

Packwood Lake Project Proposed Protection, Mitigation & Enhancement Measures

No.	Energy Northwest Proposed Measure	Agency Proposed Condition	Status
1	No PM&E proposed	USFS - Implementation of Activities on National Forest System Lands	ENW in agreement; Letter to FERC by Dec. 17th
2	No PM&E proposed	USFS - Resource Coordination - Prepare a Resource Coordination Plan.	ENW in agreement; Letter to FERC by Dec. 17th
3	No PM&E proposed	USFS - Fire Protection Plan	ENW in agreement; Letter to FERC by Dec. 17th
4	No PM&E proposed	USFS - Develop the Packwood Lake Recreation Management Plan	ENW in agreement; Letter to FERC by Dec. 17th
5	No PM&E proposed	USFS - Install composting toilet	ENW in agreement; Letter to FERC by Dec. 17th
6	No PM&E proposed	USFS - Provide operations and maintenance of toilet facility.	ENW in agreement; Letter to FERC by Dec. 17th
7	No PM&E proposed	USFS - Provide operation and maintenance of dispersed recreation sites.	ENW in agreement; Letter to FERC by Dec. 17th
8	Establish a road maintenance plan for Pipeline Road (FS Road 1260-066), Pipeline Trail (Trail No. 74), and Latch Road (FS Road 1262 above the gate), in consultation with the USDA Forest Service	USFS - Road Maintenance Plan.	ENW in agreement; Letter to FERC by Dec. 17th
9	Recreation - Continue to provide electricity to the USDA Forest Service guard station	USFS - Continue providing power to guard station.	ENW in agreement; Letter to FERC by Dec. 17th
10	As repairs and maintenance to the intake building are performed, Energy Northwest will consult with the USDA Forest Service on appropriate paint colors and materials to make the building blend in with the surrounding area	USFS - Consult USFS on appropriate paint colors and materials when making repairs and maintenance to project-related structures or facilities so they blend in with surrounding area.	ENW in agreement; Letter to FERC by Dec. 17th
11		USFS - Pipeline, Surge Tank and Penstock Monitoring Plan to protect NFS lands from leakage or failure.	ENW in agreement; Letter to FERC by Dec. 17th
12	Update Noxious Weed Control Plan to reflecting changes in the Lewis County noxious weed list and management guidelines	USFS - Exotic and Invasive Vegetation Management - Develop and implement integrated weed management plan (IWMP).	ENW in agreement; Letter to FERC by Dec. 17th
13	Develop and implement a Rare Plant Management Plan	USFS - Develop a Threatened, Endangered and Sensitive Species Management plan.	ENW in agreement; Letter to FERC by Dec. 17th
14	Historic Properties Management Plan-Already completed and submitted to FERC -Begin implementing the 16 provisions	USFS - Implement the August 30, 2007 Historic Properties Management Plan.	ENW in agreement; Letter to FERC by Dec. 17th
15	Improve fish passage on Snyder Creek where it crosses the tailrace canal by providing an alternative means of passage (replace crossing or reroute stream).	Re-route Snyder Creek from the existing tailrace crossing to the south side channel behind tailrace within five years of license issuance (2015).	ENW in agreement with Agencies proposal
16	Tailrace Fish Barrier - No PM&E proposed. Agreed to Monitoring in BA	Tailrace Fish Barrier - Maintain and monitor effectiveness.	ENW will put in language from the BO into the FLA.
17		LWD and SWD in upper end of lower Lake Creek	ENW agrees in concept and will addressed in Lake Creek hab enhancement
18		Gravel in upper end of lower Lake Creek	ENW agrees in concept and will addressed in Lake Creek hab enhancement
19		Provide greater than 300 cfs flows	Further internal agency consultation needed
20	Increase the frequency of gravel and wood movement in Lake Creek by providing a spill event (approximately 285 cfs for 12 to 24 hours) if inflows allow, and a spill event has not occurred during the previous 2 years.	Provide a spill event of greater than or equal to 285 cfs for 24 hours or as long as lake inflows can sustain that flow. ENW will take the necessary measures to adjust lake elevation and power generation to ensure that the spill event is achieved and maintained for up to 24 hours. The frequency of the spill event will be achieved every other year or 3 out of 6 years. If the frequencies of the spill events cannot be achieved, the agencies will be consulted for an alternate plan.	Tentative agreement based on agency internal review.
21	Supplement stream structures with gravel in recruitment stations. Discuss in Habitat Enhancement Section		
22	Shift the time of the annual maintenance outage to August in order to minimize impacts to spring Chinook salmon by eliminating attraction flows in the tailrace slough and to avoid discharge of naturally warmed Packwood Lake water to the Cowlitz River during peak summer temperatures.	Timing of outage needs to be resolved.	
23	Maintain a minimum lake elevation of 2856.5 feet MSL between May 1 and July 15 to ensure tributary stream connectivity with Packwood Lake for spawning adult rainbow trout.	Lake elevations need to be resolved.	

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24	Change the minimum lake elevation to 2855.5 feet MSL from July 16 to September 15 in order to: (1) initially lower the lake to help limit spill down Lake Creek during the outage and (2) provide water to enhance the flow down Lake Creek in August and September and (3) to provide water for uninterrupted operation that will ensure continuous flows to the tailrace slough following outage	Lake elevations need to be resolved.	
25	From September 16 – April 30 of each year, maintain a minimum lake elevation of 2849.0 ft MSL and no mandatory maximum elevation year-round.	Lake elevations need to be resolved.	
26	Losses to Wetland Form and Function - No PM&E proposed.	Create Habitat for Losses to Wetland Form and Function	
27	Loss of Aquatic Vegetation from reservoir fluctuations - No PM&E proposed.	Create Habitat for Loss of Aquatic Vegetation from reservoir fluctuations	
28	Replace the existing debris screens with better fitting screens		Internal agency review needed
29	Traveling Screens or bypass - No PM&E proposed.		Internal agency review needed
30	Ensure a self sustaining resident trout population in Lake Creek by periodically capturing Packwood Lake trout and releasing them in Lake Creek downstream of the drop structure. Timing and location of fish capture will be planned to ensure that healthy fish will be captured for downstream release. Development of plan will be done in consultation with agencies.	Provide safe, efficient and timely transport for rainbow trout downstream and possibly upstream of dam (will need to review entrainment report prior to determining need for upstream transportation).	Agreement in concept. Revisit after agency review of #29.
31	Ramping and Fluctuation Rates - None proposed.	Ramping and Fluctuation Rates need to be resolved.	
32	Transmission Line - No PM&E proposed.	Transmission Line - Work with agencies on Developing Avian powerline protections and right of way buffers.	
33	Increase the annual minimum bypass flow to Lake Creek to 4 cfs.	Flows that provide no net loss of Weighted Usable Area (WUA) from natural flow conditions (mean monthly).	
34	Increase the minimum bypass flow to 7 cfs during the months of August and September for spring Chinook spawning.	Flows that provide no net loss of Weighted Usable Area (WUA) from natural flow conditions (mean monthly).	
35		Increase the Lake Creek anadromous spawning habitat by installing stream structures to provide for additional gravel retention in Lake Creek (RM 0-1). Gravel will be added to these structures to immediately improve habitat.	