassed reach. The tailrace has a variable, near-zero gradient due to the backwater from the downstream Rocky Reach Hydroelectric Project (FERC No. 2145) on the Columbia River. At the time of construction of the project, the tailrace was excavated from the powerhouse to the Columbia River, and an earthen dike was established between the tailrace and the bypassed reach. Construction of the Rocky Reach Project resulted in back-watering of the Columbia River into the tailrace. There are high quality

gravels and sediment in the lower tailrace, providing conditions that can support spawning by summer and fall Chinook salmon.

41. The tailrace contains fish populations that enter from the Columbia River. Native species have been observed congregating on the alluvial fan where the tailrace, bypassed reach, and the Columbia River converge. The gravel and flow conditions are also appropriate for native cyprinid fishes such as chiselmouth chubb, peamouth chubb and northern pikeminnow, and suckers have been observed spawning in the spring. Summer and fall chinook salmon spawn on gravel in this area in October and November. Redd counts of chinook spawning on the alluvial fan at the end of the tailrace and in the confluence of the Chelan and Columbia Rivers have ranged from 16 to 69 redds per year from 1981 to 1999. In 1998, one rainbow trout/steelhead of approximately 20 inches was observed during snorkel survey in the lower end of the bypassed reach.

42. As required by the new license, and associated Lake Chelan Settlement Agreement, the licensee is required to complete modifications to improve habitat in Reach 4 and the project tailrace. These requirements are set forth in section 3.1 and 3.2 of Chapter 7 of the Lake Chelan Comprehensive Plan: the Chelan River Biological Evaluation and Implementation Plan (CRBEIP). The licensee is required to use standard river habitat restoration techniques to provide and maintain gravel areas for spawning, create pools, increase channel sinuosity, and moderate velocities. After these modifications, the licensee is required to comply with the provisions of Chapter 7 for the pumping of tailrace water into Reach 4. These additional flows into Reach 4 during steelhead and late-run chinook spawning periods are to provide greater depth and velocities, which will improve spawning habitat conditions.

43. The licensee is currently constructing a low level outlet at the dam to provide a minimum flow of 80 cfs released throughout the year to the Chelan River, with additional flows provided for a two-month period during average and high water runoff year to simulate the effects of an annual runoff hydrograph as previously discussed. An additional flow of 240 cfs is also provided to Reach 4 habitat during the salmon and steelhead spawning periods, with flow either pumped from the powerhouse tailrace or released from the dam.

44. The new license and associated CRBEIP also require the licensee to comply with redd protection provisions for the purpose of preventing damage to salmon redds that might occur as a result of powerhouse shutdown or low dissolved oxygen concentrations. The licensee is also required to implement monitoring, evaluation, and reporting requirements to provide a basis for determining whether biological objectives have been met, and if changes are needed to habitat protection and restoration. These biological objectives, as listed in table 7-9 and 7-10 of the CRBEIP include measures for protecting UCR spring Chinook salmon, UCR steelhead and native resident fish species, such as spawning success criteria in newly developed habitat in the tailrace, maintaining intragravel dissolved oxygen concentrations in redds constructed in the tailrace,

emergence success criteria for redds, and water quality monitoring in the Chelan River and tailrace.

a. Threatened and Endangered Species

45. Three federally listed threatened or endangered fish species occur in the project tailrace and Reach 4; the UCR spring-run Chinook salmon (endangered), UCR steelhead (threatened) and bull trout (threatened).

46. UCR spring-run Chinook salmon are occasionally present in the project tailrace and in Reach 4. Critical habitat for this species generally includes all river reaches accessible to listed Chinook salmon in Columbia River tributaries upstream of the Rock Island Dam and downstream of Chief Joseph Dam in Washington, excluding the Okanogan River. Spring-run chinook salmon return to mid-Columbia River tributaries from late April through June, after spending 2 to 3 years in the ocean. Spawning generally occurs from late July through September. Eggs hatch in later winter, fry emerge from April to May, and juveniles rear in freshwater for one year before migrating to the ocean, passing the mid-Columbia River dams between mid-April and mid-June.

