ATTACHMENT 1

Resource Agency Contacts

Agency	Authorized Representatives	Contact Information
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Oregon Department of Environmental Quality	Chris Stine	Oregon Department of Environmental Quality 165 East 7th Ave., Suite 100 Eugene, OR 97401 Phone: (541) 686-7810 Email: stine.chris@deq.state.or.us
Oregon Department of Fish and Wildlife	Dave Harris	Oregon Department of Fish and Wildlife 4192 North Umpqua Hwy. Roseburg, OR 97470 Phone: (541) 440-3353 Email: Dave.A.Harris@state.or.us
Oregon Water Resources Department	Craig Kohanek	Oregon Water Resources Department 725 Summer St. NE, Suite A Salem, OR 97301 Phone: (503) 986-0823 Email: ron.c.kohanek@wrd.state.or.us
PacifiCorp Energy	Todd Olson	PacifiCorp Energy 825 NE Multnomah, Suite 1500 Portland, OR 97232 Phone: (503) 813-6657 Email: Todd.Olson@pacificorp.com
United States Bureau of Land Management	Anne Shirley	USDI Bureau of Land Management 777 NW Garden Valley Blvd Roseburg, OR 97471 Phone: (541) 464-3314 Email: ashirley@blm.gov

United States Fish and Wildlife Service	Jim Thrailkill	USDI Fish and Wildlife Service 2900 NW Stewart Pkwy. Roseburg, OR 97471 Phone: (541) 957-3470 Email: jim_thrailkill@fws.gov
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ATTACHMENT 2

Overview of the North Umpqua River Basin and Associated Facilities

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2.0 OVERVIEW OF THE UMPQUA RIVER BASIN

The North Umpqua Hydroelectric Project is located in south-central Oregon on the west side of the Cascade mountain range in Douglas County, about 60 miles (97 km) east of the city of Roseburg. The Project is located on the North Umpqua River and two of its tributaries, Clearwater River and Fish Creek.

The headwaters of the North Umpqua River are located at an elevation of over 1,830 meters (m) on the western slope of the High Cascade Mountain Range near Maidu Lake. Over 20 percent of the North Umpqua River watershed lies above 1700 m and the river drains about 470 square miles before joining the South Umpqua River west of Roseburg. Both the North and South Umpqua Rivers have a rugged topography with steep canyons and rapid elevation changes, and both have been heavily influenced by volcanic activity. The drainages of the North and South Umpqua Rivers together make up about 2/3 of the greater Basin drainage, and each river is about 170 km long. The mainstem Umpqua River flows in a northwesterly direction another 180 km to the ocean. Together, the three rivers form one of the longest coastal basins in Oregon, approximately 340 km in length, with a drainage area of over 12,200 sq. km. In 1988 the United States Congress designated approximately 33 miles (53 km) of the North Umpqua River as part of the National Wild and Scenic River program.

2.1 PROJECT DESCRIPTION

The North Umpqua Hydroelectric Project was constructed between 1947 and 1956. It consists of a series of dams and canals that divert water to the following eight developments, each of which has a powerhouse and a dam:

- Lemolo No. 1
- Lemolo No. 2
- Clearwater No. 1
- Clearwater No. 2
- Toketee
- Fish Creek
- Slide Creek
- Soda Springs

The project occupies 3,085 acres, including 2,491 acres administered by the US Forest Service (USFS), 128 acres administered by the Bureau of Land Management (BLM), and 466 acres of non-federally-owned land. It encompasses a total waterway length of 37.3 miles (21.7 miles of canal, 9.8 miles of flume, and 5.8 miles of penstock and tunnels). The project includes 117.5 miles of transmission line in seven segments, five of which interconnect project generators and two of which deliver project power to PacifiCorp's bulk transmission grid at the Dixonville substation.

A summary of the project information is provided in Table 2.1-1. Figures 2.1-1 and 2.1-2 provide graphic representations of the project.

Table 2.1-1. Generation and reservoir information for the North Umpqua Project.

Development	Avg. Annual Generation (Mwh)	Reservoir Total Storage (ac-ft)	Reservoir Active Storage (ac-ft)	Normal Full Pool Elv. (feet msl)	Generator Nameplate kW	Turbine
Lemolo No. 1	143,773	11,752 (reservoir) 65 (forebay)	11,079 (reservoir) 46 (forebay)	4,148.5 (reservoir) 4,077.6 (forebay)	31,990	Vertical Francis
Lemolo No. 2	170,815	230.6 (forebay)	159.2 (forebay)	3,184.5 (forebay)	38,500	Vertical Francis
Clearwater No. 1	55,166	30.2 (reservoir) 120.8 (forebay)	100.6 (forebay)	3,875 (reservoir) 3,862 (forebay)	15,000	Vertical Francis
Clearwater No. 2	59,495	70.7 (forebay)	49.5 (forebay)	3,179.5 (forebay)	26,000	Vertical Francis
Toketee	231,876	1,051	491.4	2,430	42,501 (3 units)	Vertical Francis
Fish Creek	55,834	110.3 (forebay)	83.4 (forebay)	3,025.5 (forebay)	11,000	Vertical impulse
Slide Creek	65,370	43	None	1982	18,000	Vertical Francis
Soda Springs	94,246	411.6	307.4	1807	11,000	Vertical Francis
Total	876,575	13,820.2	11,923.1			

