



PUBLIC UTILITY DISTRICT NO. 1 of CHELAN COUNTY
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May 4, 2007

VIA ELECTRONIC FILING

Honorable Kimberly D. Bose, Secretary
FEDERAL ENERGY REGULATORY COMMISSION
888 First Street, NE
Washington, DC 20426

Re: **Lake Chelan Hydroelectric Project No. 637-022**
Article 408 – Threatened and Endangered Species Protection Plan

Dear Secretary Bose:

On November 6, 2006, the Federal Energy Regulatory Commission (Commission) issued the “Order on Offer of Settlement and Issuing New License”¹ (License) for the Lake Chelan Hydroelectric Project (Project). License Article 408 requested the Public Utility District No. 1 of Chelan County, Washington (Chelan PUD or Licensee), to file the following plan for Commission approval.

- Article 408: *Threatened and Endangered Species Protection Plan.*

Within six months of the issuance date of the license, the licensee shall file for Commission approval, a Threatened and Endangered Species Protection Plan. The plan shall include, but not be limited to, provisions for the following: (a) timely development of a system to release water at the Lake Chelan Dam or pump water from the project powerhouse tailrace to the Chelan River, and subsequent operation of that system at rates sufficient to continuously maintain flows equal to or greater than the flows required by this license for Chelan River Reach 4; (b) timely development of final designs and implementation of channel improvements in Chelan River Reach 4 and the powerhouse tailrace, and timely maintenance of anadromous fish habitat value of those improvements throughout the life of the license; (c) timely determination of the need to take actions to improve water quality characteristics adversely affecting anadromous fish, and identification and implementation of appropriate actions; (d) timely annual payments to the tributary streamflow enhancement program pursuant to Article 14 of the Lake Chelan Settlement Agreement (included in Appendix A to this license); (e) ensuring that any

¹ 117 FERC ¶ 62,129

construction activities in or near waterways at the project comply with the construction practices described in Appendix E to this order; (f) monitoring of flows in the project tailrace and in Reach 4 of the Chelan River, electronic posting (e.g., on a website) of information, and annual reporting of monitoring results; and (g) filing of an annual implementation and monitoring report with the National Marine Fisheries Service (NMFS) and the Commission by January 31 of each year to document all measures completed in the previous year in accordance with Article 14 of the Lake Chelan Settlement Agreement.

In accordance with the above License requirements, Chelan PUD hereby files the plan. Appendix A provides a record of consultation with federal, state and tribal resource agency members during the development of the plan.

Please do not hesitate to contact Steve Hays (509-661-4181) of my office regarding any questions or comments regarding these plans.

Sincerely,



Michelle Smith
Licensing and Compliance Manager
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(509) 661-4180

cc: Erich Gaedeke, FERC-PRO

THREATENED AND ENDANGERED SPECIES PROTECTION PLAN

Final

**LAKE CHELAN HYDROELECTRIC PROJECT
FERC Project No. 637**

May 4, 2007



**Public Utility District No. 1 of Chelan County
Wenatchee, Washington**

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EXECUTIVE SUMMARY

The Federal Energy Regulatory Commission (Commission) Order on Offer of Settlement and Issuing New License (License) for the Lake Chelan Hydroelectric Project No. 637 (Project) was issued November 6, 2006 to the Public Utility District No. 1 of Chelan County (Chelan PUD). Article 408 of the new Project License requires Chelan PUD to submit a Threatened and Endangered Species Protection Plan by May 6, 2007. This plan includes provisions for the timely development of systems to release water at the Lake Chelan dam or pump water from the Project powerhouse tailrace to the lowermost reach of the Chelan River (Reach 4) at rates sufficient to maintain flows required by the new License, along with development and maintenance of channel improvements to provide habitat for anadromous salmon in Reach 4 and the powerhouse tailrace, while ensuring that any construction activities in or near waterways complies with National Marine Fisheries Service (NMFS) construction practice requirements. This plan also provides for timely determination if any actions are necessary to improve water quality for anadromous fish and timely annual payments to a tributary streamflow enhancement program. These measures are to be implemented as specified in the Project License and its Appendices A and D, the Lake Chelan Comprehensive Settlement Agreement and attachments, October 8, 2003, and the Washington State Department of Ecology's Clean Water Act Section 401 Water Quality Certification for the Project. Also included in this plan are provisions for electronic posting of flow information in a public domain and filing of an annual implementation and monitoring report with the NMFS and the Commission to document all measures completed in the previous year.

SECTION 1: INTRODUCTION

The Federal Energy Regulatory Commission (Commission) Order on Offer of Settlement and Issuing New License (License) for the Lake Chelan Hydroelectric Project No. 637 (Project) was issued November 6, 2006 to the Public Utility District No. 1 of Chelan County (Chelan PUD). The Project License requires a number of measures related to development of Project facilities for flow releases into the Chelan River (instream flow) and construction of spawning and rearing habitat for anadromous salmon and steelhead in Reach 4 of the Chelan River (Reach 4 habitat) and the Project powerhouse tailrace (tailrace habitat). These measures are fully described in the Lake Chelan Comprehensive Settlement Agreement, October 8, 2003, and its attachments (Settlement Agreement), which is Appendix A of the Project License. These measures are to be implemented as specified in the Project License, including the Washington State Department of Ecology's Clean Water Act Section 401 Water Quality Certification (401 Certification) which is incorporated in the Project License.

Project License Article 408 requires Chelan PUD, within six months of the license issuance date, to file with the Commission a Threatened and Endangered Species Protection Plan (TESPP). The components of the TESPP relate to schedules for implementation of flow release structures, fish habitat construction, water quality studies, tributary streamflow enhancement program funding, implementation of National Marine Fisheries Service (NMFS) construction practices near waterways, and annual reporting as specified in the Settlement Agreement, as stated below.

Article 408. *Threatened and Endangered Species Protection Plan.* Within six months of the issuance date of the license, the licensee shall file for Commission approval, a Threatened and Endangered Species Protection Plan. The plan shall include, but not be limited to, provisions for the following: (a) timely development of a system to release water at the Lake Chelan Dam or pump water from the project powerhouse tailrace to the Chelan River, and subsequent operation of that system at rates sufficient to continuously maintain flows equal to or greater than the flows required by this license for Chelan River Reach 4; (b) timely development of final designs and implementation of channel improvements in Chelan River Reach 4 and the powerhouse tailrace, and timely maintenance of anadromous fish habitat value of those improvements throughout the life of the license; (c) timely determination of the need to take actions to improve water quality characteristics adversely affecting anadromous fish, and identification and implementation of appropriate actions; (d) timely annual payments to the tributary streamflow enhancement program pursuant to Article 14 of the Lake Chelan Settlement Agreement (included in Appendix A to this license); (e) ensuring that any construction activities in or near waterways at the project comply with the construction practices described in Appendix E to this order; (f) monitoring of flows in the project tailrace and in Reach 4 of the Chelan River, electronic posting (e.g., on a website) of information, and annual reporting of monitoring results; and (g) filing of an annual implementation and monitoring report with the National Marine Fisheries Service (NMFS) and the Commission by January 31 of each year to document all measures completed in the previous year in accordance with Article 14 of the Lake Chelan Settlement Agreement.

This TESPP reflects the present schedule for design and construction of the new structures and fish habitats that will be necessary to meet the requirements of the Project License and Settlement Agreement. The organization of this TESPP is in sections that relate to specific clauses in Article 408. Each section begins with the relevant requirements of the Project License, followed by a description of the actions that will be taken to comply with the Project License.

SECTION 2: DESIGN AND IMPLEMENTATION OF CHELAN RIVER MINIMUM FLOW RELEASE SYSTEM

2.1 Instream Flow Requirements for the Chelan River

The Project License requires that a minimum flow of 80 cubic feet per second (cfs) be released throughout the year to the Chelan River at the Project dam, with additional flows provided for a two-month period during average and high water runoff years to simulate the effects of an annual runoff hydrograph (Table 1). These requirements are described in the Settlement Agreement, Attachment B, Lake Chelan Comprehensive Plan, Chapter 7, Section 2.6.5. The spring/early summer flow increase is variable, depending on the level of winter snow deposition and runoff forecast. In dry years, when the runoff is predicted to be less than normal (within the 80% exceedance range of historical runoff volumes or 20% of the years based on historical records), 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% exceedance range or 60% of the years based on historical records), then a 200 cfs minimum flow would be released from May 15 through July 15. The exact timing of the flow increases could change depending on climatic conditions (spring temperatures or rain) and biological evaluations of fish habitat use under the monitoring and evaluation program. In wet years, when runoff is predicted to be greater than normal (within the 20% exceedance level or 20% of the years based on historical records), then a 320 cfs minimum flow would be released from mid-May through mid-July.