47. UCR steelhead are also occasionally present in the project tailrace and Reach 4. Critical habitat for this species generally includes all river reaches accessible to listed steelhead salmon in Columbia River tributaries upstream of the Yakima River, Washington, and downstream of Chief Joseph Dam. Adults typically pass the mid-Columbia River dams from June through late September and spawn the following March through July. Some adult return to the ocean after spawning and may spawn more than once during their lifetime. Steelhead eggs incubate from late March through June, and fry emerge in late spring to August. Outmigration generally occurs from March to mid-June, after spending 1 to 7 years in freshwater, but most leave after 2 to 3 years. Some steelhead are thought to live their entire lives in freshwater.

48. On May 3, 2007, the licensee filed its Threatened and Endangered Species Protection Plan pursuant to Article 8 of the license. On November 28, 2007, the Commission approved the plan.<sup>7</sup> The licensee's plan describes the design and implementation of a new low level outlet at the dam to provide the required minimum flows when the lake level is below the spillway crest, and for a tailrace pump station to pump water from the powerhouse tailrace to the Chelan River at a rate sufficient to meet the required minimum flow for Reach 4. The plan also includes implementation of tailrace fish habitat improvements, to increase usable spawning and rearing habitat for Chinook salmon and steelhead. This includes the development of a new channel in

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<sup>7</sup> 121 FERC ¶ 62,143, Order Approving Threatened and Endangered Species Plan under Article 408, issued November 28, 2007.

Reach 4, a monitoring and evaluation program, and providing for on-going maintenance of and/or modification, as necessary based on monitoring. Additionally, in order to determine whether actions are needed to improve water quality for fish, the licensee will provide a final biological objectives status report that summarizes the results of the monitoring, and recommend any new measures needed to achieve the biological objectives required by Article 408.

b. Effects of Proposed Action on Fisheries Resources

i. Tailrace Habitat

49. The licensee analyzed the effects of changes to water depth and velocity on enhanced tailrace spawning substrate, using the increased flow during typical operations (188 cfs) and during the less frequent maximum rated capacity of 192 cfs. During typical powerhouse operations, the additional powerhouse discharge of 188 cfs would result in less than a 9 percent increase in velocities over the spawning beds.

50. Based on measurements taken over locations where salmon are spawning in existing tailrace habitat, the preferred water velocities in the tailrace are 1.5 feet per second (fps) to 2.5 fps. An increase in operation to 2,388 cfs (typical operation) or 2,500 cfs (maximum hydraulic capacity) would slightly improve water velocities to levels closer to the preferred mid-range for spawning habitat in the tailrace. Therefore, the proposed amendment and slight increase in water velocity would likely have a beneficial impact to tailrace spawning habitat.

51. Tailrace spawning velocities can vary due to the backwater effects of the Rocky Reach Project, which can change the water depth over the spawning beds by several feet. For both average and low flow years, the increased powerhouse flow would likely increase the ability to meet preferred spawning flow velocities at high tailwater levels (effect of Rocky Reach pool elevation) and increase the depth over the spawning beds at low tailwater levels. The increase in flow by 188 cfs or 192 cfs would not increase velocities sufficiently to either exceed spawning velocity criteria or to affect bedload movement. Because velocities would be below gravel movement levels, the increased flow would have no effect on spawning substrate.

52. Because bull trout do not spawn in the tailrace, the increased velocities would not adversely affect bull trout spawning. Also, increased water velocities would not affect bull trout forage species, and therefore, bull trout foraging. However, the increased potential for more frequent or longer periods of no flow in the tailrace may affect the abundance of forage resources for bull trout in the tailrace. The licensee proposes to document incidental occurrence of bull trout in the tailrace during flow monitoring and evaluation to determine the presence of bull trout, as required by the license and the Lake Chelan Settlement Agreement.

## ii. Entrainment

53. Article 404 of the license requires the licensee to implement measures for investigating potential fish entrainment at the project intake. The Lake Chelan Comprehensive Fishery Management Plan includes provisions to install fish protection or exclusion devices for the intake entrance, if necessary, or implement other actions recommended by the state and federal fishery agencies and tribes. There is no indication that the 8.3 percent increase in hydraulic capacity associated with the new turbines would adversely impact fish entrainment. However, should such an issue arise during monitoring pursuant to Article 404, it would be fully addressed under the existing terms of the license.