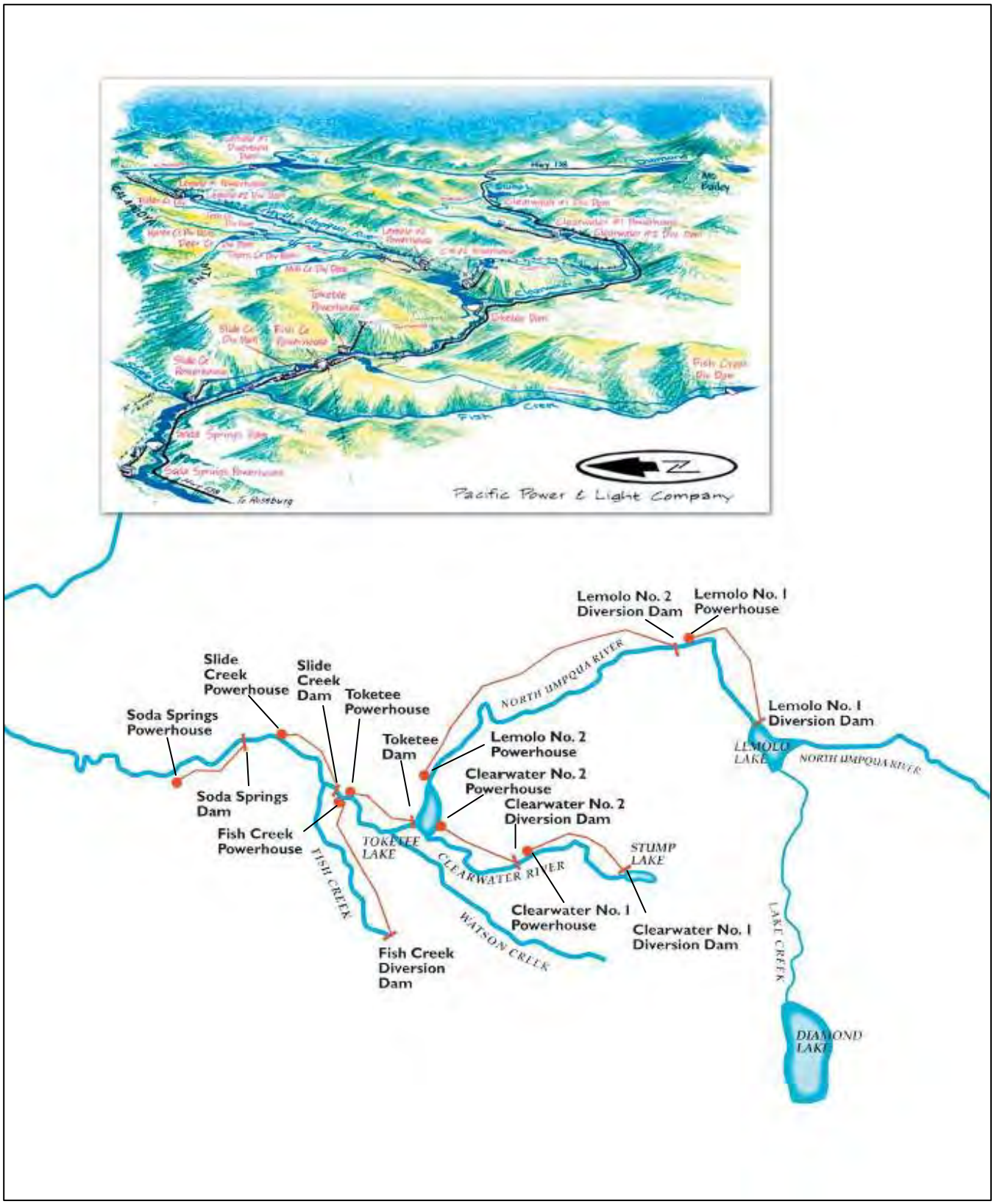


Figure 2.1-1. Map of the North Umpqua Subbasin showing project location

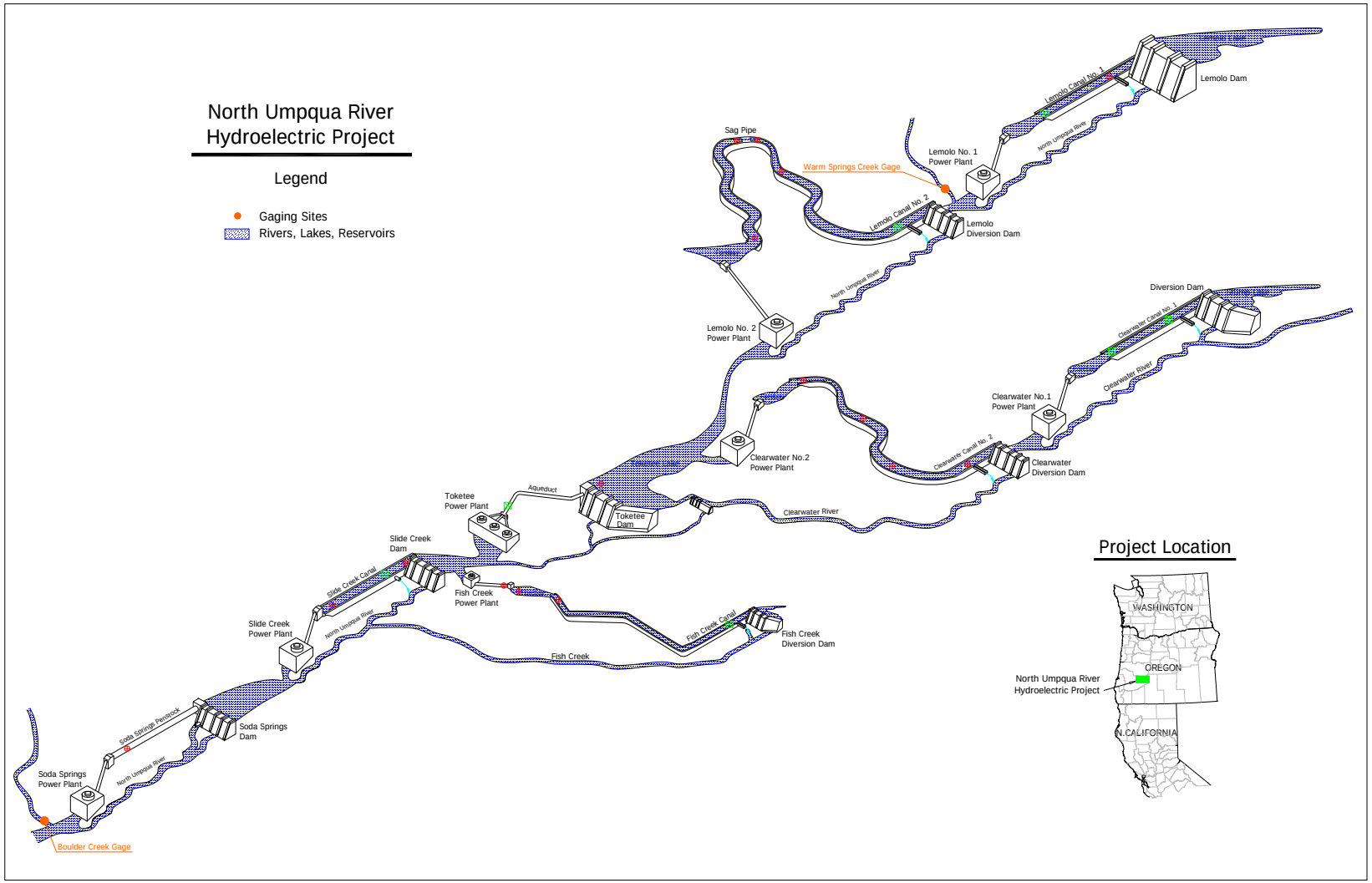


Figure 2.1-2. Map of the North Umpqua Subbasin showing reservoirs and diversions.

2.1.1 Lemolo No. 1 Development

The Lemolo No. 1 Development is the furthest upstream development in the North Umpqua project. Lemolo No. 1 includes a 120-foot-high, 885-foot-long rockfill diversion dam with concrete facing. It has a 33-foot-long gated, ogee-crested spillway section and a 67-foot-long ungated, ogee-crested concrete spillway section equipped with 3-foot-high flashboards. The dam impounds a 419-acre reservoir, known as Lemolo Lake, with a total storage of 11,752 acre-feet. 16,310 feet of gunite lined and concrete canal and flumes extend from the Lemolo dam to the concrete penstock intake and forebay, which has a trashrack and 15.9-foot-wide Taintor gate. The steel penstock is 7,338-feet-long with a diameter ranging from 9.7 to 7.0 feet at the powerhouse. The powerhouse is located on the North Umpqua River at the mouth of Warm Springs Creek, 4.5 miles downstream of the dam at Lemolo Lake. The reinforced concrete powerhouse contains a single vertical shaft Francis-type turbine-generator with a rated capacity of 31,900 kilowatts (kW). Storage in Lemolo Lake is used to control floods, increase power generation when demand is high in the late fall, and augment flows in the river downstream of the eight developments.

2.1.2 Lemolo No. 2 Development

The Lemolo No. 2 diversion dam is approximately 190 feet downstream of the Lemolo No. 1 powerhouse. This concrete gravity dam is 350-feet long, 25-feet-high and is un-gated and ogee-crested with flashboards. It impounds a 1.4-acre pond with no active reservoir storage. Water is drawn through a concrete intake structure equipped with fish screens, fish bypass, trashrack, Taintor gate and side channel spillway. The 69,503 feet of canal and flumes (Figure 2.2-3) extend from the diversion dam to a 24.2-acre earthen forebay. The forebay has a total maximum storage capacity of 230.6 acre-feet. A 3,975-foot-long steel penstock with diameter ranging from 10.5 to 7.3 feet leads to the powerhouse. The reinforced concrete powerhouse contains a single vertical shaft Francis-type turbine-generator with a rated capacity of 38,500 kW. The Lemolo No. 2 powerhouse is approximately 3,500 feet upstream of Toketee Lake (Figure 2.2-2). A new facility was constructed in 2011 to reroute outflow from the Lemolo No. 2 powerhouse to Toketee Lake to improve water quality and eliminate ramping of the North Umpqua River.

2.1.3 Clearwater No. 1 Development

The Clearwater No. 1 Development is the uppermost development on the Clearwater River, which has its confluence with the North Umpqua River near the Toketee dam. The Clearwater No. 1 diversion dam is located approximately 8.1 miles upstream of Toketee Lake. An earthfill dam, the Clearwater No. 1 dam is 17-feet-high, 1,426-feert-long and includes a 102-foot-long, un-gated concrete spillway with flashboards. It impounds 11.8-acre Stump Lake, which has a maximum storage capacity of 30.2 acre-feet. The accompanying concrete intake structure is equipped with a trashrack, timber gate and side channel spillway. The 13,037 miles of canal and flumes extend from Stump Lake dam to a 16.3-acre clay-lined excavated forebay and gated concrete intake structure. The forebay has a total maximum storage capacity of 120.8 acre-feet. A 4,863-foot-long penstock with diameter ranging from 6.7 to 5.0 feet leads to the powerhouse. The reinforced concrete powerhouse contains a single vertical shaft Francis-type turbine-

generator with a rated capacity of 15,000 kW. The powerhouse discharges directly into the Clearwater No. 2 diversion.