Additional flow of 240 cfs is also to be provided to Reach 4 habitat during the salmon and steelhead spawning periods, with such flow to either be pumped from the powerhouse tailrace or released from the Lake Chelan dam. Depending on the location of salmon and steelhead spawning activity, sufficient flow must be provided after completion of spawning to protect the eggs and alevins from desiccation during the incubation period and through emergence of the fry from the spawning gravel. The amount and timing of additional flows required by the Project License are described in the Settlement Agreement, Attachment B, Lake Chelan Comprehensive Plan, Chapter 7, Section 2.6.5 (pg. 7-18) and in Table 7-3, (Table 1 herein). Please note that the measurement methods cited in the footnotes to Table 1 have been updated as described in the Operations Compliance Monitoring Plan (Section 2.4) filed in compliance with License Article 405.

Table 1. Flow Requirements for the Chelan River

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

¹ Flows measured at the dam by ultrasonic flow meter.

² Flows measured at the dam and at the pump station by ultrasonic flow meter.

Source: Settlement Agreement, Attachment B, Chapter 7, Table 7-3; footnotes have been updated

2.2 New Construction to Provide Minimum Flows

2.2.1 Low Level Outlet

In order to provide minimum flows throughout the year, as required in the Project License (Appendix A, Settlement Agreement License Article 7(b)(1), Minimum flows and ramping rates), a new structure is needed at the Project dam. The spillway crest at the dam is at elevation 1,087¹ feet, whereas the minimum lake level (headwater elevation) allowed by the Project License is 1,079 feet, thus a new outlet structure is needed in order to provide minimum flows when the lake level is below the spillway crest. This new structure, which has been named the Low Level Outlet (LLO), is currently in the early stages of design. The LLO will withdraw water from the Project dam forebay by tapping into an existing power tunnel intake structure that was part of the original construction of the Project dam, but was never developed for additional power production. This intake structure draws water from approximately the same elevation as the river bed at the face of the dam, thus insuring compliance with the 401 Certification’s requirement that Chelan PUD “design the new outlet structure to maximize the potential for cold water withdrawal at the base of the dam” (Ibid, X. D.; Project License pg. 127). The current design of the LLO includes tapping into the power tunnel stub-out of the existing intake with a pipe (84- to 96-inch diameter), which bifurcates into two pipes of equal size upstream from the control gates. Discharge from each of these pipes will be controlled with a sluice gate positioned at the outlet to the pipe, with each gate capable of providing up to 320 cfs flow when the lake is drawn down to winter operating levels. The pipes will discharge into an energy dissipation box, from which water will flow into the Chelan River below the spillway apron.

¹ Elevations on Project drawings and water level elevations reported by Chelan PUD for lake levels and tailwater are based on the National Geodetic Survey (NGS) vertical datum 1914 Fourth General Adjustment. This vertical datum is 1.78 ft higher than NGVD 29, which is used to report water level elevations in the Columbia River. NGS currently publishes only NAVD 88 vertical datum, which is 3.82 feet higher than NGVD 29. Thus, to convert elevations from Lake Chelan Project prints and water level gauges to NGVD 29, subtract 1.78 from the elevation. To convert Lake Chelan Project elevations to NAVD 88, add 2.04 feet.

2.2.2 Low Level Outlet Implementation Schedule

Conceptual design of the LLO was initiated in 2003 and continued into 2005. Studies of water temperature stratification in the forebay of the Project dam were conducted in 2004 and 2005. Based on these studies and other considerations, the best location for the LLO was defined prior to issuance of the new Project License on November 6, 2006. Preparatory work necessary to initiate engineering design of the LLO was completed and maintained current pending issuance of the Project License in order to proceed without delay once the License was issued.

The estimated schedule for development of final design for the LLO is provided in the table below:

<u>LLO Design Milestone</u>	<u>Est. Completion</u>
Preliminary Design Report	3/30/07 - completed
30% Design	6/06/07
60% Design	8/15/07
90% Design	10/24/07
100% Design	10/31/07
Design Package to Commission	11/22/07

The schedule described above is based on requirements within the 401 Water Quality Certification and the commitment in the Settlement Agreement to comply with minimum flow requirements for the Chelan River within two years of the effective date (11/01/06) of the new Project License. In order to meet this timeline, completion of the design and Commission approval must be completed by 2/14/08 and Chelan PUD must receive responsive bids to meet the construction schedule. Concurrently, there can be no significant delays in either the permitting process or in the procurement of materials. Chelan PUD will notify the Commission and seek an extension of time for the completion of this project if any of these critical path milestones are determined to be unable to meet the scheduled dates.

In order for construction to be completed by 11/6/08, two critical path items must proceed prior to Commission approval of the design. This project may require a permit from the Army Corps of Engineers under the Clean Water Act Section 404 (404 Permit), while other components of the Chelan River projects (pump station and habitat work) will also require 404 Permits. Chelan PUD has initiated the permit process, seeking a single permit for all three Chelan River projects, in order to expedite these project schedules. The current permit schedule includes a project site visit on 4/17/07, filing of a pre-application on 4/30/07, and submittal of a formal application on 5/29/07 using the 30% design documents as the basis for the permit application. Issuance of the 404 Permit is anticipated to occur by 11/26/07, prior to Commission approval of the design.

The second critical path item is procurement of materials with long lead times, such as piping, sluice gates and the flow meter. Chelan PUD intends to initiate procurement of materials following completion of the 60% design phase, with material specifications and bid documents issued 8/31/07, award of bids 10/15/07, and materials arriving at the construction site by 4/23/08.

2.2.3 Tailrace Pump Station

The Project License (Article 408) requires that Chelan PUD develop and operate a system to release water at the Project dam or pump water from the Project powerhouse tailrace to the Chelan River at rates sufficient to continuously maintain flows equal to or greater than the flows required for Reach 4 of the Chelan River. The Project License (401 Certification and Settlement Agreement, Attachment B) defines those flows (Table 1) as 80 cfs measured at the Project dam and 240 cfs measured at the dam or at the pump station. The intent of the Settlement Agreement is that Chelan PUD would have the option of pumping 240 cfs of water from the powerhouse tailrace as a cost-saving measure, rather than releasing that additional water from the Project dam. The use of pumped water would require that the water be released at the beginning of the constructed fish habitat in Reach 4 of the Chelan River.

Conceptual design for the pump station was initiated in 2003 and continued into 2004. Components of the pump station include: a pump station intake structure equipped with fish screens; mechanical and electrical equipment including pumps, motors, control valves, discharge manifold, distribution power line feed, and transformers; a conveyance structure (canal or pipeline) to carry the pump station flow; and an outlet structure to release the flow into Reach 4 of the Chelan River. Prior to procurement and construction, an updated cost-benefit analysis will be completed for pumping water from the powerhouse tailrace versus releasing the water from the LLO and/or spillways at the Project dam.

2.2.4 Pump Station Implementation Schedule

Preparatory work necessary to initiate engineering design of the pump station was completed during 2004 and maintained current pending issuance of the Project License in order to proceed without delay once the License was issued.

The estimated schedule for development of final design for the pump station is provided in the table below:

<u>Pump Station Milestones</u>	<u>Est. Completion</u>
30% Design	5/9/07
60% Design	12/14/07
90% Design	3/07/08
Design Development Report	3/26/08
100% Design	5/02/08
Design Package to Commission	5/26/08

The schedule described above is based on the commitment in the Settlement Agreement to provide spawning flow for Chinook salmon and steelhead trout in the newly constructed Reach 4 stream channel within 27 months (or 2/5/09) of the effective date of the new Project License. In order to meet this timeline, completion of the design and Commission approval must be completed by 7/25/08 and Chelan PUD must receive responsive bids to meet the construction schedule. Concurrently, there can be no significant delays in either the permitting process or in the procurement of materials. Chelan PUD will notify the Commission and seek an extension of

time for the completion of this project if any of these critical path milestones cannot be completed by the scheduled dates.

In order for construction of the pump station to be completed by 2/5/09, two critical path items must proceed prior to Commission approval of the design. This project will require a 404 Permit and, as mentioned for the LLO, issuance of the 404 permit is anticipated to occur by 11/26/07. An additional permit issue is that a non-consumptive water right may be needed for the pump station. Initial discussions with Ecology's Water Resources Section have taken place and work to complete a water right application permit for the use of water from the Chelan Project powerhouse tailrace to provide additional flows for the fish habitat that will be developed in Reach 4 of the Chelan River.

The second critical path item is procurement of materials with long lead times, such as piping, pumps and the flow meter. Chelan PUD intends to initiate procurement of materials following completion of the 60% design phase, with material specifications and bid documents issued 9/20/07, award of bids 10/15/07, and materials arriving at the construction site by 7/15/08.