## 3. Other Resources

54. Installation and operation of the two new 29.6-MW turbine generator units would not require any land-clearing or ground disturbance activities beyond that which would occur at the project as authorized in the existing license.<sup>8</sup> There would be an increase in hydraulic capacity of 192 cfs associated with the new units; however, we do not anticipate any appreciable impacts on recreation, aesthetics, or historical and cultural resources.

## D. Tribal Comments

### 1. Water Quality

55. In its September 19, 2008 filing, the Umatilla Tribes stated that it is not aware of any relevant studies, data, or other information which support the assertion that turbidity, dissolved oxygen, total dissolved gas, and temperature in the Chelan River would not be affected by the proposed project modification. As stated by Chelan PUD in its October 10, 2008 reply letter, the proposed modification would not change the minimum flow requirements of the project license, and therefore, would not affect the water quality parameters in the Chelan River. Additionally, the WQC issued by Ecology on November 19, 2008, for the proposed license amendment states that the proposed change in hydraulic capacity would not negatively affect turbidity, dissolved oxygen, total dissolved gas, or temperature in the Chelan River or tailrace. Increasing the turbine capacity would not change the licensee's obligations to address temperature and fish uses under the existing license and the associated WQC.

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<sup>8</sup> An Environmental Assessment (EA), which analyzed the potential environmental impacts of the Lake Chelan Project, was prepared by Commission staff during the relicensing proceeding. The Commission issued the EA on October 10, 2003.

## 2. Instream Flows

56. The Umatilla Tribes stated in its September 19, 2008 filing that a reduction in spill flows under the proposed project modification would reduce flows in the Chelan River. Chelan PUD stated in its October 10, 2008 reply letter that the minimum flow requirements of the existing project license would not be affected by the amendment proposal. Additionally, as discussed in the environmental review section above, the reduction in spill flows would increase Chelan PUD's ability to manage flows for the protection of fish habitat. Increasing the turbine capacity would not change the licensee's obligations to manage lake levels and minimum instream flows under the existing license.

## 3. Fisheries Resources

57. In its September 19, 2008 filing, the Umatilla Tribes stated several concerns regarding the impacts of the proposed project amendment on fisheries resources. The Umatilla Tribes stated the following: (1) Pacific lamprey might be present in the Chelan River and studies should be conducted; (2) it is not familiar with any information from Chelan PUD regarding fish entrainment and it recommends entrainment studies be done before the proposed modification is implemented; and (3) before construction of the Lake Chelan Project, anadromous fish used and occupied the watershed, and it supports the restoration of anadromous fish to the upper portions of the Chelan River.

58. As noted by Chelan PUD in its October 10, 2008 reply letter, there have been no observations of Pacific lamprey in the Chelan River or the powerhouse tailrace during various studies and surveys performed at the project. As discussed in the environmental review section above, the licensee is required under the new license to implement monitoring, evaluation, and reporting requirements to provide a basis for determining whether biological objectives have been met, and if changes are needed to habitat protection and restoration. Any observation of Pacific lamprey would be documented in the annual reports.

59. Chelan PUD also stated in its reply letter, in reference to fish entrainment, that a baseline study was undertaken during the relicensing of the project. Additionally, Article 404 of the license requires the licensee to implement measures for investigating potential fish entrainment at the project intake. As discussed in the environmental review section above, there is no indication that the increase in hydraulic capacity associated with the new turbines would adversely impact fish entrainment. However, should such an issue arise during monitoring pursuant to Article 404, it would be fully addressed under the existing terms of the license.

60. Regarding anadromous fish in the upper Chelan River and Lake Chelan watershed, Chelan PUD stated in its reply letter that the information considered and analyzed during the relicensing of the project did not indicate a current or historical presence of

anadromous fish in the upper reaches. The Lake Chelan Comprehensive Plan (Chapter 7) and NOAA Fisheries' Biological Opinion filed with the Commission for the relicensing proceeding on October 20, 2005, both note the absence of anadromous fish in the upper reaches of the Chelan River. Further, increasing the turbine capacity would not change the licensee's obligations to restore fisheries resources in the Chelan River pursuant to the existing license and the associated Lake Chelan Settlement Agreement.