2.1.4 Clearwater No. 2 Development

Located 140 feet downstream from the Clearwater No. 1 powerhouse on the Clearwater River, the Clearwater No. 2 Development diversion dam is an 18-foot-high, 157-foot-long structure. The Clearwater No. 2 dam is made out of concrete and contains a concrete spillway section and an intake with a trashrack. The dam impounds a 1.2-acre settling pond with no active storage. The 31,235 feet of canal and flumes extend from the diversion dam to an 8.6-acre clay-lined excavated forebay and gated intake structure. The forebay has a total maximum storage capacity of 70.7 acre-feet. A 1,169-foot-long steel penstock with diameter ranging from 7.2 to 6.3 feet carries water to the powerhouse (Figure 2.2-2). The reinforced concrete powerhouse is located on the North Umpqua River at Toketee Lake. It contains a single vertical shaft Francis-type turbine-generator with a rated capacity of 26,000 kW.

2.1.5 Toketee Development

The Toketee Development, located at the confluence of the Clearwater and North Umpqua Rivers, includes a 58-foot-high 1,381 earthfill embankment dam on the North Umpqua River. The dam has a 310-foot-long concrete spillway section and it impounds a 96.9-acre reservoir known as Toketee Lake (Figure 2.2-2). The reservoir has a total maximum storage capacity of 1,051 acre-feet. The trash rack at the intake was modified in 2010 to prevent entrainment of resident trout larger than five inches. The 6,994 feet of wood-stave pipe and concrete-lined and unlined tunnel extend from Toketee dam to the penstock. The penstock consists of a 1,067-foot-long steel conduit that splits into three approximately 158-footlong sections near its downstream end. The powerhouse contains three equal sized, vertical shaft Francis-type turbine-generators that have a combined installed capacity of 42,500 kW. The powerhouse is located on the North Umpqua River approximately two miles downstream of Toketee Lake, which serves as the forebay for the development and provides active storage to regulate flow through the powerhouse.

2.1.6 Fish Creek Development

The Fish Creek Development diversion dam is located on Fish Creek, approximately 6 miles upstream of the creek's confluence with the North Umpqua River. The 6.5-foot-high, 133-foot-long concrete dam includes a 30-foot-long, ogee spillway section, a fishway and sluiceway. New fish screens were installed on the diversion in 2008 and improvements were made in 2012. The dam impounds a 3-acre settling pond with no active storage. The 25,662 feet of canal and flumes extend from the diversion dam to a 9.3-acre clay-lined excavated forebay and gated intake structure. The forebay has a maximum total storage capacity of 110.3 acre-feet and is used to reregulate water from off-peak to peak demand periods. A 2,358-foot-long steel penstock with diameter ranging from 4.5 to 3 feet carries water to the powerhouse. The reinforced concrete powerhouse contains a single vertical shaft impulse-type turbine-generator set with a rated capacity of 11,000 kW. The Fish Creek powerhouse is located on the North Umpqua River between the Toketee powerhouse and the Slide Creek diversion dam.

2.1.7 Slide Creek Development

The Slide Creek Development includes a diversion dam located on the North Umpqua 900 feet downstream of the Toketee powerhouse. The 30-foot-high, 183-foot-long concrete dam includes a 72 –foot-long, gated concrete ogee spillway section and a gated, concrete intake structure with trashrack. The dam impounds a 2-acre reservoir with a maximum total storage capacity of 43 acre-feet. The 9,653 feet of canal and flumes extend from the dam to a concrete penstock intake structure that includes trashracks and a Taintor gate. The steel penstock that carriers the water to the powerhouse is 374-foot-long and 12 feet in diameter. The reinforced concrete powerhouse contains a single vertical shaft Francis-type turbine-generator with a rated capacity of 18,000 kW. The powerhouse is located on the North Umpqua 1.3 miles upstream of Soda Springs dam (Figure 2.2-1). A new tailrace barrier was installed at the Slide Creek powerhouse in 2011 to prevent false attraction, delay and use of the tailrace by anadromous fish.

2.1.8 Soda Springs Development

The Soda Springs Development includes a diversion dam located on the North Umpqua River about 1.3 miles downstream of the Slide Creek powerhouse. The 309-foot-long, 77-foot-high concrete arch dam includes a 72-foot-long, gated, concrete ogee spillway section. New fish passage facilities (fish ladder and screens) were installed on the Soda Springs Dam in 2012. It impounds a 31.5-acre reservoir with a total maximum storage capacity of 411.6 acre-feet. A 2,112-foot-long steel pipe extends from the intake at the diversion dam to an 82-foot-high, 30-foot-diameter surge tank. A 168-foot-long, 12-foot-diameter steel penstock extends from the surge tank to a reinforced concrete powerhouse. The powerhouse has a single vertical shaft Francis-type turbine-generator set with a rated capacity of 11,000 kW. The storage capacity of the Soda Springs reservoir is used to ensure a minimum flow in the North Umpqua downstream of the development.

2.2 PROJECT PHOTOGRAPHS

Representative photographs of the North Umpqua project are included below. They include the Soda Springs dam, the Clearwater No. 2 penstock, the Lemolo No. 2 Canal, the Lemolo No. 2 pipeline to Toketee Lake, and the Slide Creek powerhouse with tailrace barrier (Figures 2.2-1 – 2.2-5).

Figure 2.2-1 Soda Springs dam and fish passage facilities.

Figure 2.2-2 Clearwater No. 2 penstock and Toketee Lake

Figure 2.2-3 Lemolo No. 2 Canal

Figure 2.2-4 Lemolo No. 2 pipeline to Toketee Lake (inlet structure on left; outlet structure on right).

Figure 2.2-5 Slide Creek Powerhouse with tailrace barrier.

2.3 PROJECT OPERATIONS

Scheduling of power resources is coordinated daily based on factors such as reservoir storage, snow and groundwater conditions, system load, availability of other resources, and streamflow requirements. Adjustments to this schedule occur as load and resource conditions dictate.

Daily inflows to the North Umpqua River system are used by the hydroelectric project to meet the generation system requirements while maintaining project minimum flows, reservoir levels, and storage requirements.

The project operates in a peaking mode, generating more electricity during high demand periods, typically from 6 A.M. to 10 P.M. Storage capacity is used at each of the reservoirs and forebays for this purpose, but relatively little storage is available at the developments, with the exception of Lemolo Lake, which is the primary source of water storage for shaping flows to daily peaking operations for downstream developments. Clearwater Nos. 1 and 2 and Lemolo No. 2 developments usually are operated on a continuous basis because of the limited storage capacity in these developments. The Lemolo No. 1 development is also operated continuously although at very low generating levels during non-peak times. The Soda Springs Development is used for reregulation of flows from upstream developments and is operated to release a baseflow based on ambient watershed runoff estimates and the goal of maintaining a relatively stable flow to the North Umpqua River downstream of the Soda Springs powerhouse.

2.4 TRANSMISSION FACILITIES

The North Umpqua transmission system includes 117.5 miles of transmission lines and three switching stations. Power from the North Umpqua Project is transferred to the regional electrical grid at the Dixonville substation near Roseburg, Oregon. Lines 39, 42, and 46 provide a 115-kV loop configuration that interconnects the switching stations located at the Toketee and Clearwater developments with substations at Soda Springs and in Dixonville, Oregon.

Line 39 begins at the Toketee switching station and is 49.1 miles long. Line 46 begins at the Soda Springs switching station and is 42.5 miles long. They both generally follow the North Umpqua River in a westerly direction to the Dixonville substation. Line 39 also provides power to the Glide substation. Line 42 connects the Soda Springs substation and Toketee switching station with radial collector lines 42-1 and 42-2 from the Slide Creek and Fish Creek powerhouse, respectively. In addition to being a collector transmission line for lower project developments, Line 42 is used as a link for power transmission from all the power plants to Dixonville in the event that Line 39 or 46 falls.

All transmission lines associated with the project use predominantly wood pole "H" frame structures. These are generally two pole wood "H" frames with some three pole wood "H" frames at angles and dead-ends.