SECTION 3: DESIGN AND IMPLEMENTATION OF CHELAN RIVER REACH 4 AND POWERHOUSE TAILRACE FISH HABITAT IMPROVEMENTS

3.1 Fish Habitat Requirements for Reach 4 of the Chelan River and the Powerhouse Tailrace

The Project License (Article 408) requires that Chelan PUD use standard river habitat restoration techniques to provide and maintain gravel areas for spawning, create pools, increase channel sinuosity, and moderate velocities to provide habitat for spawning and rearing of Chinook salmon and steelhead in Reach 4 and the powerhouse tailrace, as described in the Settlement Agreement, Attachment B, Lake Chelan Comprehensive Plan, Chapter 7, Sections 3.1-3.2. The objective for Reach 4 habitat is to create approximately two acres of useable spawning and rearing habitat based on preferred water depth, velocity, substrate size, and permeability determined from on-site studies (Duke Engineering & Services, 2001²) for spawning preferences of summer Chinook salmon and other habitat preference information used in similar salmon and steelhead habitat projects in Washington State. The objective for Chinook salmon and steelhead spawning habitat in the powerhouse tailrace is to increase/expand existing habitat by between one and two acres of useable spawning and rearing habitat.

3.2 Reach 4 and Powerhouse Tailrace Fish Habitat Implementation Schedule

Conceptual designs were reviewed by the relevant parties to the Settlement Agreement in 2004 and additional review of concepts took place at the first meeting of the Chelan River Fishery Forum (CRFF) on 1/17/2007. At the CRFF meeting, agreement was reached on the primary route for the Reach 4 habitat channel and the conceptual design for a hydraulic control structure necessary to protect the Reach 4 habitat from flood damage.

² Report prepared for Chelan PUD during relicensing, available at:
http://www.chelanpud.org/relicense/study/reports/5575_3.pdf

The estimated schedule for development of final design of the Reach 4 and Powerhouse tailrace fish habitat is provided in the table below:

<u>Habitat Milestones</u>	<u>Est. Completion</u>
Preliminary Design Report	3/19/07 - completed
30% Design	3/28/07 - completed
60% Design	7/28/07
90% Design	10/04/07
100% Design	10/12/07
Design Package to Commission	11/05/07

The schedule described above is based on requirements within the 401 Water Quality Certification and the commitment in the Settlement Agreement to comply with minimum flow requirements for the Chelan River and modification to the channel in Reach 4 within two years of the effective date of the new Project License.

In order to meet this timeline, completion of the design and Commission approval must be completed by 1/04/08 and Chelan PUD must receive responsive bids to meet the construction schedule and in-water work windows. Concurrently, there can be no significant delays in the permitting process. Chelan PUD will notify the Commission and seek an extension of time for the completion of this project if any of these critical path milestones are determined to be unable to meet the scheduled dates.

In order for construction to be completed by 11/06/08, two critical path items must proceed prior to Commission approval of the design. The first critical path item is the issuance of a 404 Permit and, as mentioned for the LLO, issuance of the 404 permit is anticipated to occur by 11/26/07. The second critical path item is the limited work window for work in the water for the powerhouse tailrace habitat work. If steelhead are observed to have spawned in the powerhouse tailrace in the spring of 2008, then no construction work will be allowed in the powerhouse tailrace in the vicinity or upstream of the steelhead spawning redds until all steelhead fry have emerged from the redds. The date of full emergence is dependent on the date of spawning and the water temperature during the incubation period. Based on work windows typically established for other local streams where steelhead spawning is known to occur, the window for in-water work in the powerhouse tailrace would probably not begin until after mid-July of 2008. All in-water work would need to be completed prior to the initiation of spawning by summer Chinook. The typical work window for summer Chinook spawning would require that in-water work be completed prior to 9/26/08.

3.3 Maintenance of Summer Chinook and Steelhead Habitat Value

The Project License (Article 408) requires timely maintenance, throughout the life of the license, of anadromous fish habitat value of the channel improvements in Chelan River Reach 4 and the powerhouse tailrace. The Settlement Agreement describes a comprehensive monitoring and evaluation program (Section 5.4 and Figure 7-13 of Chapter 7 of the Settlement Agreement, Attachment B, Lake Chelan Comprehensive Plan) that is to begin no later than two and one-half

years after the 11/06/06 issuance date of the Project License. This monitoring and evaluation program shall also provide information needed to make changes to the habitat protection and restoration as may be appropriate to facilitate achievement and maintenance of the biological objectives for this habitat. The Project License, in the 401 Certification (Appendix D), requires that Chelan PUD provide to the CRFF a series of Biological Objectives Status Reports, by April 30 in each of years 4, 6, 8 and 10 following the 11/01/06 effective date of the Project License, that summarize the results of monitoring and evaluation, describe the degree to which biological objectives have been achieved and prospects for achieving those objectives in the next reporting period, reviews measures implemented to meet those biological objectives and recommends any new or modified measures needed to achieve the biological objectives.

The monitoring and evaluation program includes both biological and physical measurement and monitoring of the summer Chinook and steelhead habitat that will be created in Reach 4 and the powerhouse tailrace. These include physical measurement of constructed habitats to confirm that they meet the velocity, substrate size, depth and other parameters necessary to meet the habitat requirements of summer Chinook and steelhead. Biological monitoring will include spawning surveys and snorkel surveys to confirm use of the spawning habitat, successful incubation and use of the rearing habitat by summer Chinook and steelhead. In years 2 through 7 for Chinook and 3 through 7 for steelhead, measurement of depth, velocity and substrate will be made at redd locations to determine the amount of useable spawning habitat created for each species and to determine if the habitat needs to be modified in order to provide more habitat area within the preference zone exhibited by the fish.

The construction contract for the Reach 4 and powerhouse tailrace habitat will include the stockpiling of additional suitable gravels and other habitat materials for use in future modifications of the habitat or for repair of damage to the habitat from floods. The Project License (Article 408) requires maintenance of the summer Chinook and steelhead habitats to continue to meet biological objectives for the duration of the Project License. The Settlement Agreement provides that the CRFF may determine that the biological objectives have not been attained and no further feasible and reasonable actions exist, in which case Chelan PUD could seek the Commission's approval to discontinue maintenance of the ineffective habitats.

3.4 Construction Activities In or Near Waterways Comply with NMFS Construction Practices

The Project License (Appendix E) contains required construction practices, filed by NMFS with their Biological Opinion on October 20, 2005, for all proposed actions involving construction in or near waterways. These practices are required in order to control sediment, disturbance, and other potential detrimental effects to listed salmonids.

Chelan PUD will ensure that these construction practices are adhered to during construction of the LLO, pump station and Reach 4 and powerhouse tailrace habitat projects. The compliance with these practices will be required in any bid documents issued for these projects and Chelan PUD will inspect these construction sites to assure that compliance is maintained. Chelan PUD will also adhere to these construction practices during any other construction activities conducted by Chelan PUD or its agents during the term of the Project License. Similar construction practices are also required in the 401 Certification.

***SECTION 4: DETERMINATION IF WATER QUALITY IMPROVEMENT
NEEDED FOR ANADROMOUS FISH***

The Project License (Article 405 and 401 Certification (Appendix D)) requires that Chelan PUD annually monitor hourly flows at the Project dam, pump station and powerhouse and to monitor hourly water temperatures in Reaches 1, 3 and 4. Other water quality parameters (pH, dissolved oxygen and turbidity) are to be measured in Reach 4, and total dissolved gas below the spillway, in years 3 and 5 after the 11/06/06 date of issuance of the Project License. This water quality monitoring, coupled with the biological monitoring of fish presence, will identify if any water quality parameters are adversely affecting summer Chinook or steelhead. In addition to these monitoring efforts, intragravel dissolved oxygen will be measured in summer Chinook and steelhead redds in the powerhouse tailrace during powerhouse shutdowns to assure that powerhouse operations do not create adverse water quality conditions during the incubation periods for these fish.

The Project License (Article 408 and 401 Certification) requires implementation of feasible and reasonable measures to meet the biological objectives, including any such measures that may exist to remedy water temperature or other water quality impairments that are demonstrated to be an effect of the Project and that are preventing attainment of biological objectives. Timely determination of the need to take action and implementation of appropriate actions is the focus of the biological objectives status reports required in the 401 Certification, as described in the Settlement Agreement (Attachment A, Article 7(c)(2)).