#### 4. Consultation

61. The Umatilla Tribes stated in its September 19, 2008 filing that additional consultation should be undertaken for the proposed amendment. As documented in Chelan PUD's application for amendment of license, the licensee distributed via certified mail a draft amendment application for review and comment on March 19, 2008. The licensee also held a meeting on May 6, 2008, for all interested parties to discuss the amendment proposal. Chelan PUD notified the Umatilla Tribes of the meeting on March 31, 2008, and sent a reminder via email message on May 2, 2008. Although the Umatilla Tribes did not attend the meeting or provide comments on the draft amendment application to the licensee, the licensee did meet the Commission's pre-filing consultation requirements. Therefore, additional consultation is not warranted.

#### E. Design Changes

62. Chelan PUD's amendment proposal includes replacing two existing 24-MW turbine generator units with two new 29.6-MW turbine generator units. We are requiring the licensee to coordinate with the Commission's Division of Dam Safety and Inspections - Portland Regional Engineer for the construction work, as directed in ordering paragraph (E) of this order.

#### F. Annual Charges

63. Chelan PUD's proposed replacement of the two turbine generator units would result in an increase in the project's installed capacity. The total installed capacity of the project would increase from 48 kW to 59.2 kW and the total hydraulic capacity would increase from 2,308 cfs to 2,500 cfs.

64. The Commission collects annual charges from licensees for administration of the FPA and for the use, occupancy and enjoyment of federal lands. Article 201 of the license provides for the collection of funds for administration of the FPA and for recompensing the United States for the use of its lands. Ordering paragraph (F) of this order requires the licensee to file with the Commission the date of commencement of operation of the upgraded turbine generator units, which will be used to revise the annual charges under Article 201(1) of the license.



### G. Exhibit Drawings

65. Included in the July 7, 2008 filing of the amendment application is an Exhibit F drawing. The Exhibit F drawing conforms to the Commission's rules and regulations and is approved by ordering paragraph (G). Ordering paragraph (H) of this order also requires the licensee to file the approved drawing in aperture card and electronic file formats.

### CONCLUSION

66. We conclude that the upgrades to the turbine generator units would not constitute a major federal action significantly affecting the quality of the human environment. This order approves the amendment to replace the two existing 24-megawatt (MW) turbine generator units with two new 29.6-MW turbine generator units.

#### The Director orders:

(A) The license for the Lake Chelan Hydroelectric Project, FERC No. 637, is amended as provided by this order, effective the day this order is issued.

(B) Ordering paragraph (B)(2) of the license is revised, in part, to read as follows:

Project works consisting of:...(7) two, vertical-axis, Francis-type turbines each rated at 44,525 horsepower and connected to a 29,600-kW generator for a total nameplate capacity of 59,200 kW...

(C) The license for the Lake Chelan Hydroelectric Project is subject to the conditions of the Water Quality Certification that was issued on November 19, 2008, by the Washington State Department of Ecology under section 401 of the Clean Water Act, as those conditions are set forth in Appendix A to this order.

(D) The licensee shall commence construction to replace the units within two years from the issuance date of this order and shall complete construction within four years from the issuance date of this order.

(E) At least 60 days prior to the start of construction, the licensee shall submit one copy of its final plans and specifications to the Commission's Division of Dam Safety and Inspections (D2SI) – Portland Regional Engineer, and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI). The licensee may not begin construction until the D2SI – Portland Regional Engineer has reviewed and commented on the plans and specifications, determined that all preconstruction requirements have been satisfied, and authorized start of construction.

(F) Within 30 days after the start of operation of the upgraded units, the licensee shall notify the Commission of the date of such commencement. The filing should include written documentation of the modifications performed and the installed capacities of the new turbine generator units. The date of commencement of operation of the upgraded units will be used to amend license Article 201(1) for the assessment of annual charges.

(G) The following Exhibit F drawing filed on July 7, 2008, conforms to the Commission’s rules and regulations, and is approved and made part of the license.

Exhibit No.	FERC Drawing No.	Drawing Title	Superseded FERC Drawing No.
F-5	637-1020	Powerhouse Sections	637-1005

(H) Within 45 days of the date of issuance of this order, the licensee shall file the approved exhibit drawing in aperture card and electronic file format.

a) Three sets of the approved exhibit drawing shall be reproduced on silver or gelatin 35mm microfilm. All microfilm shall be mounted on type D (3-1/4" X 7-3/8") aperture cards. Prior to microfilming, the FERC Project-Drawing Number (i.e., P-637-1020) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number shall be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (i.e., F-5), Drawing Title, and date of this order shall be typed on the upper left corner of each aperture card. See Figure 1.