The project includes the Toketee and Clearwater switching stations and a substation at Soda Springs. The structures at all of the substations are lattice type painted or galvanized steel. The Toketee switching station is a major collection point on the loop transmission system that

consists of Lines 39, 42, and 46. The switch yard is located in a small fenced area above the powerhouse and contains a 115-kV single bus and two circuit breakers for isolating Lines 39 and 42. Line 51 is connected to the common bus through a manual disconnect switch.

The Clearwater switching station, located near the Toketee Ranger Station in a 0.75-acre fenced yard, is the terminus of the collector transmission lines from the upper project developments (i.e., Lemolo No. 1, Lemolo No. 2, Clearwater No. 1, and Clearwater No. 2). Lines 53, 55, 57, and 55-1 are radial collector lines from Lemolo No. 1, Lemolo No. 2, Clearwater No. 1, and Clearwater No. 2, respectively. Line 51 transmits all the power that arrives at the Clearwater switching station on to the one at Toketee. The station consists of two 115-kV single buses and four circuit breakers. The Soda Springs substation separates the Line 42 collector transmission line for the lower project developments from Line 46. The Soda Springs substation consists of a 115-kV single bus with one circuit breaker. The substation is located west of and adjacent to the Soda Springs powerhouse.

ATTACHMENT 3

A. Flows

A.1 Yes. PacifiCorp's North Umpqua project is in compliance with resource agency recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection for all reaches. Resource agency recommendations regarding flow conditions are contained in Section 5 of the North Umpqua Settlement Agreement adopted by the Federal Energy Regulatory Commission (FERC) in the license issued November 18, 2003 (final on October 18, 2005) and the Section 401 Water Quality Certification (WQC) issued on June 28, 2002, as modified by a letter from Oregon Department of Environmental Quality (ODEQ) dated June 6, 2005.

The Section 401 WQC as modified is included as Attachment 3a to this application. The Settlement Agreement with current amendments is available on PacifiCorp's website (http://www.pacificorp.com/es/hydro/hl/nur.html; select the "Settlement Agreement Documents" link to access the documents). The FERC license is available on PacifiCorp's website (http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Hydro/Hydro_Licensing/License_Implementation/North_Umpqua_Project_License.pdf). A summary of the requirements for flow conditions contained in these documents follows.

Flow releases

The FERC project license and the Section 401 WQC specify minimum in-stream flows for the first seven years of the project license and modified minimum flows following the construction of anadromous fish passage facilities in 2012 (Table 1). Minor discrepancies between the Settlement Agreement and the Section 401 WQC minimum flow amounts were reconciled by a modification to the WQC approved by the Oregon Department of Environmental Quality (ODEQ) in a letter dated June 6, 2005 (see Attachment 3a).

Table 1.

Current Instream Flow Requirements (cubic feet per second)									
	Lemolo1	Lemolo 2	Clear-water 1	Clear-water 2	Toketee	Fish Creek	Slide Creek	Soda Springs	Deer Creek
Jan	50	50	40	40	60	130	240	275	all*
Feb	50	50	40	40	60	130	240	275	all*
Mar	50	50	40	40	60	130	240	275	all*
Apr	60	60	60	60	60	130	240	275	all*
May	70	70	60	60	60	130*	240*	275	all*
Jun	80	70	60	60	80	130*	240*	275	all*
Jul	80	80	40	40	80	130*	240*	275	all*
Aug	80	80	40	40	80	130*	240*	275	all*
Sep	80	80	40	40	80	130*	240*	275	all*
Oct	80	80	40	40	80	130	240	275	all*
Nov	50	50	40	40	60	130	240	275	all*
Dec	50	50	40	40	60	130	240	275	all*

*required by 401 WQC Temperature Management Plan, as revised by ODEQ 6/6/05.

Section 5.7 of the Settlement Agreement affirms that the specified flow releases will be sufficient to operate the existing and planned fish passage facilities:

> *In-stream flows contained in Appendix C, Tables 1 and 2 for Soda Springs, Fish Creek, and Lemolo 2 bypass reaches include flows necessary for proper operation and maintenance of fish passage facilities at the respective dams. No additional in-stream flows shall be required for these purposes.*

Ramping rates

Per Section 6 of the Settlement Agreement, which outlines ramping rate restrictions for the project, PacifiCorp has constructed new facilities to eliminate ramping in the eight bypass reaches, except for during planned maintenance and emergency shutdowns. PacifiCorp is meeting goals for minimizing impacts during maintenance and emergency shutdowns by scheduling maintenance work at times of the year preferred by the resource agencies, limiting flow fluctuations to the extent possible during emergency situations, upgrading the Soda Springs powerhouse emergency bypass valve (2004), and implementing other measures specified in Section 6 of the Settlement Agreement.

For example, in the designated Wild and Scenic River reach of the North Umpqua downstream of Soda Springs, PacifiCorp is limiting fluctuations to 5 percent or less variation in base flow when flow levels are less than 1600 cfs. When flows are greater than 1600 cfs, and up to a point where natural flow results in spilling at Soda Springs Dam, PacifiCorp is limiting ramping in the Wild and Scenic River reach to 0.1 foot per hour and 0.5 foot per day.

To prevent impacts in sensitive riverine habitats, PacifiCorp has rerouted the peaking flows from Lemolo 2 powerhouse out of the Lemolo 2 full-flow reach and thereby eliminated ramping in the full-flow reach. Per Section 6.1 of the Settlement Agreement, this improvement was implemented in 2011.

Flow monitoring

Article 403 of the project license requires PacifiCorp to prepare a Flow Monitoring Plan to ensure compliance with the 401 WQC. PacifiCorp also committed to monitor in-stream flow conditions in Section 5.5 of the Settlement Agreement. In 2004, PacifiCorp developed a Flow Monitoring Plan specifying gage installation and data reporting requirements. The Plan was approved by US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NOAA Fisheries), US Forest Service (USFS), Oregon Department of Fish and Wildlife (ODFW), ODEQ, Oregon Water Resources Department (OWRD), and FERC. Based on mutual agreement of the parties, the Flow Monitoring Plan was revised in 2007 and approved by FERC on June 4, 2008. The Flow Monitoring Plan is available on PacifiCorp's website (http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Hydro/Hydro_Licensing/North_Umpqua_River/Flow_Monitoring_Plan.pdf).

The Flow Monitoring Plan provides for both annual reports and real-time event reporting. Event reporting is rapid reporting of events of specified thresholds, the purpose of which is to alert

agencies of events capable of causing resource damage as quickly as possible so that they can respond if necessary. These event reports are based on provisional data, and do not necessarily equate to a lack of compliance or FERC violation. Annual reporting provides an analysis of the official flow records by water year. Flow monitoring data is provided to OWRD, ODEQ, and USFS annually in accordance with the Flow Monitoring Plan. Reports typically require 2 years for USGS to verify all the data from the 18 gaging stations involved, and another couple months for PacifiCorp to complete its analysis of any flow events that deviate from minimum flow or ramping rate thresholds. The most recent flow monitoring report was filed with the ODEQ, OWRD, and USFS in 2013 and contains analysis for WY 2011.

Since the inception of the revised Flow Monitoring Plan in 2007, minimum flows have been met. Variations to 401 WQC flows were either small in magnitude or short in duration or were caused by planned maintenance, natural events, equipment failure, or emergency shutdowns. Naturally low flows in Fish Creek, however, regularly drop to less than the required flow even after PacifiCorp ceases diversion, which is a condition anticipated and recognized by resource agencies. Deviations from flow limits have been discussed with the agencies and none have been considered to be material violations of the flow requirements.

During the past three years, only one event has been significant enough to trigger real-time event reporting to agencies - a flow drop in Soda Springs bypass reach on September 16, 2014 stemming from equipment malfunctions during a special flow change to perform maintenance on the new fish ladder Attraction Water Supply system. The flow was corrected within 30 minutes and the event was reported to the ODFW, ODEQ, OWRD, and USFS within two hours. The event was discussed at length during the October 18, 2014 Resource Coordination Committee (RCC) meeting. The RCC recognized PacifiCorp's diligence in investigating and correcting the causes of this event and there were no resulting penalties or formal letters of violation.

The annual reports developed by PacifiCorp in consultation with the Resource Coordination Committee, which includes representatives from the four federal and three state resource agencies that signed the Settlement Agreement, conclude that the Project is meeting the protection, mitigation, and enhancement recommendations regarding flow conditions. The annual reports are available on PacifiCorp's website (http://www.pacificorp.com/es/hydro/hl/nur.html; select the "Resource Coordination Committee" link, then select the "Annual Reports" tab to access the annual reports). Improvements in gaging systems, flow control systems, and rating stability (as the period of record grows) are expected to further improve this record in the future.