***SECTION 5: TRIBUTARY STREAMFLOW ENHANCEMENT PROGRAM
(ARTICLE 14 OF THE SETTLEMENT AGREEMENT) – ANNUAL
PAYMENTS AND ANNUAL IMPLEMENTATION REPORT***

The Project License (Article 408) requires timely annual payments to the tributary streamflow enhancement program pursuant to Article 14 of the Lake Chelan Settlement Agreement (Appendix A). Article 14 of the Settlement Agreement describes that Chelan PUD, within 180 days of the 11/01/06 effective date of the Project License and annually thereafter, will make available \$20,000 to be used to acquire water for instream flows in situations where habitat for Upper Columbia spring-run Chinook or Upper Columbia steelhead is adversely affected by low water conditions. The water for instream flows will be acquired through funding of water conservation measures or lease/purchase of water rights from willing sellers. Implementation of this program has several steps. NOAA Fisheries (NMFS) and Ecology shall develop a list of proposed measures for water conservation or lease/purchase of water rights and submit it to Chelan PUD by January 10 of each year. Chelan PUD shall make available funds, up to the amounts specified pursuant to Article 14 (Project License Appendix A), to implement measures from that list. Implementation may be managed pursuant to a contract between Chelan PUD and an organization (such as the Washington Water Trust) that Chelan PUD, NOAA Fisheries (NMFS) and Ecology find suitable, to the extent that holders of water rights voluntarily agree to conservation measures or leases/purchases. The water saved shall be dedicated to instream flows

through either the Trust Water Rights program or other contractual arrangement. The \$20,000 funding shall be the total amount provided, covering all costs associated with the measures above. Unused funds may be carried over into future years and funding can be borrowed from future years, adjusted pursuant to Section 19.2.9 of the Settlement Agreement (Project License, Appendix A).

Chelan PUD will make the funds described above available on 5/5/2007 (180 days following license issuance), pending receipt of the list of proposed measures prepared by NMFS and Ecology. Chelan PUD will work with these entities to identify a suitable contractor for negotiating any water rights acquisitions or leases on the list and Chelan PUD will negotiate a payment agreement with that contractor. Terms of the payment agreement will include conditions similar to those described below:

Pursuant to License Article 14 and in accordance with Chapter 14 of the Comprehensive Plan, incorporated herein by reference, Chelan PUD agrees to provide to the Contractor up to \$20,000, or such adjusted amount as established pursuant to Section 19.2.9 of the Settlement Agreement. As a condition of payment for any work performed under the Settlement Agreement, the Contractor shall provide Chelan PUD with documentation of the amount and cost of the work completed and written certification that such work was performed in a manner consistent with the Settlement Agreement. Certification shall be on a form provided by Chelan PUD. Chelan PUD reserves the right to verify the certification through review of the work, which shall be conducted by the Program Manager or Relicensing Project Manager, or their representative. As a condition of payment for any work performed under the Settlement Agreement involving annual or multiple-year efforts, the Contractor shall submit to Chelan PUD an annual planning report by January 31 of each year during the term of the New License and any subsequent annual licenses. The reports shall document the following: all work that was completed during the preceding year; the actual costs of such work; a detailed description of the work to be undertaken in the current year; a detailed estimate of the costs of such work; a general description of the work to be undertaken in the following year; and a general estimate of the costs of such work.

As required in the Project License (Article 408), Chelan PUD will file an annual implementation report with NMFS and the Commission by January 31 of each year to document all measures completed in the previous year in accordance with Article 14 of the Settlement Agreement. The annual implementation report will include the list of proposed measures or lease/purchase of water rights provided by NMFS and Ecology and a summary of the work performed by the contractor selected to procure the water rights or to manage the water conservation measures. Chelan PUD will also provide a record of the expenditures from the funds made available; along with a balance sheet showing available funds carried forward or adjusted funds borrowed against future years.

SECTION 6: MONITORING AND REPORTING OF FLOWS IN REACH 4 OF THE CHELAN RIVER AND THE POWERHOUSE TAILRACE

The flows measured or calculated from the LLO, pump station, spillway and powerhouse discharge are, or will be, equipped for both local and remote readability and control. The powerhouse and spillway flows, as well as lake level and tailwater elevations, are currently monitored and recorded with the Chelan PUD's Supervisory Control and Data Acquisition (SCADA) system. The SCADA system provides data in real-time, with readings every second, as well as data recording. The flows and lake level elevation are recorded as the previous hour's average of the one-second readings. The tailwater elevation point value is recorded at the end of the hour. Additional information regarding the methods used to monitor these flows is contained in the Operations Compliance Monitoring Plan.

6.1 Instream Flow Periodic and Electronic Reporting

Chelan PUD will report hourly average and daily average instream flows as recorded from the LLO, pump station, spillway and powerhouse. In addition, hourly and daily lake level and tailwater elevation readings will be reported. This information will be provided in written form to the CRFF and posted electronically to the Lake Chelan Implementation web page (<http://www.chelanpud.org/lake-chelan-implementation.html>) on a quarterly basis. Real-time and a minimum of five years of historical records of flows, lake levels and tailwater levels will also be provided at this site.

Chelan PUD will, within 48 hours, notify the Commission and Ecology's Central Regional Office via email of any deviation from the minimum flow requirements.

6.2 Annual Reports of Compliance with Instream Flows, Ramping Rates and Tailrace Security Flows

Chelan PUD will file an annual report by February 28 of the year following collection of the data, as specified in the 401 Certification and Quality Assurance Project Plan (QAPP), beginning in the year in which the new release structure (LLO) is installed (Article 405(a)). This report will be coordinated with the reporting of water quality data and biological evaluations that are also required in the 401 Certification, as specified in the QAPP. The reporting of minimum instream flow compliance will be concurrent with the initiation of minimum flows into the Chelan River, which is to occur no later than two years after the effective date of the new license (401 Certification, Settlement Agreement). However, the initiation of minimum flows cannot proceed until the design of the LLO and habitat improvements in Reach 4 of the Chelan River have been approved by the Commission (Article 408) and construction has been completed. The approval process and long lead times for permitting and procurement of some components of the LLO may delay initiation of minimum flows beyond the two-year anniversary (November 6, 2008) of Project License issuance. Chelan PUD will notify the Commission and seek an extension of time for the completion of the LLO and initiation of minimum flows if necessary due to delays in any of these critical path milestones.

SECTION 7: IMPLEMENTATION SCHEDULE

7.1 Threatened and Endangered Species Protection Plan Implementation Schedule

- 5/1/2007 – Funds for Tributary Streamflow Enhancement (Article 14) Available
 - 5/4/2007 – TESPP submitted to the Commission
 - 11/1/2007 – Electronic posting of Chelan River flows begins
 - 11/1/2008 – Completion of Reach 4 fish habitat*
 - 11/1/2008 – Completion low level outlet at Dam*
 - 11/1/2008 – Initiation of minimum flow requirements*
 - 11/1/2008 - Initiation of temperature and Reach 4 flow monitoring*
 - 12/1/2008 - Initiation of powerhouse tailrace redd dissolved oxygen monitoring and security flows
 - 1/1/2009 – Measurement of total dissolved gas, dissolved oxygen, pH, and turbidity
- * Chelan PUD will notify the Commission and seek an extension of time for the completion of these projects if necessary

7.2 Annual Report and Review Schedule

- 1/31/2008 – Begin submittal of annual Article 14 reports to Commission and NMFS
- 2/28/2009 – Begin submittal of annual flow and temperature reports to Commission
- 2/28/2010 – Total dissolved gas, dissolved oxygen, pH, turbidity (again 2012)
- 2/28/2010 – Draft biological objectives status report (then in 2012, 2014, 2016)
- 4/30/2010 – Final biological objectives status report (then in 2012, 2014, 2016)

APPENDIX A: CONSULTATION WITH STAKEHOLDERS

A.1 Overview of Consultation

Article 408 of the Project License requires that the Threatened and Endangered Species Protection Plan:

“...be prepared after consultation with NMFS. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies’ comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the plan with the Commission for approval. If the licensee does not adopt a recommendation, the filing shall include the licensee’s reasons, based on project-specific information.”

Chelan PUD has completed the consultation requirements, beginning on 1/17/07 by consulting with NMFS and the Chelan River Fisheries Forum (CRFF) on the outline for the TESPP. The draft plan was provided to NMFS and the other members of the CRFF, listed below, on March 27, 2007 and comments were received through April 26, 2007. All comments received were incorporated into the plan. A summary of comments received and Chelan PUD’s response is below in Section A.2. Records of Chelan PUD’s communications soliciting comments and responses received are compiled in Section A.3.

