April 16, 2019
PKWD-19-039

Kimberly D. Bose, Secretary
ATTN: OEP/DHAC
Federal Energy Regulatory Commission
Mail Code: DHAC, PJ-12
888 First Street NE
Washington, DC 20426

Subject: PACKWOOD LAKE HYDROELECTRIC PROJECT
FERC DOCKET NO. P-2244
USFS 4(e) CONDITION NO. 3
FIRE PREVENTION PLAN


The Plan was prepared for National Forest Service (NFS) lands within the Project boundary and NFS lands adjacent to the Project boundary that are impacted by the Project. The Plan was collaboratively developed in consultation with and approved by the USDA Forest Service. Appropriate State and local fire agencies were afforded an opportunity for consultation; those agencies did not provide a response.

The Plan requires Energy Northwest to 1) analyze fire prevention needs to ensure that prevention equipment and personnel are available, 2) identify fire hazard reduction measures (e.g., eliminating ladder fuels, reducing fuel loading), 3) provide the USDA Forest Service a list of the location of the available fire prevention equipment and the availability of Project personnel.

Energy Northwest will fully comply with all provisions of the Plan.

April 16, 2019

PACKWOOD LAKE HYDROELECTRIC PROJECT
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If you have any questions or require additional information regarding this Plan, please contact me at 509.378.9755 or kvwilliams@energy-northwest.com.

Respectfully,

[Signature]

Ken Williams
Supervisor, Hydro & Wind Projects

Enclosure: 1) Fire Prevention Plan, April 2019
2) Fire Prevention Plan Consultation Record 041619
3) Fire Prevention Plan Summary of Agency Comments 041519
PACKWOOD LAKE HYDROELECTRIC PROJECT
FERC DOCKET NO. P-2244
USFS 4(e) CONDITION NO. 3
FIRE PREVENTION PLAN

ENCLOSURE 1
Fire Prevention Plan, April 2019
Final

Fire Prevention Plan

for

Energy Northwest’s
Packwood Lake Hydroelectric Project
FERC No. 2244
Lewis County, Washington

Submitted by:

ENERGY NORTHWEST

P.O. Box 968
Richland, Washington 99352-0968

April 2019
Fire Prevention Plan

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1.0 INTRODUCTION

Energy Northwest's (EN) Packwood Lake Hydroelectric Project (Project), Federal Energy Regulatory Commission (FERC) No. P-2244, received its initial license in 1980. The majority of the Project is located in the Gifford Pinchot National Forest (GPNF). The Project consists of an intake canal, a concrete drop structure (dam) and intake building on Lake Creek located about 424 ft. downstream from the outlet of Packwood Lake, a 21,691-foot system of concrete pipe and tunnels, a 5,621-foot penstock, a surge tank, and powerhouse with a 26,125 kW turbine generator.

The source of water for the Project, Packwood Lake, is situated at an elevation of approximately 2,857 ft. above mean sea level (MSL), about 1,800 ft. above the powerhouse. Water discharged from the Project is released to the Cowlitz River via a tailrace channel. Power from the Project is delivered over an 8,009-foot 69 kV transmission line to the Packwood substation.

EN filed its Final Application for New License of the Project on February 24, 2008. FERC issued a new license for the Project on October 11, 2018.

1.1 Plan Justification

EN, in consultation with the United States Department of Agriculture – Forest Service (USFS), drafted the Fire Prevention Plan (Plan) in 2012. An opportunity was given to the following agencies to provide input to the Plan: Cowlitz Indian Tribe (CIT), FERC, National Park Service (NPS), United States Department of Commerce – National Oceanic and Atmospheric Administration/ National Marine Fisheries Service (NMFS), United States Department of the Interior – Fish and Wildlife Service (FWS), Washington State Department of Archaeology and Historic Preservation (DAHP), Washington State Department of Ecology (WDOE), Washington State Department of Fish and Wildlife (WDFW), Yakama Nation (YN), consultants, and EN subject matter experts. The Plan has been developed in response to the requirements specified in the FERC License Order as USDA Forest Service Federal Power Action Final Section 4(e) Condition No. 3 (FERC 2018).

