



United States
Department of
Agriculture

Forest
Service

Pacific
Northwest
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PKWD-08-050

File Code: 2770

Date: August 14, 2008

Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 Federal Street NE
Washington, DC 20426

RE: USDA Forest Service **COMMENTS** on the April 2008 Final License Application - Packwood Lake Hydroelectric Project - FERC Project No. 2244; **PRELIMINARY FPA § 4(e) TERMS AND CONDITIONS**; Justification Statements for the Terms and Conditions; and the Schedule for Finalization of the 4(e) Terms and Conditions.

Dear Secretary Bose:

The Federal Energy Regulatory Commission (Commission) issued the Packwood Lake Hydroelectric Project (Project) Notice of Application Ready for Environmental Analysis on June 19, 2008. At that time, the Commission requested comments on the Final License Application (FLA) and agency terms and conditions. In response to the Commission's request, the USDA Forest Service is filing the following documents:

1. Enclosure I	USDA Forest Service Preliminary FPA § 4(e) Terms and Conditions
2. Enclosure II	USDA Forest Service Justification Statements for the Terms and Conditions
3. Enclosure III	USDA Forest Service Comments on the FLA
4. Enclosure IV	USDA Forest Service Schedule for Finalization of the § 4(e) Terms and Conditions

The Project occupies 512 acres of National Forest System (NFS) lands and waters administered by the Gifford-Pinchot National Forest. In the view of the US Department of Agriculture (USDA) Forest Service, the protection, mitigation and enhancement measures contained in the Federal Power Act (FPA) 4(e) terms and conditions submitted with this letter are necessary for the protection and utilization of the federal reservations managed by the USDA Forest Service and to ensure consistency with Gifford-Pinchot National Forest Land and Resource Management Plan (1990) as amended.

If you have any questions regarding this filing or require any additional information, please contact Walt Dortch, Region 6 Hydropower Coordinator, at 360-436-1155 or Mike Gerdes, Gifford-Pinchot National Forest Hydropower Coordinator, at 541-416-6521.

Sincerely,

/s/ Lisa Freedman (for)

CALVIN N. JOYNER
Acting Regional Forester

Enclosures



year following each survey. If 30 or more adult rainbow trout are observed during the survey, the Licensee does not need to collect or move any trout.

Upon completion of the surveys during the first eight years after License issuance, the Licensee shall meet with the USDA Forest Service to discuss and collaboratively decide whether to continue fish supplementation and monitoring. The following criteria will be used to determine whether supplementation and monitoring be continued as is, modified or will be discontinued.

- If three consecutive bi-annual surveys of the reach have confirmed the presence of 30 adult rainbow trout, and a subsequent survey of Study Reaches 3 and 4 documents a self sustaining resident population in these two reaches then monitoring and supplementation in the reach will be discontinued for the remainder of the License period.
- If three consecutive surveys have not confirmed the presence of 30 adult rainbow trout then the Licensee shall continue to monitor the reach at a reduced frequency of once every four years and supplement the trout annually, or until 3 consecutive surveys document the presence of 30 adult rainbow trout.

The Licensee shall collect scale samples during the surveys to monitor trends of fish age class variability within the reach.

The Licensee shall provide the USDA Forest Service a report every two years documenting the adult rainbow trout population supplementation and monitoring efforts in the reach. The report shall discuss the existing population characteristics of the resident adult rainbow trout in the reach. The report shall be provided to the USDA Forest Service 30 days prior to the Annual Resource Coordination meeting (Condition No.2). The report shall also provide details for the out-years planned activities. The Licensee shall allow a minimum of 60 days for the USDA Forest Service to comment and to make recommendations prior to filing the final report 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.

Condition No. 9 - Entrainment in Project Intake

The Licensee shall, in consultation and coordination with the USDA Forest Service and the Washington Department of Fish and Wildlife (WDFW), and other interested stakeholders, provide for test and verification of existing traveling fish screens to meet current State of Washington approach velocity criteria. The current measurable objective for fish screen approach velocities are the State of Washington criteria of ≤ 0.80 ft/second over 95% of the screen area, and ≤ 0.88 ft/sec over 99% of the screen area for all intake flows and lake elevations. If testing and verification data indicate the traveling fish screens do not meet State criteria then the Licensee shall modify the existing fish screens and/or evaluate whether administrative controls (restricting operational flows) can provide a means of complying with the criteria or install new fish screens at the Project intake as described below.