Distribution and request for review and comments on the draft TESPP was solicited from the CRFF membership:

- Washington State Department of Ecology
- Washington State Department of Fish and Wildlife
- United States Forest Service
- National Park Service
- United States Fish and Wildlife Service
- National Marine Fisheries Service
- Confederated Tribes of the Colville Reservation (CCT)
- Yakama Indian Nation (YIN)
- Confederated Tribes of the Umatilla Indian Reservation (CTUIR)
- City of Chelan
- Lake Chelan Sportsman Association

A.2 Summary of Response to Comments

Entity	Date Received	Comment	Licensee’s response to comment
Washington Department of Fish and Wildlife: Tony Eldred	4/24/07	2.1 Instream Flow Requirements for the Chelan River Provide citations to specific sections of the Settlement Agreement, Attachment B, Lake	These citations have been added to appropriate areas in the TESPP

		<p>Chelan Comprehensive Plan, where necessary</p> <p>In the first paragraph you state "... In average water years, ... (within the 21%-79% exceedance range or 60% of the years based on historical records)," It aids the reader to better understand event frequency by including the percentage of years occurrence. I suggest you also do this for dry years and wet years.</p> <p>2.3.1 Tailrace pump station. On page 5, first complete paragraph at the top of the page, it is stated that a cost-benefit analysis will be performed of pumping water from the tailrace vs. releasing water from the LLO or spilling. The begs the question, what is the fallback for maintaining flow in the Reach 4 Habitat Channel if the pumps fail? Releases from the LLO (or spilling, if possible)? Is this the only fallback option? How long will be required for LLO flow release to reach the upper end of the Habitat Channel?</p> <p>QAPP It will make it easier for the reader if, when you use "tailrace", you identify which one. (powerhouse or spillway)</p>	<p>The change recommended by WDFW was incorporated into the TESPP</p> <p>This comment applies to section 2.2.3 of the TESPP. The pump station will have multiple redundancy in the pumps (five pumps) and two separate power feeds. Thus, the risk of a total loss of pumped flow is small. A field test was conducted on 4/24/07 to determine the amount of time it would take an increase in spill from 80 cfs to 320 cfs to arrive at Reach 4. The water stabilized at 320 cfs within two hours of the change in spill volume. This is sufficiently rapid to prevent egg mortality during incubation.</p> <p>Tailrace in the TESPP always refers to the powerhouse tailrace. Except in titles and quotes from Article 408, the term "powerhouse tailrace" is used for clarity.</p>
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		“Fall” Chinook in the upper mid-Columbia are more properly termed “summer” Chinook	Fall Chinook has been changed to summer Chinook throughout the TESPP
National Marine Fisheries Service, Rich Domingue	4/24/07	Section 6. You propose to provide access to real-time data and to post the quarterly reports on your implementation webpage. NMFS requests that you also provide access to at least 5 years of the streamflow data on your implementation webpage.	The following addition has been made to the pertinent sentence. “Real-time <u>and a minimum of five years of historical records of</u> flows, lake levels and tailwater levels will also be provided at this site.
US Forest Service, Phil Archibald	4/24/07	Plan Reviewed – no comments	
US Forest Service, Joseph Kastenholz	4/23/07	Plan Reviewed – no comments	
US Fish and Wildlife Service, Stephen Lewis	4/23/07	Plan Reviewed and OK – no comments	
National Park Service, Stanley Zyskowski	4/25/07	Plan Reviewed – no comments	
Colville Confederated Tribes, Jerry Marco	4/26/07	Plan Reviewed – no comments	
Lake Chelan Sportsman Association, Gary Denniston	4/23/07	Telephone Conversation Plan reviewed - no comments	
Washington Department of Ecology, Pat Irle	4/25/07	No comments	
CTUIR, Carl Merkle		No response	
YIN, Bob Rose		No response	
City of Chelan		No response	

A.3 Record of Communications Soliciting Comments and Responses

TESPP Consultation Record Summary

- 1/17/07 – Chelan PUD submittal of TESPP Outline to CRFF for review and comment.
- 3/27/07 – Chelan PUD submittal of Draft TESPP to CRFF for review and comment and setting deadline for comments of April 26, 2007.
- 4/20/07 – Chelan PUD email reminder to CRFF of comments due 4/26/07 on TESPP.
- 4/18 - – Chelan PUD log of telephone reminders to CRFF of comments due 4/26/07 on 4/24/07 TESPP.
- 4/23/07 – USFWS, Stephen Lewis, email approving TESPP and stating he will have no comments.
- 4/23/07 – USFS, Joseph Kastenholz, email that has reviewed TESPP and stating he will have no comments.
- 4/24/07 – USFS, Philip Archibald, email approving TESPP and stating he will have no comments.
- 4/24/07 – NMFS, Richard Domingue, email approving TESPP and providing one comment.
- 4/24/07 – WDFW, Tony Eldred, email approving TESPP and providing comments.
- 4/25/07 – NPS, Stanley Zyskowski, email stating NPS will have no comments.
- 4/26/07 – Colville Tribe, Jerry Marco, email that has reviewed TESPP and stating he will have no comments.

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Minutes of Chelan River Fishery Forum meeting 1/17/2007 documenting distribution of TESPP outline and requesting comments by 2/1/2007, in yellow highlight (note error in minutes – wrong year 2/1/06).

Chelan River Fishery Forum (CRFF) Meeting		Date: January 17, 2007 Time: 10:00 am – 3:30 pm Location: Chelan PUD Headquarters, Wenatchee, WA Second Floor Conference Room	
Call in number: (509)661-4844, Password is 4000.			
Attendees are noted in bold below.			
Meeting called by:	Jeff Osborn, Chelan PUD	Type of meeting:	CRFF Meeting
		Note taker:	Tracy Dunning

CRFF Members

<u>Name</u>	<u>Agency</u>	<u>Phone</u>	<u>Email</u>
Art Viola	WDFW	509-665-3337	violaev@dfw.wa.gov
Bruce Heiner	WDFW	509-332-0892	heinebah@dfw.wa.gov
Carmen Andonaegui	WDFW	509-754-6066 x25	andonca@dfw.wa.gov
Alex Martinez	USDA-FS	509-662-4335	ramartinez@fs.fed.us
Phil Archibald	USDA-FS	509-784-1151	parchibald@fs.fed.us
Joe Kastenholz	USDA-FS	509-682-2576	jkastenholz@fs.fed.us
Rich Domingue	NOAA	503-231-6858	Richard.Domingue@noaa.gov
Steve Lewis	USFWS (by phone)	509-665-3508 x14	Stephen.Lewis@fws.gov
Steve Zyskowski	NPS (by phone)	360-856-5700 x229	Stan.Zyskowski@nps.gov
Bob Rose	YN	509-865-5121	brose@yakama.gov
Jerry Marco	CCT	509-634-2114	jerry.marco@colvilletribes.com
Pat Irle	Ecology	509-454-7864	Pirle461@ecy.wa.gov
Brad Caldwell	Ecology	360-407-6639	brca461@ecy.wa.gov
Gary Denniston	LCSA	509-687-4078	geedee@cablespeed.com
Jay Witherbee	City of Chelan	509-682-8018	mayor@cityofchelan.com
Jeff Osborn	Chelan PUD	509-661-4176	jeffa@chelanpud.org
Steve Hays	Chelan PUD	509-661-4179	steveh@chelanpud.org
Vern Chamberlain	Chelan PUD	509-661-4680	vern@chelanpud.org
Courtney Hill	Chelan PUD	509-661-4143	courtney.hill@chelanpud.org
Gene Yow	Chelan PUD	509-661-4305	gene@chelanpud.org
Also Attending:			
Gary Rice	Chelan PUD	509-661-4441	garryr@chelanpud.org
Rosana Sokolowski	Chelan PUD	509-661-4175	Rosana@chelanpud.org
Tom Schadt	Anchor Environmental	206-287-9130	tshadt@anchorenv.com
Jay Kidder	Anchor Environmental	360-678-4747	jay@chinook-engineering.com
Pat Powers	Anchor Environmental	360-754-2133	ppowers@anchorenv.com
Janel Duffy	Chelan PUD	509-661-4400	Janel.duffy@chelanpud.org
Gregg Carrington	Chelan PUD	509-661-4178	Gregg@chelanpud.org
Michelle Smith	Chelan PUD	509-661-4180	Michelle.smith@chelanpud.org

Meeting Purpose: First meeting of the Chelan River Fishery Forum to initiate Lake Chelan license implementation

Agenda	Discussion Summary Notes	Action Items
Introductions	Attendees listed in bold above	
Review Chelan River Fishery Forum goals and objectives	Ground rules for participation and Lake Chelan Project goals and objectives were reviewed.	<ol style="list-style-type: none"> 1. Agenda and handouts will be posted to Chelan PUD website two weeks prior to a meeting. 2. Agenda will include "desired outcome" items. 3. Meeting notes will be posted to Chelan PUD website within two days following a meeting. There will be a two week comment period on these meeting notes.
Review License Order conditions	Article 404 – Lake Chelan Fishery Plan (due in one year) Article 405 – Operations Compliance Monitoring Plan (due in six months)	<ol style="list-style-type: none"> 1. 2/1/06 is deadline to return comments to Steve Hays regarding Threatened and Endangered Species Protection Plan Outline and Operations