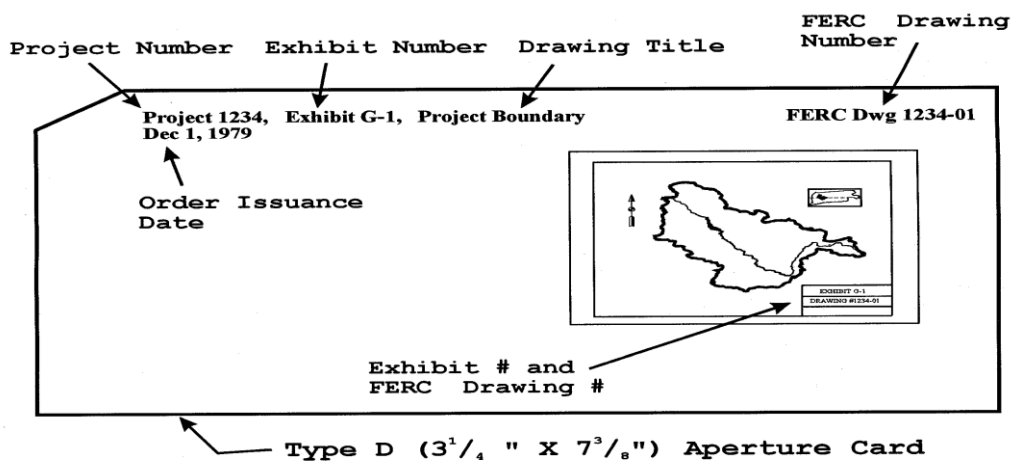


Figure 1.

Two of the sets of aperture cards shall be filed with the Secretary of the Commission, ATTN: OEP/DHAC. The third set shall be filed with the Commission's Division of Dam Safety and Inspections Portland Regional Office.

b) The licensee shall file two separate sets of exhibit drawings in electronic raster format with the Secretary of the Commission, ATTN: OEP/DHAC. A third set shall be filed with the Commission's Division of Dam Safety and Inspections Portland Regional Office. Exhibit F drawings must be identified as **(CEII) material under 18 CFR § 388.113(c)**. Each drawing must be a separate electronic file, and the file name shall include: FERC Project-Drawing Number, FERC Exhibit, Drawing Title, date of this order, and file extension in the following format [P-637-1020, F-5, Powerhouse Sections, MM-DD-YYYY.TIF]. Electronic drawings shall meet the following format specification:

IMAGERY - black & white raster file  
FILE TYPE – Tagged Image File Format, (TIFF) CCITT Group 4  
RESOLUTION – 300 dpi desired (200 dpi min.)  
DRAWING SIZE FORMAT – 24” X 36” (min), 28” X 40” (max)  
FILE SIZE – less than 1 MB desired

(I) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order pursuant to 18 C.F.R. §385.713.

M. Joseph Fayyad  
Engineering Team Lead  
Division of Hydropower Administration  
and Compliance

Appendix A

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

RECEIVED  
NOV 24 2008  
Licensing & Compliance

<b>WATER QUALITY CERTIFICATION TO:</b>	)	Order No. <b>6215</b>
Lake Chelan Hydroelectric Project	)	401 Certification for
(FERC No. 637)	)	Non-Capacity License Amendment
In accordance with 33 U.S.C. 1341	)	Lake Chelan Hydroelectric Project
FWPCA § 401, RCW 90.48.260	)	Chelan County, Washington
and Chapter 173-201A WAC	)	

TO: Ms. Michelle Smith  
 Licensing and Compliance Manager  
 Public Utility District No. 1 of Chelan County  
 P.O. Box 1231  
 Wenatchee, WA 98807-1231

On July 7, 2008, Washington State Department of Ecology (Ecology) received a letter and application from the Public Utility District No. 1 of Chelan County (Chelan PUD) requesting a certification under the provisions of 33 USC 1341 (FWPCA § 401) to certify that certain proposed modifications to the Lake Chelan Hydroelectric Project will comply with applicable provisions of 33 USC 1311, 1312, 1313, 1316, 1317 and with any other appropriate requirement of state law. The proposed modifications are described in Chelan PUD's application, filed July 3, 2008, to the Federal Energy Regulatory Commission (FERC) for a "Non-Capacity" amendment to their license.