The Licensee shall in consultation with and subject to review and approval by the USDA Forest Service and the WDFW describe the testing and verification process to be used to implement this

license article. At a minimum the process will include the following test and verification procedures, include a schedule for implementation, and if necessary as described below, provide for the modification or redesign procedures for the traveling fish screens;

1. Evaluate the condition and sealing of the existing traveling fish screen with Resource Agency personnel. Screen evaluation techniques may include a remote camera, by direct inspection or some other means, to be determined in consultation with the Resource Agencies. If screen condition or sealing problems are found, the Licensee in consultation with the Resource Agencies shall determine whether to modify the existing traveling screens and/or evaluate the use of administrative controls, or pursue a major screen redesign. Go to No. 5 if a major redesign of the traveling fish screens is determined.

2. If the current traveling screens are adequately sealed, or, after modifying the screens to be adequately sealed, test and verify the screen approach velocity over a range of lake elevations and intake flows. Testing of the traveling fish screens approach velocities will be done with the trash rack screens removed. Specific dates will be determined in consultation with the Resource Agencies.

3. If the State screen approach velocity criteria are satisfied then Licensee will retain the existing traveling screen as the primary fish exclusion device. Go to No. 6 for the development of an intake structure operation manual.

4. If the State screen approach velocity criteria are not satisfied then the Licensee in consultation with the Resource Agencies will determine whether to experiment with a baffling system and other minor modifications (including limiting inflow at certain lake elevations), or pursue a major screen redesign (See No. 5). The baffling system and other screen or operation modifications, and approach velocity standard testing will be completed by the end of the second year of the new license. If the State screen approach velocity criteria is satisfied then go to No. 6 for the development of an intake structure operation manual. If the State screen approach velocity criteria is not satisfied then go to No. 5 for a major redesign of the traveling fish screens.

5. Major Fish Screen Redesign: A major screen redesign may mean significant changes to the existing screens or replacement of the existing screens. The point of fish exclusion can either be the trash rack or inside the intake structure. The Licensee shall consult with qualified engineers to explore options for screening that will satisfy State approach velocity criteria, and then in consultation with the resource agencies, determine the new screen design. The timeline for the redesign process is as follows:

- Proposed conceptual designs will be made available to Resource Agencies by the end of the third year of the new license.
- Final design decision will be made by the end of the fourth year of the new license.
- Construction to be completed by the end of the seventh year of the new license.

6. The Licensee shall prepare an intake structure operation manual for Resource Agency approval. The manual will specify screen monitoring intervals, maintenance intervals, and the actions that will be taken given significant events, including load rejection, overtopping inflows

over the drop structure, bypass flow failures, penstock leaks, landslides, earthquakes and fires. The manual shall be provided to the Resource Agencies within two years of time the final intake structure configuration is completed.

The Licensee shall provide the USDA Forest Service an annual report on the six steps described above at least 30 days prior to the Annual Resource Coordination meeting (Condition No. 2). The Licensee shall allow a minimum of 60 days for the USDA Forest Service to comment and to make recommendations prior to filing the final report 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.

Condition No. 10 - Fish Passage at Snyder Creek

Within two years of License issuance, the Licensee shall, in coordination and consultation with the USDA Forest Service, U.S. Fish and Wildlife Service, National Marine Fisheries Service and the Washington Department of Fish and Wildlife, Washington Department of Ecology, and Tribes, and approval by the USDA Forest Service survey, engineer, and prepare a Snyder Creek Restoration, Enhancement and Monitoring Plan for the re-routing of Snyder Creek and file the plan with the Commission for approval. The Licensee shall in coordination and consultation with the USDA Forest Service and other agencies as appropriate, develop the Snyder Creek Restoration, Enhancement and Monitoring Plan to include at a minimum the following elements: restoration and enhancement objectives; project design criteria; and implementation and effectiveness monitoring.

The Licensee shall apply for and secure permits by the end of the fourth year after License issuance. Within five years of License issuance, the Licensee shall re-route Snyder Creek to join Hall Creek immediately downstream of the Project tailrace flume. Snyder Creek will be re-routed to Hall Creek via an existing drainage path that runs parallel and adjacent to the tailrace. This reach is approximately 800 feet in length.

The Licensee shall retain stream restoration specialists to design the re-route and restoration for Snyder Creek. The point at which Snyder Creek will be diverted into this drainage will be determined in consultation with the USDA Forest Service and other agencies as appropriate however, it is anticipated that the stream will be diverted within 500 feet upstream of where the current Snyder Creek crossing occurs. Until Snyder Creek is redirected, the Licensee shall keep the existing culvert under the tailrace maintained and in operating condition to allow existing fish passage.