Threatened and Endangered Species Protection Plan

	Article 406 - Wildlife Plan (due in one year)	Compliance Monitoring Plan Outline.
	Article 408 - Threatened & Endangered Species Plan (due in six months)	2. Jeff Osborn will have Comprehensive Plan documents printed up for Forum members.
Discuss and provide input on Reach 4 and tailrace habitat design criteria	Presentation by Anchor Environmental and forum discussion	1. Anchor to continue with 30% design; incorporate with group input on moving the stream closer to the bank.
Review Chelan River Project schedules	Janel reviewed. Next meetings were scheduled.	1. Chelan Dam Water Temperature Study report will be posted to Chelan PUD website. 2. Janel will generate report that shows chronological list of tasks and will include this with minutes. 3. Future meeting dates: 30% of Reach 4 Project 3/28/07 60% of Reach 4 Project 6/28/07 90% of Reach 4 Project 10/4/07
Additional Information		
Handouts: forum goals and objectives; project schedules; License document (FERC License Order; Settlement Agreement; License articles); implementation plan outlines.		

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From: Dunning, Tracy **On Behalf Of** Smith, Michelle
Sent: Tuesday, March 27, 2007 3:50 PM
To: 'violaaev@dfw.wa.gov'; 'heinebah@dfw.wa.gov'; 'ramartinez@fs.fed.us'; 'parchibald@fs.fed.us'; 'jkastenholz@fs.fed.us'; 'Stan_Zyskowski@nps.gov'; 'Richard.Domingue@noaa.gov'; 'Stephen_Lewis@fws.gov'; 'jerry.marco@colvilletribes.com'; 'brose@yakama.com'; 'pir1461@ecy.wa.gov'; 'brca461@ecy.wa.gov'; 'geedee@cablespeed.com'; 'mayor@cityofchelan.com'; 'carlmerkle@ctuir.com'; Osborn, Jeff; Hays, Steve; Chamberlain, Vern; Hill, Courtney; Yow, Gene
Cc: Smith, Michelle; Duffy, Janel
Subject: Lake Chelan 637: Chelan PUD Request to Review the Draft Threatened and Endangered Species Plan (March 27, 2007)
Importance: High

PUBLIC UTILITY DISTRICT NO. 1 of CHELAN COUNTY
P.O. Box 1231, Wenatchee, WA 98807-1231 • 327 N. Wenatchee Ave., Wenatchee, WA 98801
(509) 663-8121 • Toll free 1-888-663-8121 • www.chelanpud.org

To: Chelan River Fishery Forum:
Washington Department of Ecology
Washington Department of Fish and Wildlife
United States Forest Service
National Park Service
United States Fish and Wildlife Service
National Marine Fisheries Service
CCT (Colville)
YN (Yakama)
CTUIR (Umatilla tribe)
City of Chelan
Lake Chelan Sportsman Association

From: Michelle Smith, Licensing & Compliance Manager
Public Utility District No. 1 of Chelan County (Chelan PUD)
michelle.smith@chelanpud.org

Re: Lake Chelan Hydroelectric Project No. 637 (Project)
License Article 408 - Threatened & Endangered Species Protection Plan (TESPP)

Dear Chelan River Fishery Forum:

Article 408 of the Federal Energy Regulatory Commission's (Commission) Order on Offer of Settlement and Issuing New License on November 6, 2006, requires Chelan PUD to file for Commission approval the TESPP by May 6, 2007. Pursuant to Article 408, Chelan PUD is required to provide 30 days for the agencies listed above to comment and to make recommendations prior to submitting the TESSP to the Commission.

This email is to inform you that the draft TESPP is now available for your review, comment, and recommendation.

Please provide comments to Steven Hays, Fish and Wildlife Senior Advisor, at (509)661-4181 or steveh@chelanpud.org by Thursday, April 26, 2007.

The components of the TESPP relate to schedules for implementation of flow release structures, fish habitat construction, water quality studies, tributary streamflow enhancement program funding, implementation of National Marine Fisheries Service (NMFS) construction practices near waterways, and annual reporting as specified in Project License and its Appendices A and D, the Lake Chelan Comprehensive Settlement Agreement and attachments dated October 8, 2003, and the State of Washington Department of Ecology's Clean Water Act Section 401 Water Quality Certification for the Project.

To view and print the draft TESPP, click the direct link, http://www.chelanpud.org/documents/9140_2.pdf. Refer to the Lake Chelan Implementation Website, <http://www.chelanpud.org/lake-chelan-implementation.html>, under the License Documents heading to view the New License and Lake Chelan Settlement Agreement. Hard copies are available upon request.

Thank you for your assistance and attention to this matter.

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From: Hays, Steve [mailto:steveh@chelanpud.org]
Sent: Friday, April 20, 2007 3:40 PM
To: violaaev@dfw.wa.gov; heinebah@dfw.wa.gov; ramartinez@fs.fed.us; parchibald@fs.fed.us; jkastenholz@fs.fed.us; Stan_Zyskowski@nps.gov; Richard.Domingue@noaa.gov; Stephen_Lewis@fws.gov; jerry.marco@colvilletribes.com; brose@yakama.com; Irle, Pat (ECY); Caldwell, Brad (ECY); geedee@cablespeed.com; mayor@cityofchelan.com; carlmerkle@ctuir.com
Cc: Smith, Michelle; Duffy, Janel; Osborn, Jeff; Chamberlain, Vern; Hill, Courtney; Yow, Gene
Subject: Reminder: Comments due April 26 on Threatened & Endangered Species Protection Plan

PUBLIC UTILITY DISTRICT NO. 1 of CHELAN COUNTY
P.O. Box 1231, Wenatchee, WA 98807-1231 • 327 N. Wenatchee Ave., Wenatchee, WA 98801
(509) 663-8121 • Toll free 1-888-663-8121 • www.chelanpud.org

To: Chelan River Fishery Forum:
Washington Department of Ecology
Washington Department of Fish and Wildlife
United States Forest Service
National Park Service
United States Fish and Wildlife Service
National Marine Fisheries Service
CCT (Colville)
YN (Yakama)
CTUIR (Umatilla tribe)
City of Chelan
Lake Chelan Sportsman Association

From: Steven Hays, Fish and Wildlife Senior Advisor
Public Utility District No. 1 of Chelan County (Chelan PUD)
steveh@chelanpud.org

Re: Lake Chelan Hydroelectric Project No. 637 (Project)
License Article 408 - Threatened & Endangered Species Protection Plan (TESPP)

Reminder: Comments Due before 5:00 p.m., April 26, 2007

Chelan River Fishery Forum:

This email is to remind you that comments are due on the draft Threatened & Endangered Species Protection Plan on next Thursday, April 26.

To open the document, click on the following
link: http://www.chelanpud.org/documents/9140_2.pdf

Please submit your comment letters on or before 5:00 p.m., April 26, 2007 to me via email at steveh@chelanpud.org or via fax to (509) 661-8155.

Pursuant to License Article 405, Chelan PUD will file the OCMP with FERC (Commission) by May 4, 2007. All received comment letters will be appended to the plan with a description of how each comment or recommendation was incorporated in the plan, or, if the licensee does not adopt a

recommendation, the filing with the Commission will include the licensee's reasons, based on project-specific information for not adopting such recommendation.

If you have any questions, please do not hesitate to contact me.