ATTACHMENT 3a

APPENDIX A

Clean Water Act § 401 Certification Conditions
for the
PacifiCorp
North Umpqua Hydroelectric Project
(FERC No. 1927)
North Umpqua Subbasin,
Douglas County, Oregon

[issued June 28, 2002]

Upon Federal Energy Regulatory Commission (FERC) issuance of a new license for the Project, PacifiCorp shall comply with the following § 401 Certification conditions:

1. Temperature

a. PacifiCorp shall implement the surface water temperature management plan (TMP) approved by the Oregon Department of Environmental Quality (ODEQ) in conjunction with this § 401 Certification (Certification) and attached as Exhibit A. In accordance with OAR 340-041-0026(3)(a)(D), the TMP identifies those measures that PacifiCorp will undertake to reduce the Project's contribution to exceedances of instream water quality criteria for temperature.

b. PacifiCorp shall implement the Stream Temperature Monitoring Plan (STMP) approved by ODEQ in conjunction with this Certification and attached as Exhibit B. The STMP specifies the instream temperature monitoring reasonably needed to determine (a) whether the temperature criteria continue to be exceeded in waters of the North Umpqua Subbasin affected by the Project, (b) the success of the TMP in reducing the Project's contribution to any continued exceedances of the criteria, and (c) any additional measures that may be needed to reduce the Project's contribution to exceedances of the criteria.

c. Upon the U.S. Environmental Protection Agency's (EPA) final approval of a Total Maximum Daily Load (TMDL) for temperature in waters of the North Umpqua Subbasin affected by the Project (or upon any modification to the TMDL that applies to those waters), ODEQ:

(1) Will seek to require, in conjunction with designated management agencies and in accordance with applicable law, other anthropogenic sources within the North Umpqua Subbasin to implement measures to reduce their contributions to exceedances of the temperature criteria; and

(2) May reevaluate PacifiCorp's TMP in light of information acquired since the certification of the Project. If revised temperature reduction measures are feasible and necessary to meet an allocation for the Project under the approved TMDL (or under any modification to the TMDL approved by EPA), ODEQ may modify the TMP to require the revised measures, subject to the limits set forth in Exhibit C attached to this Certification. If the TMDL does not include a specific allocation for the Project, references to the "allocation for the Project" shall refer to the allocation that encompasses Project-related thermal contributions to waters in the North Umpqua Subbasin.

d. At the end of the period determined by ODEQ to be necessary to implement the TMDL for temperature in waters of the North Umpqua Subbasin affected by the Project, ODEQ may:

(1) Determine whether the TMDL and allocations for the Project have been achieved.

(2) If the TMDL and allocations for the Project have been achieved, PacifiCorp shall continue to implement its TMP unless, at PacifiCorp's request, ODEQ approves a modification or termination of the TMP.

(3) If the TMDL or an allocation for the Project has not been achieved, ODEQ may reevaluate PacifiCorp's TMP to determine whether additional measures to reduce the Project's contribution to exceedances of the temperature criteria are necessary and feasible. If additional measures are necessary and feasible, ODEQ may modify the TMP to require the additional measures, subject to the limits set forth in Exhibit C. Any modification of the TMP that would require the Project to reduce instream temperatures beyond what would be required by the allocation for the Project shall be effective only upon modification of the allocation to reflect the reductions.

(4) If (i) additional measures to reduce the Project's contribution to exceedances of the temperature criteria are necessary to achieve the TMDL, but the measures are not feasible, and (ii) the TMDL has not been achieved for waters affected by the Project, ODEQ shall verify whether all feasible measures have been undertaken within the North Umpqua River Subbasin to achieve the TMDL for waters affected by the Project.

(5) If all feasible measures have not been undertaken, DEQ, in conjunction with designated management agencies, shall take steps to ensure that all feasible measures are undertaken.

(6) If all feasible measures have been undertaken, ODEQ shall determine whether designated beneficial uses of waters affected by the Project are adversely affected by the failure to achieve the TMDL.

(7) If the designated beneficial uses are not adversely affected by the failure to achieve the TMDL, PacifiCorp shall continue to implement its TMP unless, at PacifiCorp's request, ODEQ approves modification or termination of the TMP.

(8) If the designated beneficial uses are adversely affected by the failure to achieve the TMDL, ODEQ may modify the TMP to require additional temperature reduction measures, subject to the limits set forth in Exhibit C. Any modification of the TMP that would require the Project to reduce instream temperatures beyond what would be required by the allocation for the Project shall be effective only upon modification of the allocation to reflect the reductions.

e. ODEQ may make reasonable and feasible modifications to the STMP if:

(1) The STMP set forth in Exhibit B proves inadequate to provide the data needed to make determinations described in Paragraph 1.b., or

(2) Modifications to the TMP require modifications to the STMP .

PacifiCorp shall implement modifications to the TMP and STMP made or required by ODEQ in accordance with this certification condition and Exhibits A–C. With the written approval of ODEQ, PacifiCorp may cease implementing the TMP or STMP or may implement a modified TMP or STMP. ODEQ may approve cessation or modification if ODEQ determines that it will not impair the achievement of any TMDL or allocation for the Project for temperature and will not contribute to an exceedance of the applicable temperature criteria in waters affected by the Project.

f. PacifiCorp shall install a fish screen at the Fish Creek Diversion intake in accordance with Section 4.3.2 of the North Umpqua Hydroelectric Settlement Agreement among PacifiCorp, ODEQ, and other state and federal agencies dated June 13, 2001 (North Umpqua Settlement Agreement).

g. PacifiCorp shall conduct scheduled maintenance in accordance with the North Umpqua Settlement Agreement Section 6.6.

2. Hydrogen Ion Concentration (pH)

a. Lemolo No. 2 Full-flow Reach.

To address pH criteria exceedances in the Lemolo No. 2 full-flow reach in the North Umpqua River below the Lemolo No. 2 powerhouse, PacifiCorp shall reroute the Lemolo No. 2 powerhouse discharge to Toketee Reservoir in accordance with the North Umpqua Settlement Agreement Section 5.4.

b. Project Maintenance.

PacifiCorp shall conduct scheduled powerhouse maintenance in accordance with the North Umpqua Settlement Agreement Section 6.6. PacifiCorp shall conduct any ramping associated with Project maintenance in accordance with the requirements of the North Umpqua Settlement Agreement Section 6.6.

c. Lemolo No. 1 Forebay.

(1) When the forebay is expanded as set forth in the North Umpqua Settlement Agreement Section 11.5, PacifiCorp shall design the forebay to allow mechanical removal of macrophyte growth without compromising the forebay's liner integrity.

(2) If aquatic plant growth in the forebay causes a pH criteria exceedance, PacifiCorp shall, at ODEQ's request, develop and submit for ODEQ's approval a plan and schedule to dredge the forebay or to take other measures to address the pH criteria exceedance. Upon ODEQ's approval, PacifiCorp shall implement the plan in accordance with the schedule contained in the plan.

d. Monitoring

Monitoring is required as follows. ODEQ may waive or change the monitoring requirements at the request of PacifiCorp, or ODEQ may change the requirements on its own initiative if the revised requirements are feasible and reasonably necessary to determine whether and to what extent PacifiCorp contributes to an exceedance of applicable pH criteria in waters affected by the Project:

(1) Monitoring Below Soda Springs Powerhouse.

PacifiCorp shall monitor pH on an hourly basis at the permanent monitoring station located below Soda Springs Powerhouse (BLDG), or at another ODEQ-approved location in the North Umpqua River below the Project. PacifiCorp shall report data to ODEQ by December 31 for the preceding water year (October 1 to September 30). If data capture is less than 90 % on a water year basis or less than 95% during the months of June through September, except due to factors beyond the reasonable control of the operator or PacifiCorp, PacifiCorp shall install and operate a redundant pH monitor at BLDG (or at another ODEQ-approved location) for subsequent years of the new FERC License until PacifiCorp can demonstrate to ODEQ that one pH monitor is sufficient to reliably meet minimum data collection requirements.

(2) Lemolo No. 1 Forebay.