**1.0 NATURE OF PROJECT**

The Chelan Dam Hydroelectric Project generates 48 megawatts of hydropower. The project includes a diversion dam at the head of the Chelan River, at the southeast end of Lake Chelan, near the city of Chelan. The diversion dam is 40 feet high and 490 feet long. The dam controls the elevation of Lake Chelan, a 55-mile long natural lake. The dam also controls the flow to the Chelan River, which is 4.1 miles long and empties into the Columbia River. Water for hydropower is conveyed from the intake at the dam to the powerhouse through a 14-foot diameter, 2.2-mile-long power tunnel which transitions to 12 feet in diameter prior to bifurcating to form two penstocks, 90 feet in length. The powerhouse empties into a tailrace, about 1,700 feet from the Columbia River, just south of the mouth of the Chelan River.

Chelan PUD proposes to amend the Project license by replacing two 24 megawatt (MW) turbine generators with two new generators, each with a nameplate rating of 29.6 MW, increasing total generating capacity by 11 MW. A non-capacity amendment to the FERC license is needed because the new turbines will increase the Project's total hydraulic capacity by 192 cubic feet per second (cfs). This is an 8.3 percent increase in hydraulic capacity, which is less than the 15 percent increase that triggers the requirement for a capacity amendment under the FERC regulations. 18 C.F.R. §4.201(b).

According to the Chelan PUD, in their letter requesting a 401 certification, the 8.3 percent increase in hydraulic capacity proposed will not result in significant changes in Project

operations or result in any significant adverse environmental impacts. The PUD stated, in addition, that the environmental requirements included in the FERC license for the Project issued in 2006 will continue to apply under the amendment and will provide further assurance of no significant adverse impacts.

## **2.0 AUTHORITIES**

In exercising authority under 33 U.S.C. 1341 and RCW 90.48.260, Ecology has investigated this application pursuant to the following:

1. Conformance with all applicable water quality-based, technology-based, and toxic or pretreatment effluent limitations as provided under 33 U.S.C. Sections 1311, 1312, 1313, 1316, and 1317 (FWPCA Sections 301, 302, 303, 306, and 307);
2. Conformance with the state water quality standards as provided for in Chapter 173-201A WAC authorized by 33 U.S.C. 1313 and by Chapter 90.48 RCW, and with other appropriate requirements of state law; and,
3. Conformance with any and all applicable provisions of Chapter 90.48 RCW and of using all known, available and reasonable methods to prevent and control pollution of state waters as required by RCW 90.48.010.

## **3.0 WATER QUALITY STANDARDS**

- A. The goals of the State of Washington are to “maintain the highest possible standards to ensure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state, and to that end require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state of Washington” (RCW 90.48.010).
- B. Under the State’s new water quality standards, approved by the U.S. Environmental Protection Agency in February 2008, the designated uses for the Chelan River still include salmonid spawning, rearing and migration (WAC 173-201A-600(1).) However, the numeric criteria for temperature for the river and tailrace have changed to a 7-DADMax of 17.5°C, where the 7-DADMax is the average of the daily maximum temperatures of seven consecutive days. (WAC 173-201A-200(1)(c).)
- C. The new state standards also include specific options for modifying water quality standards by developing site-specific criteria or performing a use attainability analysis (WAC 173-201A-430 and 440.)

## **4.0 FINDINGS**

- A. On June 1, 2004, Ecology issued a 401 certification for the Lake Chelan Hydroelectric Project, under Ecology Order No. 1233. This certification was based on the results of a Washington State Pollution Control Hearings Board decision. On

November 6, 2006, FERC issued a 50-year license for the Project, under FERC Order 117 FERC ¶62,129 (Project license).