1.2 Purpose and Scope of the Plan

The Plan provides the means for effective fire prevention and management strategies. These strategies include an evaluation of the location and availability of equipment and personnel for emergency situations. The Plan identifies fire hazard reduction measures and public safety measures associated with project recreation and operation. It identifies and coordinates emergency response preparedness and reporting measures associated with fire management, as well as identifies the cooperative roles and responsibilities of EN and the USFS in managing fires.
2.0 MONITORING PLAN

2.1.1 Fire Prevention Needs
A risk survey is performed annually to determine the fire prevention needs at the Project to ensure that fire prevention and suppression equipment are available to Project personnel.

2.1.1.1 Fire Risk Due to Hydroelectric Operation and Project Facilities
Hydroelectric operation and the presence of project facilities such as generators, construction equipment, and transmission lines could contribute to fire danger in the project area.

The Project's powerhouse is located just east of the community of Packwood, Washington with the power production portion constructed below ground and the control building and office located above ground. Associated with the powerhouse are a warehouse and maintenance shop building, and a fenced storage yard with storage areas for plant support equipment.

The Project's raw water tank is connected to the penstock and provides water for fire suppression and backup cooling water supply for the powerhouse (Figure 1). It has a capacity of approximately 17,000 gallons and is located approximately 1,150 ft. from the powerhouse, with an elevation gain of about 200 ft. The constant head tank is located approximately 300 ft. from the powerhouse and prevents over-pressurization of the powerhouse cooling water system. The constant head tank uses water from Packwood Lake to operate the cooling systems associated with turbine generator and has a capacity of approximately 2,500 gallons, with an elevation gain of about 65 ft.

The water from the powerhouse turbine is released into a shallow constructed stilling basin that leads to an asphalt-lined tailrace canal.

2.1.1.2 Fire Risk Due to Dispersed Recreational Use at Packwood Lake and Lake Creek
The Project occupies 511.65 acres of federal land within the GPNF and Goat Rocks Wilderness (FERC 2018). The Project facilities located on USFS land include the intake/drop structure, pipeline/tunnels, surge tank, penstock, raw water tank and constant head tank, powerhouse, warehouse, storage yard, stilling basin, switchyard, a portion of the tailrace and transmission line, and access roads (Figure 2).

2.1.2 Fire Hazard Reduction Measures
Identifications of the fire hazard reduction measures.

2.1.2.1 General
Fire Prevention Instructions (FPI) provide specific fire prevention, preparedness, and suppression actions at the Project. The FPI includes the:

- Responsibilities for the Project personnel and responding fire suppression agencies.
Prerequisites detailing the performance of an annual review/edit of the FPI, the training of Project personnel, the Industrial Fire Precaution Levels (IFPL), and the operating requirements of a successful fire prevention plan.

- Requirements for flammable and combustible material storage, fire protection systems, permits, electrical cords and appliances, cooking, housekeeping, and project influence in the forest.

- Requirements for general equipment, vehicles, and building/structure use and occupancy.

- Procedure for fire suppression, and

- Process for documentation/record keeping.

Lewis County Fire District (LCFD) and the USFS are manual holders of the FPI and receive updated copies from the Project.

Figure 1. Project Layout Surrounding the Powerhouse.
Figure 2. Project Boundary.

2.1.2.2 Powerhouse Area

Flammable and combustible materials are inventoried regularly and stored in appropriate containment to ensure the location of materials is in compliance and to ensure that supplemental amounts are limited to what is needed to do the particular job they are intended for. Project personnel are trained on proper handling of materials for routine tasks and on responding to spills and other events. The Project complies with National Fire Protection Association (NFPA) standards and the Washington Administrative Code (WAC) with oversight by EN's Fire Protection Engineer.