Following the expansion of the forebay as set forth in the North Umpqua Settlement Agreement Section 11.5, PacifiCorp shall monitor forebay pH in August by making at least one measurement between 1200 and 1800 hours 3 times per week and include a 24-hour diel sampling in August at the forebay inlet and the Lemolo No. 1 Powerhouse tailrace. PacifiCorp shall monitor annually the first and second year after the forebay expansion is completed, and every five years through the remaining term of the new FERC License. This monitoring requirement may be reviewed after the second year of monitoring and may be discontinued or modified with the approval of ODEQ. PacifiCorp shall report monitoring results to ODEQ by December 31 in years when monitoring occurs.

(3) Lemolo No. 2, Fish Creek, and Clearwater No. 1 Powerhouse Tailraces

PacifiCorp shall monitor pH at LEM2P, FISHP, and CLR1P at the completion of annual maintenance for 30 hours, starting 6 hours before generator restart and continuing until 24 hours after restart. Monitoring is to occur in the first year the maintenance schedule in the North Umpqua Settlement Agreement Section 6.6 is in effect. PacifiCorp shall report monitoring data to ODEQ by December 31. These monitoring requirements may be reviewed after the second year of monitoring and may be discontinued or modified with the approval of ODEQ.

3. Biological Criteria, and Protection of Beneficial Uses of Anadromous Fish Passage, Salmonid Spawning, Salmonid Rearing, and Resident Fish & Aquatic Life Under Other Appropriate Laws

a. Minimum Instream Flows

PacifiCorp shall provide in-stream flow in accordance with the North Umpqua Settlement Agreement Sections 5 and 10.4.

b. Flow Measurement and Reporting

(1) PacifiCorp shall develop a coordinated gauge installation and data reporting plan in accordance with the North Umpqua Settlement Agreement Section 5.5. PacifiCorp shall install and maintain gauge stations as established by the approved gauge installation and data reporting plan.

(2) By December 31 of each year, PacifiCorp shall submit to the ODEQ-Western Region an annual report with average hourly flows passed and diverted at the Project developments for the previous water year (October 1 to September 30).

c. Fish Passage Facilities

PacifiCorp shall implement fish passage measures in accordance with the North Umpqua Settlement Agreement Section 4.

d. Ramping

PacifiCorp shall implement ramping restrictions and measures in accordance with the North Umpqua Settlement Agreement Section 6.

e. Fluvial Geomorphic Processes

PacifiCorp shall implement fiuvial geomorphic restoration measures in accordance with the North Umpqua Settlement Agreement Section 7.

f. Anadromous Fish Spawning Habitat Improvements

PacifiCorp shall implement measures to restore, create, and enhance spawning habitat in accordance with the North Umpqua Settlement Agreement Section 8.1.

g. Lemolo Reservoir Rule Curve

PacifiCorp shall manage the drawdown and reservoir operating level in accordance with the North Umpqua Settlement Agreement Sections 9.3 and 9.4.

h. Reconnecting Aquatic Sites

(1) PacifiCorp shall implement aquatic connectivity measures in accordance with the North Umpqua Settlement Agreement Sections 10.1, 10.2, 10.3, 10.6, and 15.6.

(2) PacifiCorp shall breach or alter diversions for Helen, Spotted Owl, Karen, Thorn, Potter, Deer, White Mule, and Mill Creeks in accordance with the North Umpqua Settlement Agreement Section 10.4.

i. Notification of Erosive Events

PacifiCorp shall notify Oregon Emergency Response System (1-800-452-0311) of erosive events and coordinate remedial measures in accordance with the North Umpqua Settlement Agreement Sections 14.3.2 and 14.3.3.

j. Water Quality Monitoring

PacifiCorp shall fund, operate, and maintain a permanent water quality monitoring station below Soda Springs powerhouse (BLDG). Data will be collected under an ODEQ-approved QA/QC plan, and compilations of data for the water year (October 1–September 30) will be provided electronically to ODEQ by December 31, or as soon as the data can be reasonably verified, whichever is later, in a format approved by ODEQ.

The initial parameters to be monitored at this station are specified elsewhere in this Certification. These parameters may be modified from time to time by ODEQ to reflect new regulations or adverse water quality trends in the North Umpqua River that ODEQ reasonably believes to be caused by the Project. The required detection limits in the QA/QC plan may be modified from time to time by ODEQ to reflect feasible new technology. PacifiCorp will have a minimum of six months after ODEQ

notice of new or changed monitoring requirements to implement the modifications. The QA/QC plan shall be developed within 6 months of the new FERC license.

4. Aesthetic Conditions, Turbidity, and Sediment

a. PacifiCorp shall implement fluvial geomorphic process restoration measures in accordance with the North Umpqua Settlement Agreement Section 7.

b. PacifiCorp shall implement Project bypass ramping restrictions and maintenance measures in accordance with the North Umpqua Settlement Agreement Sections 6.5 and 6.6, respectively.

c. PacifiCorp shall install and maintain gauge stations in accordance with the North Umpqua Settlement Agreement Section 5.5.

d. PacifiCorp shall undertake Project maintenance in accordance with the North Umpqua Settlement Agreement Section 6.6.b.

e. PacifiCorp shall implement erosion and sediment control measures in accordance with the North Umpqua Settlement Agreement Sections 10.6, 12.1, and 14.

f. PacifiCorp shall implement transportation management measures in accordance with the North Umpqua Settlement Agreement Sections 15.1 for bridge maintenance, 15.4 for erosion control and abatement, and 15.6 for fishery improvement or erosion control.

g. PacifiCorp, when conducting ground-disturbing activities greater than one acre, shall comply with applicable provisions of ODEQ's NPDES stormwater permitting program. If the permit program ceases, PacifiCorp shall provide ODEQ with 60 days' written notice and obtain ODEQ approval in advance of ground-disturbing activities greater than one acre, and PacifiCorp shall use Best Management Practices (BMPs) to protect surface water from trace-metals and other toxic constituents, sediment, and turbidity.

h. PacifiCorp shall provide 60 days' written notice and obtain ODEQ approval of dredging or removal of sediments from Project impoundments. PacifiCorp shall employ BMPs to protect surface water from trace-metals and other toxic constituents, sediment, and turbidity.

i. PacifiCorp shall monitor turbidity hourly below the Project at BLDG or another ODEQ-approved location for the duration of the new FERC license unless otherwise

modified by agreement with ODEQ. PacifiCorp shall prepare a QA/QC plan for ODEQ approval within 6 months of the new FERC license that includes equipment reliability or redundancy to accomplish a 90% or better data capture on a water-year basis. Data loss due to reasons beyond the reasonable control of PacifiCorp or the operator will not be included in determining percent data capture.

j. PacifiCorp shall manage Lemolo Reservoir levels in accordance with the North Umpqua Settlement Agreement Section 9.3. Erosion and sediment transport into Lemolo Reservoir will be evaluated through the Erosion Control Plan in accordance with the North Umpqua Settlement Agreement Section 14.

5. Bacteria and Bacteria Pollution

a. PacifiCorp shall verify the proper operation of on-site sewage systems by observing leach fields for signs of surfacing sewage at the time of removal of accumulated sludge from the septic tank at each on-site system.

b. PacifiCorp shall maintain written records of the on-site system septic tank pumping and of any visual observations of the operation and function of the leach field and other parts of the on-site system at the time of pumping.

6. Dissolved Oxygen (DO)

a. Maintenance

PacifiCorp shall schedule powerhouse maintenance in accordance with the North Umpqua Settlement Agreement Section 6.6.

b. Lemolo No. 2 Full-Flow Reach.

During the first year after the Lemolo No. 2 powerhouse flow is rerouted as set forth in the North Umpqua Settlement Agreement Section 5.4, PacifiCorp shall monitor DO at LEM2FF hourly for a minimum of 72 consecutive hours once between July 15 and August 15. PacifiCorp shall report monitoring data to ODEQ by December 31.

c. Bypass Reaches

PacifiCorp shall monitor DO levels for a minimum of 72 consecutive hours in each bypass reach once during the first July in which the minimum flows set forth in Appendix C, Table 1, of the North Umpqua Settlement Agreement are required. PacifiCorp shall propose sampling locations for ODEQ approval. PacifiCorp shall

report data to ODEQ by December 31 of that year. If the DO levels do not meet the applicable DO criterion in any bypass reach, DEQ may require PacifiCorp to undertake additional DO monitoring in that reach that is reasonably necessary to determine the extent of the DO criterion exceedance, and the Project's contribution to the exceedance.

d. North Umpqua River Below Soda Springs Powerhouse.