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CONSULTATION TELEPHONE LOG – OCMP AND TESPP

DATE	TIME	FROM	TO WHO	SUBJECT	OUTCOME
4/18/07	1600	Steve Hays	Rich Domingue, NMFS	Reminder to Call Dale Bambrick on Article 14, Review Comments on OCMP and TESPP due 4/26	Rich had forgotten to contact Dale, knew Dale would like to be the NMFS rep on Article 14, said he would do it now. Said he would review OCMP and TESPP
4/20/07	1551	Steve Hays	Steve Lewis, USFWS	Reminder that Review Comments on OCMP and TESPP due 4/26. Discussed Reach 4 spill – bedload movement tests scheduled for next week	Steve said that he had partially reviewed the documents. Would finish next week by deadline.
4/20/07	1615	Steve Hays	Phil Archibald, USFS	Reminder that Review Comments on OCMP and TESPP due 4/26. Discussed Reach 4 spill – bedload movement tests scheduled for next week	Phil had reviewed the documents, will send an email stating such and that he has no comments. I will send him a copy of the spill test schedule.
4/20/07	1640	Steve Hays	Art Viola, WDFW	Reminder that Review Comments on OCMP and TESPP due 4/26.	Voicemail said Art would be out of office until April 24. Left message reminding of comment deadline.
4/20/07	1640	Steve Hays	Bruce Heiner,	Reminder that Review Comments	Left voice message reminding of

Threatened and Endangered Species Protection Plan

			WDFW	on OCMP and TESPP due 4/26.	comment deadline.
4/20/07	Voice mess.	Dale Bambrick, NMFS	Steve Hays	Confirming that he will represent NMFS on Article 14	He left contact information
4/23/07	1203	Steve Hays	Joe Kastenholtz, USFS	Reminder that Review Comments on OCMP and TESPP due 4/26.	Left voice message reminding of comment deadline. Received email response later that will not have any comments.
4/23/07	1515	Steve Hays	Stan Zyskowski, NPS	Reminder that Review Comments on OCMP and TESPP due 4/26.	He hadn't reviewed the plans yet, but would do so. He said probably will not have any comments
4/23/07	1542	Steve Hays	Ray Smith, USGS	Reminder that Review Comments on OCMP due 4/26.	He has reviewed the plans and does not have any comments
4/23/07	1545	Steve Hays	Lanny Armbruster, Manson Parks	Reminder that Review Comments on OCMP due 4/26.	Left voice message that comments due 4/26, please respond even if no comments
4/23/07	1552	Steve Hays	Jim Harris and Bill Fraser, Wash. State Parks	Reminder that Review Comments on OCMP due 4/26.	Left message with receptionist that comments due 4/26, please respond even if no comments
4/23/07	1600	Steve Hays	Thomas O'Keefe, American Whitewater	Reminder that Review Comments on OCMP due 4/26.	He has been gone for three weeks, but will review tomorrow.
4/23/07	1610	Steve Hays	Richard Uhlhorn, Lake Chelan Recreation Association	Reminder that Review Comments on OCMP due 4/26.	Left voice message that comments due 4/26, please respond even if no comments
4/23/07	1623	Steve Hays	Jay Witherbee, City of Chelan	Reminder that Review Comments on OCMP and TESPP due 4/26.	Left message with receptionist that comments due 4/26, please respond even if no comments
4/23/07	1630	Steve	Jerry Marco,	Reminder that	Left voice messages

		Hays	Colville Confederated Tribes	Review Comments on OCMP and TESPP due 4/26.	(office and cell phones) reminding of comment deadline and asking for response if no comments.
4/23/07	1635	Steve Hays	Carl Merkle, Confederated Tribes of the Umatilla Indian Reservation	Reminder that Review Comments on OCMP and TESPP due 4/26.	Left voice message reminding of comment deadline and asking for response if no comments.
4/23/07	1203	Steve Hays	Bob Rose, Yakama Indian Reservation	Reminder that Review Comments on OCMP and TESPP due 4/26.	Left voice message reminding of comment deadline and asking for response if no comments.
4/23/07	1650	Steve Hays	Jim Eychaner, Washington Interagency Committee for Outdoor Recreation	Reminder that Review Comments on OCMP due 4/26.	He had reviewed and had no comments. Will send email to that effect.
4/23/07	1655	Steve Hays	Gary Denniston, Lake Chelan Sportsman Association	Reminder that Review Comments on OCMP due 4/26.	He had reviewed and had no comments. Will send email to that effect.
4/24/07	0938	Steve Hays	Art Viola, WDFW	Reminder that Review Comments on OCMP and TESPP due 4/26.	Left voice message reminding of comment deadline and asking for email response if no comments.
4/24/07	0938	Steve Hays	Dale Bambrick, NMFS	Called to discuss Article 14 work	Left voice message stating the nature of the project, what we need to do and dates I will be in the office.
4/24/07	1010	Steve Hays	Bruce Heiner, WDFW	Asked if any additional comments on OCMP or TESPP	Bruce indicated that he had no additional comments

Threatened and Endangered Species Protection Plan

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From: Stephen_Lewis@fws.gov [mailto:Stephen_Lewis@fws.gov]
Sent: Monday, April 23, 2007 3:33 PM
To: Hays, Steve
Subject: Re: Reminder: Comments due April 26 on Threatened & Endangered Species Protection Plan

Hi Steve-

This respective plan looks good. I have no further comments to add to this document.

S-

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From: Joseph J Kastenholtz [<mailto:jkastenholtz@fs.fed.us>]
Sent: Monday, April 23, 2007 12:26 PM
To: Hays, Steve
Subject: Re: Reminder: Comments due April 26 on Threatened & Endangered Species Protection Plan

Steve, I listened to your phone message. I did look at the plan briefly, I have no comments, Thanks Joe

PS. side note Phil is the green light on this for FS, my comfort came from the fact that most of it dealt with andromous fish in reach 4, good luck

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From: Philip R Archibald [<mailto:parchibald@fs.fed.us>]
Sent: Tuesday, April 24, 2007 2:25 PM
To: Hays, Steve
Cc: Robert A Martinez
Subject: Re: Reminder: Comments due April 26 on Threatened & Endangered Species Protection Plan

Steve: I have reviewed the TESPP. I found it to be thorough, concise, easily understood, and relevant to the articles/issues of the new license. I have no edits at this time.

Philip Archibald
Fishery Biologist
Entiat/Chelan Ranger Districts
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509-784-1511

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From: Richard Domingue [<mailto:Richard.Domingue@noaa.gov>]
Sent: Tuesday, April 24, 2007 3:14 PM
To: Hays, Steve; keith kirkendall
Subject: comments on Threatened and Endangered Species Plan

Steve, Our comments are attached. Thank you for the reminders.

MEMO

April 24, 2007

To: Mr. Steve Hays, Chelan Public Utility District No. 1
Lake Chelan Implementation File

From: Rich Domingue, NMFS Hydro Division

RE: Comments on Draft Threatened and Endangered Species Protection Plan

Steve:

We appreciate the ample opportunity to review and comment on this plan. We believe that the plan, which compiles the array of projected and ongoing efforts to protect species listed under the Endangered Species Act, is adequate to the purpose. We have only one comment.

Section 6: Monitoring and reporting of flows in reach 4 of the Chelan River.

You propose to provide access to real-time data and to post the quarterly reports on your implementation webpage. NMFS requests that you also provide access to at least 5 years of the streamflow data on your implementation webpage. Access to recent data has proven invaluable to scientific inquiry (e.g. identifying relationships between flow and survival and trends). Also, it is unrealistic to ensure compliance through frequent review of real-time data. A database of data pertinent to the license terms and conditions would aid compliance monitoring.

Please call me if you have any questions. (503)-231-6858.

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From: Tony Eldred [<mailto:eldredte@DFW.WA.GOV>]
Sent: Tuesday, April 24, 2007 5:28 PM
To: Hays, Steve
Subject: Stateof Washington

STEVE-O: My (and some Art's) comments for OCMP, QAPP, and ETSP. Please see attachment. Questions? call me. 662-0452/679-0655. Will be in & out tomorrow. Lv. mess., will get back to you. If these are late for you, I'm sorry. Time crunch my end. TE

State of Washington
DEPARTMENT OF FISH AND WILDLIFE
Habitat Program
Major Projects Division
3860 Chelan Highway, Wenatchee, WA 98801-9607
(509) 662-0452

April 24, 2007

**Lake Chelan Hydroelectric Project, FERC No. 637:
Review Comments for Draft Operations Compliance and
Monitoring Plan, Appendix A Quality Assurance Project Plan,
and Threatened and Endangered Species Protection Plan**

Mr. Steve Hays
Chelan PUD Fish and Wildlife
Senior Advisor
Chelan County Public Utility District No. 1
Wenatchee, WA 98807

I have reviewed your above drafts. The following comments are mine only. My comments for each draft are presented in the order shown above.

First, for the OCMP, beginning on page 2 and following thereafter, it would be easier for the reader if the printing on the reverse side of each page is rotated 180 degrees, as is the case in the Draft Threatened and Endangered Species Protection Plan.

Your drafts of technical subjects are generally readily comprehended. But some questions were begged. I will refer to the bold printed section nos. and titles where I have questions.

2.1 Instream Flow Requirements for the Chelan River

In the first sentence you state "The Settlement Agreement requires that a minimum flow of 80 cfs be released throughout the year to the Chelan River at the Project Dam, with additional flows provided for a two month period" Upon revisiting Article 7 of the Settlement Agreement, the reader is referred to Chapter 7 of the Comprehensive Plan. I realize the Comp. Plan is Attachment B to the Settlement Agreement, is intended to be the "detail" part of the Settlement Agreement, and technically is a part of the Settlement Agreement. At different places in the Draft OCMP you refer the reader to the

"Settlement Agreement" as sort of short-hand. But it would be most helpful to the unfamiliar reader if instead you refer to the appropriate place in Chapter Y, section x.x.x of the Comprehensive Plan. This really is where the details are presented.