Fire breaks are set for a defense-in-depth approach. There is no less than 20 ft. of clearance on each side of a building or fence and the fire break does not contain vegetative growth taller than 6 inches or any amount of freestanding brush.

2.1.2.3 Forest Lands

Fire breaks similar to those described in Section 2.1.2.2 are utilized for all project related infrastructure located on Forest Lands. The ground at the setting of each stationary mechanized engine is cleared, in advance, for a radius of 50 ft. and is kept clear of flammable material, as
much as is practicable. All dead trees over 15 ft. in height and 21 in. in diameter breast height are felled for a distance of 200 ft. in all directions.

Blasting is not permitted at any time without written approval by the USFS Supervisor/delegate. Any necessary and approved blasting efforts will be conducted by the USFS or a contractor approved by the USFS.

2.1.3 Location of Fire Prevention Equipment; Availability of Project Personnel

2.1.3.1 Powerhouse Area

In the event of a fire, Project personnel will report the fire to the Project Leader, who will contact the fire suppression agencies. Immediate suppression action will be initiated by the closest available Project personnel if the fire is clearly within the employee’s ability to extinguish.

The Project Leader/designee will render as much aid and assistance to the firefighting effort as is possible.

Fire department support is provided by the LCFD, located in the community of Packwood. LCFD is the primary emergency response team for the Project. They utilize the suppression resources at the Powerhouse area to extinguish fires in that location, including the hydrant and Stilling Basin for its water supply (Figure 3).

A CO₂ system is installed to extinguish a fire in the generator. The system is automatically triggered by an array of temperature sensors located in the generator housing. The system rapidly deploys most of the stored CO₂ into the generator to extinguish the fire and then maintains a smaller flow until the bottles are exhausted to prevent re-flash of the fire. When the system is deployed, an alarm bell is activated on the powerhouse floor to alert the operators to leave the area immediately. Re-entry into the Powerhouse area is authorized by the operators following air sampling with monitors that are available in the control building. Forced ventilation may be necessary to completely clear the area.

An ANSUL I-101 Industrial Fire Suppression Systems is installed in the Lube Oil room of the warehouse. The system is designed in full compliance with NFPA 17 (2009 edition) “Standard for Dry Chemical Extinguishing Systems”.

Portable fire extinguishers are located throughout the Powerhouse area, in accordance with the guidance provided by EN’s Fire Protection Engineer. The engineer performs an annual inspection. Project personnel ensure that extinguishers are checked and tested regularly and they document the actions completed in the Project’s action tracking system.
Figure 3. Powerhouse Area.

2.1.3.2 Forest Lands

In the event of a fire on USFS property, Project personnel report the fire to the Project Leader, who then contacts the:

- fire suppression agencies,
- USFS, and
- Columbia Cascade Communication Center dispatch, (360.891.5140)

Immediate suppression action is initiated by the closest available Project personnel if the fire is clearly within the employee’s ability to extinguish. The Project Leader/designee renders as much aid and assistance to the firefighting effort as is possible. Their vehicles are equipped with a portable fire extinguisher, shovel, and an ax.
The USFS designates a qualified forest officer to coordinate fire suppression activities on USFS property.

Firewatch provides for IFPL I and all higher fire precaution levels.

Project personnel ensure that their vehicles meet off-road operation requirements, which include:

- Project trucks are equipped with a portable fire extinguisher with a minimum 2-A; 10-B; C rating, long handled (wildland) shovel, and a double-bitted axe. All equipment is secured to the truck for easy access.
- Project trucks, when the fire danger is “Very High” or above, will be equipped with a minimum 2-1/2 gallon pressurized water fire extinguisher.
- Project off-road vehicles are equipped with a chemical fire extinguisher which meet one of the following specifications:
  - One 1-lb or larger dry chemical extinguisher, or
  - One 4-lb or larger carbon-dioxide extinguisher
- Idling only on surfaced road ways, when possible;
- Equipping vehicles with spark arresters when necessary; and
- Servicing vehicles and inventorining fire prevention equipment routinely.