PacifiCorp shall monitor DO hourly at BLDG upon issuance of the new FERC License. The minimum acceptable data capture is 95% valid data. Data loss due to reasons beyond the reasonable control of PacifiCorp or the operator will not be included in determining percent data capture.

e. PacifiCorp shall report data to ODEQ by December 31 for the previous water year.

7. Habitat and Flow Modification; Deleterious Conditions; Taste and Odor

a. Potter Creek.

PacifiCorp shall breach the diversion and restore riparian habitat in accordance with the North Umpqua Settlement Agreement Sections 10.4 and 10.5, respectively.

b. Deer Creek.

PacifiCorp shall modify the diversion structure in accordance with the North Umpqua Settlement Agreement Section 10.4 and complete erosion-site remediation to the extent required by, and in accordance with, the North Umpqua Settlement Agreement Section 14.4.

c. Lemolo No. 1 and Lemolo No. 2 Bypass Reaches.

PacifiCorp shall give priority to performing Lemolo No. 2 maintenance in accordance with the North Umpqua Settlement Agreement Section 6.6.b in order to maximize the potential for natural channel-forming events that will enhance fluvial geomorphology processes and promote the distribution of large wood and gravel.

8. Nuisance Algae

a. In accordance with a study plan approved by ODEQ, PacifiCorp shall monitor chlorophyll-a in Lemolo Reservoir as follows:

(1) Sample a minimum of once in each month of July–September in the first, third and fifth year of the new FERC License and every five years thereafter.

(2) Results of the monitoring shall be reported to ODEQ by December 31 of each year that had a sampling event.

(3) The monitoring schedule for chlorophyll-a may be changed after year 5 of the new FERC License by agreement between ODEQ and PacifiCorp to add, change, or delete the monitoring and reporting requirements above.

b. In the event the monitoring demonstrates an exceedance of the average chlorophyll-a action level of 0.015 mg/1 (based on a minimum of three samples collected over any three consecutive months at a representative location and from samples integrated from the surface to a depth equal to twice the secchi depth or the bottom, whichever is less), ODEQ may require PacifiCorp to undertake additional studies as reasonably necessary to describe the effects of the algae on water quality and beneficial uses, to determine the probable causes of the exceedance of the action level, and to develop a proposed control strategy, if warranted by adverse effects on beneficial uses.

9. Total Dissolved Gas

PacifiCorp shall implement the following Total Dissolved Gas Management Plan (TDGMP):

a. Lemolo No. 1 Powerhouse Tailrace

(1) PacifiCorp shall replace the Lemolo No. 1 powerhouse turbine by December 31, 2004, or the issuance of the new FERC License, whichever is later.

(2) Three months after the new turbine is installed and performance testing is complete and satisfactory (or at any later date approved by ODEQ), PacifiCorp shall study total dissolved gas (TDG) saturation levels in the powerhouse tailrace, in the forebay inlet, and in the North Umpqua River approximately one-quarter mile downstream from the powerhouse for a minimum of 72 hours in accordance with a study plan approved by ODEQ. The study shall measure TDG saturation levels at several power generation levels within the turbine's operating range and with the turbine's air admission system open and closed. PacifiCorp shall report the study results to ODEQ within three months of completing the study. If the study shows tailrace TDG saturation levels in excess of 110 percent, PacifiCorp shall, within three months of the submission of the report, submit to ODEQ proposed powerhouse operational procedures. These procedures shall specify

power generation operating levels and associated air admission system operations to eliminate (or, if elimination is not feasible, to minimize) tailrace TDG saturation levels in excess of 110 percent.

(3) If the measures required in the preceding paragraphs do not provide reasonable assurance that TDG saturation levels will meet the applicable TDG criterion, PacifiCorp will include in the expanded Lemolo No. 1 forebay (to be constructed by the fifth anniversary of the new FERC license under Section 11.5 of the North Umpqua Settlement Agreement) a shallow, rough surface at its entrance (or some other equally effective structure with the approval of ODEQ) to dissipate dissolved gases entering the forebay and powerhouse.

(4) If the expanded forebay structure is required to reduce TDG saturation levels in the powerhouse tailrace under the preceding paragraph, PacifiCorp shall, three months after the structure is installed and operational (or at any later date approved by ODEQ), study TDG saturation levels in the powerhouse tailrace, in the forebay inlet, in the penstock inlet, and in the North Umpqua River approximately one-quarter mile downstream from the powerhouse for a minimum of 72 hours in accordance with a study plan approved by ODEQ. The study shall measure TDG saturation levels at several power generation levels within the turbine's operating range and with the turbine's air admission system open and closed. PacifiCorp shall report the study results to ODEQ within three months of completing the study. If the study results do not provide reasonable assurance that the TDG criterion will be met, PacifiCorp shall, within six months of the submission of the report, provide a TDG management and compliance plan to ODEQ for approval. Upon ODEQ approval, PacifiCorp shall implement the TDG management and compliance plan.

b. Lemolo No. 2 Powerhouse Tailrace

(1) PacifiCorp shall reroute flows from the tailrace to Toketee lake in accordance with the North Umpqua Settlement Agreement Section 5.4. The design of the water conveyance system to Toketee lake must dissipate TDG before the tailrace water enters the system and must exclude fish from the tailrace and the system.

(2) PacifiCorp shall, within three months after the discharge is rerouted (or at any later date approved by ODEQ), study TDG saturation levels immediately below the discharge from the new water conveyance system and in the penstock inlet for a minimum of 72 hours in accordance with a study plan approved by ODEQ. The study shall measure TDG saturation levels at several power generation levels within the turbine's operating range and with the turbine's air admission system

open and closed. PacifiCorp shall report the study results to ODEQ within three months of completing the study. If the study results do not provide reasonable assurance that the TDG criterion will be met, PacifiCorp shall, within six months of the submission of the report, submit to ODEQ additional proposals for addressing the TDG criteria exceedances.

(3) As an interim measure, following the issuance of the new FERC License and until the powerhouse discharge is rerouted in accordance with the North Umpqua Settlement Agreement Section 5.4, PacifiCorp will visually assess fish for evidence of gas bubble trauma by examining fish collected in the Lemolo No. 2 full-flow reach. Fish will be collected using a variety of gear types (electrofishing, seining, and angling) to eliminate sampling bias.

Fish sampling will occur during the late summer, but no later than Labor Day, of the first calendar year after the new FERC License is issued for the Project. Sampling will occur during powerhouse operations that, based on previous TDG studies, are likely to cause elevated TDG saturation levels in the tailrace. The sample collection will last until at least 100 fish have been sampled or one week, whichever is shorter.

The visual assessment will follow the same protocols used on the Columbia River to assess gas bubble trauma, or as may be agreed upon by ODEQ and ODFW.

If, based on this monitoring and other available information, TDG saturation levels from the Lemolo No. 2 powerhouse are adversely affecting fish, PacifiCorp shall, following consultation with ODEQ and ODFW, submit a proposal to ODEQ within 3 months of the request to ensure either that the TDG criterion will be met or that adverse TDG effects on fish will be substantially eliminated, and implement measures as approved by ODEQ and ODFW.

c. Clearwater No. 2 Powerhouse Tailrace

(1) After the issuance of the new FERC License, PacifiCorp shall operate the Clearwater No. 2 powerhouse at a power generation level of at least 2 megawatts (MW) (when the powerhouse is operating) and shall operate at power generation levels of 10 MW or below only with the air admission system closed.