The Licensee shall monitor the re-route of Snyder Creek for two years following the restoration to determine whether Snyder Creek allows for volitional passage of anadromous and resident trout species. Upon the completion of the second year of monitoring, the Licensee shall meet with the USDA Forest Service and other agencies as appropriate, to discuss monitoring results. If volitional passage of anadromous and resident trout species is documented then a collective decision will be made whether further monitoring is warranted. Conversely, if volitional passage

Condition No. 9 - Entrainment in Project Intake

I. Existing Situation

The dam on Packwood Lake is a complete fish migration barrier to upstream passage and is expected to preclude downstream passage during all but extreme overtopping flow conditions, based on anecdotal information of multiple fish age class (EES Consulting 2007a).

All of the controlled water release from Packwood Lake passes through travelling fish screens in the intake building including water entering the pipeline and penstock (e.g. water used for energy production), and the bypass flows (water contributed to lower Lake Creek). The volume of water passing through the screen is estimated through a back calculation derived from forebay water surface elevation. The estimated volume of water ranges from 44 cfs to 190 cfs depending upon energy production level.

The entrainment study results (ENW Consulting 2007b) identified exceedence of Washington State standards for maximum approach velocities at the screen intake surface. Study results documented impingement, entrainment and entrapment at the Packwood Lake Project intake facility (ENW Consulting 2008b). The study cited improper debris screen alignment, poor water quality and high Project flows that combined with the previous two factors as contributing to higher fish entrainment.

II. Forest Plan Direction

Management direction for aquatic resources is contained in a variety of laws, policy and management plans. Following is a summary of specific rules and regulation providing direction to the Packwood Lake relicensing.

The Gifford Pinchot National Forest Land and Resource Management Plan (1990), as amended by the Northwest Forest Plan in 1994, provides the management direction for all National Forest System lands and their associated resources directly affected by or within the project vicinity of the Packwood Lake hydroelectric system. This plan was developed and enacted consistent with the requirements of the Forest and Rangeland Renewable Planning Act, as amended by the National Forest Management Act.

The Aquatic Conservation Strategy (ACS), a core component of the Northwest Forest Plan, provides management direction aimed at maintaining or restoring the ecological health and functioning of watersheds and the aquatic ecosystems contained within them.

ACS objectives that apply most to this issue are:

- Objective 1 – Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted.
- Objective 2 – Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network

connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.

- *Objective 3 – Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.*
- *Objective 4 – Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.*
- *Objective 5 – Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.*
- *Objective 6 – Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.*
- *Objective 7 – Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.*
- *Objective 9 – Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.*
- *Additionally, Northwest Forest Plan Standard and Guideline LH-2 states: “During the relicensing of hydroelectric projects, (the Forest Service shall) provide written and timely license conditions to FERC that require flows and habitat conditions that maintain or restore riparian resources and channel integrity.”*

Forest Service Manual (FSM) 2670.12 directs the Forest Service to:

- Manage habitats for all existing native and desired nonnative plants, fish, and wildlife species in order to maintain at least viable populations of such species,
- Conduct activities and programs to assist in the identification and recovery of threatened and endangered plant and animal species, and
- Avoid actions that may cause a species to become threatened or endangered.

Forest Service Manual (FSM) 2670.22 directs the Forest Service to:

Maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System lands. A viable population is further defined by FSM 2670.5 as one that has the estimated numbers and distribution of reproductive individuals to ensure the continued existence of the species throughout its existing range (or range required to meet recovery for listed species) within the planning area.

Section 4(e) of the FPA provides the USDA Forest Service, as administrators of reserved lands affected within the project area, authority to attach mandatory terms and conditions to Project licenses. This section of the FPA states, “that licenses shall be subject to and contain such conditions as the Secretary of the department under whose supervision such reservation falls shall deem necessary for the adequate protection and utilization of such reservation.” Section

purposes for which licenses are issued, shall give equal consideration to the purposes of

Service terms and conditions are based upon management direction contained in amended Forest Plans. If the project being relicensed is not located on Forest Service land but affects resources managed by the agency (i.e. migratory fish that historically used NFSL), Section 10(a) provides authority by which the Forest Service can make recommendations regarding management of those resources to FERC.