2.1.3.3 General

Contact information and fire prevention equipment is provided to the USFS and the LCPD in their issue of the Project's FPI.

2.1.4 Resource Coordination

The Resource Coordination Plan (RCP) establishes a process for EN to exchange information and coordinate its efforts to implement the license conditions and ongoing operations and maintenance activities. The RCP describes how and when EN communicates with the USFS and other parties by specifying an annual cycle of data submittals, review meetings, field work, future planning and report preparation.

The RCP specifically applies to the coordination of the 19 various activities specified by the USFS, one of which being the Plan.

The RCP establishes the Resource Agencies Committee (RAC) to provide overall responsibility for the exchange of information, technical review of data, and coordination of efforts by EN. The RAC has authority to revise implementation strategies and methods to reflect improvement in sampling procedures and/or changes in regulations or environmental conditions, and serves as the Dispute Resolution Committee.
EN provides for the coordination and consultation with the USFS and other interested parties in the form of an annual Resource Coordination meeting and will provide each year a rolling 3-year Annual Report and Work Plan (annual report).

3.0 CONSISTENCY WITH AGREEMENTS MADE DURING RELICENSING PROCEEDINGS

What follows is an itemized and chronological list (most recent first) of key milestones associated with the development of the Fire Prevention Plan conducted during relicensing activities, data reporting, collaboration and appropriate measures for the new license and subsequent agreements and formal communications to relevant parties. All reporting, data result summaries and meeting minutes have been shared with stakeholders, cataloged on EN's website and where required, filed with FERC.

- Fire Prevention Plan reviews via email between USFS and EN, 2012 (May – October)
- Notice of Availability of Final Environmental Assessment, FERC to EN, July 2009
- Notice of Availability of Draft Environmental Assessment, FERC to EN, February 2009
- Comments on April 2008 Final License Application; 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, USDA FS to FERC, August 2008
- Team Meeting, April 2008
- Protection Mitigation and Enhancements Agreed to in Concept (Enclosure II) for Review, March 2008
- Application for New License, EN to FERC, February 2008
- Draft Protection, Mitigation and Enhancement Measures, Agencies collaboration, December 2007

4.0 SCHEDULE

EN will update the Plan as necessary upon collaboration with the RAC and approval of the USFS. After initial revision, it is assumed that the Plan will not require frequent updating as it is intended to describe standards of fire prevention without containing specific work elements or Project personnel instructions.

EN will continue to review the Plan annually. Revisions will be made accordingly and the instructions are distributed to the manual holders.

5.0 RESOURCES CITED


PACKWOOD LAKE HYDROELECTRIC PROJECT
FERC DOCKET NO. P-2244
USFS 4(e) CONDITION NO. 3
FIRE PREVENTION PLAN

ENCLOSURE 2
Fire Prevention Plan Consultation Record 041619
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<td>01/12/05</td>
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<td>Management Plan Review Process and Meeting Planning email 121719.pdf</td>
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<td>02/05/19</td>
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<td>03/13/19</td>
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<td>USFS, WDFW</td>
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Summary of agency comments on the Packwood Lake Hydroelectric Project (FERC No. 2244) Fire Prevention Plan and Energy Northwest’s (EN) responses.

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<th>Number</th>
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<th>Comment Source</th>
<th>Stakeholder Comment</th>
<th>EN Response</th>
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<td>No, I had Jennifer Harris review it also, and she did not have any comments.</td>
<td>Thank you for reviewing the Plan and providing a response.</td>
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<td>WDFW-01</td>
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<td>I did not review the Fire Prevention Plan because it’s specific to USFS.</td>
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<td>NMFS-01</td>
<td>All</td>
<td>NMFS Response (03/07/19)</td>
<td>Hi Audrey, Per our conversation, I'm requesting an extension for comments on the documents to March 14.</td>
<td>Ok. We look forward to receiving your comments on March 14.</td>
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