- B. On July 3, 2008, Chelan PUD filed an application to the Federal Energy Regulatory Commission (FERC) for a “Non-Capacity” amendment to their Project license. On July 7, 2008, Ecology received a letter and application from Chelan PUD requesting a water quality certification for the proposed license amendment.
- C. For over 80 years, the Chelan dam has diverted water from most of the 4.1 miles of the Chelan River. Because of that, it is not known what level of support for fish, and water temperature for such use, can reasonably be achieved in the river. To make that determination, the 401 Certification for the Project license contains conditions for a ten-year adaptive management plan, which will allow time to determine what level of fish support and water temperature is reasonable and feasible to achieve.
- D. The adaptive measures are contained in the Chelan River Biological Evaluation and Implementation Plan (CRBEIP, revised April 18, 2003). (See Chapter 7 of the Comprehensive Plan, Attachment B of the Lake Chelan Settlement Agreement dated October 8, 2003.) The CRBEIP includes biological objectives to be achieved in the Chelan River.
- E. The minimum instream flows for fish were identified in the 401 certification and CRBEIP as follows:

Reach	Dates	Dry year (cfs)	Average year (cfs)	Wet year (cfs)
1, 2 & 3 <sup>1</sup>	July 16- May 14	80 all months	80	80
	May 14		Ramp up to 200	Ramp up to 320
	May 15- July 15		200	320
	July 16		Ramp down to 80	Ramp down to 80
4 <sup>2</sup> Spawning flow	March 15 - May 15; <i>and</i> Oct. 15 – Nov. 30	80 + 240 pumped (320)	320 by combination of spill & pumping  Incubation flow, as needed	320 by combination of spill & pumping  Incubation flow, as needed

<sup>1</sup> Flows measured at the dam by calibrated gate rating.

<sup>2</sup> Flows measured at the dam or through calibrated pump discharge curves.

- i) The minimum instream flow requirements set forth in the 401 certification are considered minimum values.
- ii) Higher flows may be determined to be needed by the Chelan River Fish Forum (CRFF) or by Ecology, as a result of studies performed as part of the CRBEIP.
- iii) Ecology retains the right to amend the instream flow requirements specified in this certification to provide adequate habitat and to meet the biological

objectives for cutthroat in Reaches 1, 2 and 3 of the Chelan River, or for fall Chinook or steelhead in Reach 4 of the Chelan River, or any species included in the future on a state or federal listing of endangered or threatened species.

- iv) With respect to instream flows for spawning in Reach 4, incubation flows are added as needed in all years, including dry years, per Washington State Pollution Control Hearings Board (PCHB) Order dated April 21, 2004 (Confederated Tribes v. Ecology, PCHB No. 03-075).
- F. Under the 401 certification for the Project license, following modifications to the Chelan River channel, Chelan PUD is to collect data on temperatures in the Chelan River and, if appropriate, model temperature, to evaluate its ability to comply with the temperature standards.
- G. Under the 401 certification for the Project license, by or before the end of the ten-year adaptive management schedule, Chelan PUD is to provide Ecology with the information necessary to make a determination on whether the biological objectives in the 401 certification (and CRBEIP) and the state water quality standards have been achieved. Ecology has agreed to review the degree of attainment of the biological objectives and water quality standards and the application of all known, reasonable and feasible measures, and based on the results of the review, initiate a process to modify the applicable standards through rulemaking or such alternative process as may otherwise be authorized under applicable state and federal law.
- H. Ecology reserved the authority to require new or modified measures<sup>1</sup> beyond those otherwise provided for in the 401 certification and the CRBEIP as may be reasonable and necessary to meet applicable water quality standards and other appropriate requirements<sup>1</sup> of state law. Such new or modified measures may include, but are not limited to, changes to minimum flows and ramping rates.
- I. Under the 401 certification for the Project license, in the event of changes to the state water quality standards, such new standards shall apply. As described above (Section 3.0 B), standards for temperature have changed and therefore apply.
- J. According to Chelan PUD's application for a non-capacity amendment to the Project license, Exhibit E, flow through the powerhouse will increase mostly in the fall and winter, but may be extended, depending on forecasts, when there is early runoff with average or greater flows. During the spring and summer, generation will continue to be intermittent. Maximum flows through the powerhouse will change from 2,308 to 2,500 cfs, an increase of 192 cfs.
- K. Also according to Exhibit E, the increases in powerhouse flows will slightly improve velocities to levels closer to preferred mid-range for spawning habitat in the tailrace. For both average and low flow years, the increased flow will likely increase the depth over the spawning beds at low tailwater flows, also a benefit to spawning.