Under the Recreational Fisheries Executive Order (Executive Order 12962 of June 7, 1995, Federal Register Notice 60(111): 30769-30770), the President of the United States directs federal agencies to cooperate with state and tribal governments to improve aquatic resources for increased recreational fishing opportunities by:

- Identifying recreational fishing opportunities limited by degraded habitat and water quality,
- Restoring habitat and water quality,
- Providing access and promote awareness of recreational fishing opportunities,
- Stimulating angler participation in conservation and restoration,
- Using cost-share programs and implementing laws to conserve, restore, and enhance aquatic systems to support recreational fisheries,
- Evaluate effects of federally funded, permitted, or authorized actions on aquatic systems and recreational fisheries and document those effects relative to the purpose of this order, and
- Assisting private landowners to conserve and enhance aquatic resources.

Master Memorandum of Understanding Washington Department of Fish and Wildlife and USDA Forest Service Region Six

Signatory parties agreed under this MOU to consult on fish and wildlife actions that occur or may affect USDA Forest Service Region Six Forests. Listed below are four key elements of this MOU.

- Section A #2. The Forest Service agrees to recognize WDFW as being responsible for the protection, perpetuation, and management of all game fish and wildlife in the State of Washington.
- Section B #2. WDFW agrees to solicit Forest Service participation in establishing the
- Section B #4. WDFW agrees to consider Forest Service's goals and objectives in the development of Fish and Wildlife plans.
- Section B #6. WDFW agrees to cooperate with the Forest Service in preparation and conduct of research plans of mutual interest.

The Gifford Pinchot National Forest has memoranda of understanding with the Cowlitz Tribe and the Yakima Indian Nation. These agreements provide that the Forest Service shall consult and cooperate with the tribes in the management and protection of natural and cultural resources on the National Forest.

III. Justification/Rationale for Support of the Preliminary Terms and Conditions

Project intake travelling screens do not comply with Washington State laws contained in the Revised Code of Washington (RCW) titles 75 and 77 which specify design criteria and operation and maintenance procedure pertaining to fish passage and screening standards (RCW 77.16.220, RCW 77.16.210, RCW 77.020.060, RCW 75.020.061, RCW 75.20.060, RCW 75.02.061). Direct result of non-compliant water diversion includes has lead to harmful and fatal conditions which entrap, impinge and entrain fish. Approximately 357 known fish mortalities were a result of project operations during the eight month monitoring period in 2007 (ENW Consulting 2007b). As many as 69 fish motilities were recovered in a single weekly observation (March 15, 2007). These estimates may under represent the actual impact to fish as the surveys were conducted only once per week.

The USDA Forest Service is concerned with the sustainability and genetic integrity of the resident fish population in lower Lake Creek below Packwood Lake dam. As the dam only provides partial downstream passage, there is a lack of free interchange between the lake and creek populations. EES Consulting 2007b validates that fish are further blocked from free migration downstream. The travelling screens are shown to cause harm to fish via entrainment and impingement.

On September 17, 2007, Energy Northwest filed its Preliminary Licensing Proposal (PLP) for the Project and filed it with the Commission. Upon filing, Energy Northwest and interested stakeholders, including the USDA Forest Service, met frequently and informally to reach agreement in principle on all PME measures outlined in the PLP and additional measures the USDA Forest Service deemed necessary to mitigate continuing Project impacts to NFS lands. By February 2008, Energy Northwest and the USDA Forest Service reached agreement in principle on all PME measures, with several of the PME measures being fully described. Energy Northwest filed its Final License Application (FLA) with the Commission in February 2008 containing the PME measures agreed to in principle including the measure for Entrainment of Fish at the Project Intake (ENW E.5.3.1.3.2 FLA 2008).

Subsequent to the filing of the FLA, Energy Northwest, WDFW and the USDA Forest Service meet with WDFW fish screening engineers to discuss specific components of the entrainment measure. Parties agreed to a step-wise process to solve the travelling screen approach velocities that differ from the PME filed in the FLA. The solution solely focuses on meeting Washington State screen approach velocity criteria. Requiring Energy Northwest to study and fix as appropriate the Project intake screens is consistent with the USDA Forest Service meeting its' management direction, particularly ACS Objectives 6-9.

IV. References Cited

EES Consulting 2007a. Final Fish Population Characterization Near the Drop Structure Study Report for Energy Northwest's Packwood Lake Hydroelectric Project, FERC Project No. 2244. Energy Northwest (ENW) Richland, Washington.

EES Consulting 2007b. Final Entrainment Study Report for Energy Northwest's Packwood Lake Hydroelectric Project, FERC Project No. 2244. Energy Northwest (ENW) Richland, Washington.

Energy Northwest 2008. Final License Application for New License. Packwood Lake Hydroelectric Project, FERC Project No. 2244. Energy Northwest (ENW) Richland, Washington.