Steve Hays/Draft OCMP, QAPP & TESPP
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2.2.1 Instream Flow Requirements for the Chelan River. In the first paragraph you state "... In average water years, ... (within the 21%-79% exceedance range or **60% of the years based on historical records**), ...". It aids the reader to better understand event frequency by including the percentage of years occurrence. I suggest you also do this for dry years and wet years.

2.3.1 Tailrace pump station. On page 5, first complete paragraph at the top of the page, it is stated that a cost-benefit analysis will be performed of pumping water from the tailrace vs. releasing water from the LLO or spilling. The begs the question, what is the fallback for maintaining flow in the Reach 4 Habitat Channel if the pumps fail? Releases from the LLO (or spilling, if possible)? Is this the only fallback option? How long will be required for LLO flow release to reach the upper end of the Habitat Channel?

2.3.2 Gauge Calibration Methods and Frequencies of Calibration. Your discussion of measuring flow involves two very important quantification components, Accuracy and Precision. Many uninitiated readers may not grasp the distinctly different technical meanings of these two terms. Some may assume they are synonymous. For example, in the first paragraph, third sentence, you stated "The objective will be to calibrate the meter to be *accurate* to approximately 1 percent of discharge". The fifth sentence states "The *precision* of the ultrasonic flow meters is expected to be within two to five percent of the maximum discharge of each conveyance pipe or channel". It would be most helpful to many readers if, early-on in your discussion, you clearly explain the distinct difference in meaning of these two terms. A discussion of these two terms with fellow workers resulted in finding a good explanation in the on-line resource Wikipedia. Without a prefacing explanation, the result is confusion if the reader is not aware of the distinction between *accuracy* and *precision*.

In reference to the "fifth sentence" cited above, the precision of the ultrasonic flow meters is expected to be within **two to five percent** of the maximum discharge of each conveyance pipe or channel. (Emphasis added). It is not clear whether this expected 2-5 percent precision error is constant or proportional at lesser discharges? Please elaborate as to what to expect in seasonal (varying) "real flow" situations.

These conclude my comments on the Draft OCMP. I turn now to comments regarding the Draft Appendix A Quality Assurance Project Plan.

SECTION 2: PROJECT DESCRIPTION

The first bullet under the "monitoring requirements" (upper half of Page 5) specifies hourly monitoring of water temperature in the dam forebay and at the end of Reaches 1, 3 and 4 of the Chelan River. Why was Reach 2 omitted? Did your water temperature

Steve Hays/Draft OCMP, QAPP & TESPP
Page 3

study indicate little difference in water temperature between the ends of Reaches 1 and 2, or 2 and 3, and therefore Reach 3 water temperature would be superfluous? Or what?

The fourth bullet under the "monitoring requirements" lists weekly visual monitoring of the *tailrace* At a number of places in the QAPP "tailrace" is referred to. Technically, I would say there are two tailraces: immediately downstream from the dam and downstream from the powerhouse. Here it seems self-evident the powerhouse tailrace is being referred to. But at other places it was necessary to deduce which was intended. It will make it easier for the reader if, when you use "tailrace", you identify which one.

Page 5, first bullet, lower half of page. Flow and temperature data will be reported on the CPUD website on a monthly basis (no later than the 30th day of the month following the reporting period). This timeline may or may not be directed by a specification in the 401 Water Quality Certification. Unfortunately, this seems to indicate that monthly data will be going on two months old when it becomes available. Is it possible that such data could be available significantly earlier?

Page 9, Table 3-2: Monitoring Schedule. Under monitoring for Dissolved Oxygen (DO), the table shows two samples/month in Years 3 & 5 during the most biologically productive months of the year (July-September). What of really adverse winter conditions (ice buildup) as they occur?

Table 3-2, scheduled powerhouse shutdowns. "Tailrace gravel DO will be monitored hourly, during low water years. It is estimated this monitoring will occur up to three times from year one to five after initiation of minimum flow". Three monitorings over a period of five years under minimum flow conditions (80 cfs) during the years' warmest months seems remarkably minimal. If achieving Biological Objectives is the criterion of success for the Chelan River (and survival looms large in achieving success), it seems logical that significantly greater effort would be devoted to monitoring such a critical environmental component.

Table 3-2, during egg incubation. "Tailrace and Reach 4 intragravel DO will be monitored hourly, one day per week, during incubation. This is expected to occur years one through five during minimum flow (80 cfs) in November through February". How will the one day per week be selected: randomly, systematically, or ...?

Page 10, first complete paragraph. We prefer that daily water temperature data be reported as daily minimum, daily maximum, and daily average.

Steve Hays/OCMP, QAPP & TESPP
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Page 10, third complete paragraph. Please elaborate how unnatural temperature shifts might occur.

Page 11, Figure 3-2, Anticipated Chelan River Water Quality Monitoring and Reporting Schedule. Box no. 50 lists third year start and finish dates as 07/06/09 through 09/21/09, but no subsequent individual sampling dates within months. Box no. 58 lists fifth year start and finish dates. Boxes nos. 59 through 64 show six individual dates over July, August, and September. Individual dates within each of July, August, and September in Year 3 is desirable. Finally, boxes showing individual sampling dates in Year 5 are labeled Year 3 in the Task Name column, but by the year (2011) shown in the "Start" and "Finish" columns should be labeled Year 5.

Page 18, Figure 5-1, Proposed Temperature Sampling Location, Forebay of the Lake Chelan Dam. I suggest different labeling for the sampling locations shown. For the two forebay sites shown (both FB-A), I suggest FB-L and FB-R (for Forebay-Leftbank and Forebay-Rightbank). For the dam tailrace, I suggest the non-specific FB-B and FB-B be changed to TR-L (Tailrace Left) and TR-R (Tailrace Right).

Page 20, Figure 5-6. Proposed Turbidity, DO, pH Sampling Locations, Reach 4. I recommend establishing additional intragravel monitoring stations close by R4-C and R4-A. The Habitat Channel will be approximately one-half mile in length. It would be prudent to monitor at the upper end, middle, and lower end what is occurring, especially DO levels, over this critical half mile.

This completes my comments on the Draft QAPP. In conclusion I offer a brief comment about the TESPP.

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Beginning about page 8 and into page 10, several times "fall" chinook are mentioned. We believe this is misidentification. Art, Andrew Murdoch, and myself are convinced the great majority of mid-summer-fall chinook in the upper mid-Columbia are correctly termed summer chinook. My personal experience indicates that the raising of Wells Reservoir saw the inundation of the last remaining significant mainstem fall chinook spawning upstream of Wanapum Dam. Figures showing adult chinook 10 year average run size (1997-2006) indicates that, based on passage timing at Rocky Reach, falls in the upper mid-Columbia are an artifact (Col. Bas. Research, School of Aquatic & Fishery Sciences, Univ. of WA). In fact, examination of the RR 10 year average suggests springs may outnumber the falls. This concludes my comments on the three draft plans.

Thank you for the opportunity to review these drafts. We hope our comments are constructive and helpful for completion of these plans.

Your truly,

Tony Eldred

cc Art Viola, WDFW-Wenatchee
Joe Miller, WDFW-Ephrata
Curt Leigh, WDFW-Olympia
Gary Sprague, WDFW-Olympia
Bruce Heiner, WDFW-Pullman
Carmen Andonaegui, WDFW-Ephrata
Pat Irle, Ecology-Yakima
Brad Caldwell, Ecology-Olympia
Steve Lewis, USFWS-Olympia
Phil Archibald, USDA-FS, Entiat
Rich Domingue, NOAA-Fish,

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From: Stan_Zyskowski@nps.gov [mailto:Stan_Zyskowski@nps.gov]
Sent: Wednesday, April 25, 2007 4:20 PM
To: Hays, Steve
Subject: Re: Review of Chelan Hydro Operations Compliance Monitoring Plan and Threatened and Endangered Species Protection Plan

Steve, the NPS has no comments on the "Chelan Hydro Operations Compliance Monitoring Plan and Threatened and Endangered Species Protection Plan". Stan

Stanley Zyskowski
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From: Jerry Marco [<mailto:jerry.marco@colvilletribes.com>]
Sent: Thursday, April 26, 2007 3:54 PM
To: Hays, Steve
Subject: RE: Reminder: Comments due April 26 on Operations Compliance Monitoring Plan

Steve,

I have reviewed this plan as well as the T&E Species Protection Plan and do not have any comments.

Jerry