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<sup>1</sup> According to the PCHB, Ecology has the authority to require new or modified "requirements," as opposed to merely "measures", and the term "requirements" includes "new or modified biological objectives" (PCHB Order dated April 21, 2004 (Confederated Tribes v. Ecology, PCHB No. 03-075).)



- L. According to Chelan PUD's letter requesting the 401 certification for the license non-capacity amendment, the minor increase in flow capabilities of the powerhouse would have no negative effect on water quality in the tailrace and would have little effect on any of the conclusions contained in Ecology's existing certification. Specifically, changes in operation that might result by increasing flow through the penstock at certain times of the year are not expected to negatively affect temperature, existing levels of turbidity, dissolved oxygen and total dissolved gas in the Chelan River (bypass reach.) Increasing the capacity of the turbines may decrease the amount of excess inflow spilled into the Chelan River (bypass reach) during the late fall, winter and periods of high spring and summer runoff, but that does not change Chelan PUD's obligations to address temperature and fish uses under the existing license and associated 401 certification. Chelan PUD's obligation to manage the lake level pursuant to the existing license will be unchanged.
- M. Additionally, as 2004 401 Section II. C. states, where it is not feasible to fully meet water quality standards Clean Water Act regulations allow Ecology to take action to remove or modify a designated use or to modify the criteria assigned to protect that designated use if other criteria would sufficiently protect that use. The process may involve a use attainable analysis and/or standard modification. However, the Chelan River has been dewatered for over 76 years and it is not currently known what level of support for fish and water temperature for such use can reasonably be achieved in the river. To make that determination, Ecology believes that the best approach is to proceed with a ten-year adaptive management plan, which will allow a sufficiently lengthy period of time to determine what level of fish support and water temperature is reasonable and feasible to achieve.

## **5.0 WATER QUALITY CERTIFICATION CONDITIONS**

In view of the foregoing and in accordance with Section 401 of the Clean Water Act (33 USC 1341), RCW 90.48.260 and Chapter 173-201A, Ecology finds reasonable assurance that the proposed license amendment will comply with state and federal water quality standards and other appropriate requirements of state law provided the following conditions are met.

- A. The conditions in the 401 certification dated June 1, 2004 and issued as Washington State Order No. 1233, issued for the current Project license of November 6, 2006, and including any amendments thereto shall be complied with.
- B. The change in hydraulic capacity under the proposed hydraulic capacity increase shall not negatively affect temperature, turbidity, dissolved oxygen, total dissolved gas, or designated uses in the Chelan River (bypass reach) or hydropower tailrace. Increasing the capacity of the turbines does not change Chelan PUD's obligations to address temperature and fish uses under the existing license and the associated 401 certification. Also, Chelan PUD's obligation to manage the lake level pursuant to the existing license shall remain unchanged.



- C. Ecology retains the right to require additional monitoring or studies if necessary to provide reasonable assurance of compliance with water quality standards.
- D. Ecology reserves the right to amend this Certification by further order if it determines that the provisions hereof no longer provide reasonable assurance that the proposed FERC license will comply with water quality standards or other appropriate requirements of state law. Any such amended certification shall take effect immediately upon issuance of such order, unless otherwise provided in the order, and may be appealed to the PCHB under RCW 43.21B.
- E. In the event that two or more conditions of this certification may give arise to potentially conflicting requirements with respect to an action covered by this certification, Ecology will determine by order which condition should be applied.

#### **6.0 PENALTIES AND APPEALS**

Any person who fails to comply with any provision of this Certification shall be liable for criminal and civil penalties as provided for under state and/or federal law.

This Certification/Order may be appealed. The appeal must be filed with the Pollution Control Hearings Board, P.O. Box 40903, Olympia, Washington 98504-0903 within thirty (30) days of receipt of this Order. At the same time, the appeal must also be sent to the Department of Ecology, Central Regional Office, 15 W. Yakima Ave., Suite 200, Yakima, Washington 98902. An appeal alone will not stay the effectiveness of this Certification. Stay requests must be submitted in accordance with RCW 43.21B.320. These procedures are consistent with Chapter 43.21B RCW.

Dated this 19th day of November, 2008, at Yakima, Washington.



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Robert F. Barwin  
Acting Section Manager  
Water Quality Program  
Central Regional Office  
Department of Ecology