(2) PacifiCorp shall, within three months after the new FERC License is issued (or at any later date approved by ODEQ), study TDG saturation levels in the tailrace for a minimum of 72 hours in accordance with a study plan approved by ODEQ. The study shall measure TDG saturation levels at several power generation levels

within the turbine's operating range and with the turbine's air admission system open and closed. PacifiCorp shall report the study results to ODEQ within three months of completing the study. If the study shows tailrace TDG saturation levels in excess of 110 percent at the required operational levels, PacifiCorp shall within 3 months of the submission of the study report submit to ODEQ additional operational measures to eliminate or, if elimination is not feasible, to minimize tailrace TDG saturation levels in excess of 110 percent. If the proposed measures do not provide reasonable assurance that the TDG criterion will be met, PacifiCorp shall, within six months of the submission of the report, provide a TDG management and compliance plan to ODEQ for approval. Upon ODEQ approval, PacifiCorp shall implement the TDG management and compliance plan.

d. Stump Lake

PacifiCorp shall monitor TDG saturation levels at the bottom and surface of Stump Lake at the diversion dam during the first annual maintenance event at the Clearwater No. 1 powerhouse that is subject to North Umpqua Settlement Agreement Section 6.6. PacifiCorp shall collect a minimum of four samples, with a minimum of 30 minutes between each sample. PacifiCorp shall report the sample results to ODEQ within 30 days.

e. Fish Creek Development

During the first year of the new FERC License, while the dam is in spill condition (nominally April–June), PacifiCorp shall take spot measurements of TDG above the diversion dam, below the diversion dam, and in the bypass reach approximately every 500 feet below the dam until readings are within the applicable TDG criteria. PacifiCorp shall report the TDG measurements to ODEQ within 30 days of the measurements. If there are exceedances of the applicable TDG criteria, PacifiCorp shall provide a TDG management and compliance plan to ODEQ for approval within 90 days of the monitoring report. Upon ODEQ approval, PacifiCorp shall implement the TDG management and compliance plan.

10. Objectionable Discoloration; Scum and Oily Sleek; Spill and Waste Management

a. PacifiCorp shall implement its Project-specific Oil Spill Prevention, Control and Countermeasure (SPCC) Plan; Chemical Management System; and Waste Management Guidelines. The SPCC Plan, Chemical Management System, and Waste Management Guidelines shall be kept current.

b. In the event of a spill or release or threatened spill or release to state waters, PacifiCorp shall immediately implement the site's SPCC plan, modified SPCC plan, or other applicable contingency plan and notify the Oregon Emergency Response System (OERS) at 1-800-452-0311.

c. Project maintenance, including bridge maintenance that is PacifiCorp's responsibility under the North Umpqua Settlement Agreement Section 15.5, that could result in accumulations of solid waste or other residues must comply with ODEQ regulations and permit requirements. PacifiCorp employees and its contractors must receive instruction and training sufficient to notify designated PacifiCorp personnel to implement the applicable prevention and emergency response plans and to respond to situations that could result in unauthorized discharges to waters of the State.

d. PacifiCorp shall maintain records for the new license term of instances where the site-specific SPCC plan, Chemical Management System, and/or Waste Management Guidelines (or equivalent) is modified or the emergency response provisions of the plans are invoked. Documentation must include notices and reports of remediation activities and the results of the cleanup efforts or resource damages, if any.

11. Total Dissolved Solids

a. PacifiCorp shall monitor specific conductance hourly below Soda Springs Powerhouse at monitoring location (BLDG).

b. PacifiCorp shall report the results of monitoring for specific conductance for each water year to ODEQ by December 31.

c. PacifiCorp shall consult with ODEQ on the implementation of non-routine measures under the North Umpqua Settlement Agreement and this Certification that may threaten or cause significant short-term turbidity or increased erosion.

12. Toxic Substances

a. PacifiCorp shall follow the manufacturer's label instructions when applying herbicides within the Project. The applicator must have a current Pesticide Applicator License from the Oregon Department of Agriculture.

b. To the extent required by 40 CFR Part 112, PacifiCorp shall have a current Spill Prevention, Control, and Countermeasure Plan in effect at all times that has been prepared in accordance with the requirements of that part.

c. To the extent required by 40 CFR Part 761, PacifiCorp shall have a current and complete PCB Procedure in effect at all times that has been prepared in accordance with the requirements of that part.

13. § 401 Certification Modification

ODEQ, in accordance with OAR Chapter 340, Division 48, and, as applicable, 33 USC 1341, may modify this Certification to add, delete, or alter Certification conditions as necessary and feasible to address:

(a) adverse or potentially adverse Project effects on water quality or designated beneficial uses that did not exist or were not reasonably apparent when this Certification was issued;

(b) TMDLs (not specifically addressed above in these Certification Conditions);

(c) changes in water quality standards;

(d) any failure of Certification conditions to protect water quality or designated beneficial uses as expected when the Certification was issued; or

(e) any change in the Project or its operations that was not contemplated by this Certification that might adversely affect water quality or designated beneficial uses.

In accordance with 33 USC 1341, any added or altered condition shall, so long as it is in effect, become a condition of any federal license or permit that is thereafter issued for the Project; further, ODEQ may seek, in accordance with applicable law and procedures, to have any modified Certification condition incorporated into any existing federal license or permit for the Project.

14. Project Changes

PacifiCorp shall obtain ODEQ review and approval before undertaking any change to the Project that might significantly and adversely affect water quality (other than project changes required by or considered in this Certification), including changes to Project structures, operations, and minimum flows.

15. Project Repair or Maintenance

PacifiCorp shall obtain ODEQ review and approval before undertaking Project repair or maintenance activities that might significantly affect water quality (other than repair or

maintenance activities required by or considered in this Certification). ODEQ may, at PacifiCorp's request, approve specified repair and maintenance activities on a periodic or ongoing basis.

16. Project Inspection

PacifiCorp shall allow ODEQ such access as necessary to inspect the Project area and Project records required by this Certification at reasonable times as necessary to monitor compliance with Certification conditions.

17. Project Specific Fees

In accordance with ORS 543.080, PacifiCorp shall pay a project-specific fee for ODEQ's costs of overseeing implementation of this Certification. The fee shall be $10,000 (2002 dollars) annually, made payable to "State of Oregon, Department of Environmental Quality," and due on July 1 of each year after issuance of this Certification beginning on July 1, 2003. ODEQ shall credit against this amount any fee or other compensation paid or payable to ODEQ, directly or through other agencies of the State of Oregon, during the preceding year (July 1 to June 30) for ODEQ's cost of oversight. The fee shall expire five (5) years after the first July 1 following the issuance of the new FERC License, unless ODEQ terminates it earlier because oversight for purposes of § 401 certification is no longer necessary. One year before the expiration of the fee, or earlier if mutually agreed, ODEQ and PacifiCorp shall review the need, if any, to modify, extend, or terminate the fee, in accordance with ORS 543.080. PacifiCorp will pay any Project-specific fee required after such review, including any administrative or judicial review of the fee in accordance with ORS 543.080(6).

18. Monitoring

In undertaking monitoring required by this Certification, PacifiCorp shall exercise reasonable care in the selection, installation, maintenance, and use of monitoring devices. Providing such care is exercised, PacifiCorp shall not be responsible for missing or inaccurate monitoring data. ODEQ, however, may require PacifiCorp to undertake any additional reasonable monitoring that is needed to address the missing or inaccurate data.

References to monitoring locations in these Certification Conditions are identified at page xvii of the July 2, 2001 § 401 Application and in Exhibit D.

19. Posting of § 401 Certification

PacifiCorp shall post a copy of these certification conditions in a prominent location at the Toketee Control Center.

Oregon
Theodore Kulongoski, Governor

Department of Environmental Quality
Western Region Eugene Office
1102 Lincoln Street, Suite 210
Eugene, OR 97401
(541) 686-7838
FAX (541) 686-7551
TTY (541) 687-5603

June 6, 2005

Mr. James Wazlaw
Program Manager
PacifiCorp
825 NE Multnomah
Portland, OR 97232

Re: North Umpqua Hydroelectric Project (FERC No. 1927)
Revision of Temperature Management Plan and Stream Temperature Monitoring Plan

Dear Mr. Wazlaw:

ODEQ is replying to your letter of February 1, 2005 containing a proposal to modify the Temperature Management Plan and Stream Temperature Monitoring Plan for the North Umpqua Hydroelectric Project (Project). These plans are contained as Exhibit A and Exhibit B in the Clean Water Act Section 401 certification (certification) conditions that ODEQ issued on June 28, 2002.

The basis for your request is the revision to Oregon's water quality numerical criteria for stream temperature (OAR 340-041-0028 effective 12-09-2003). Stream temperatures for salmon and (native) trout rearing and migration now have a single biological criterion of 18.0°C seven-day-average maximum temperature (7DMX) as depicted on Figure 310A for the Umpqua basin.

Instream temperature monitoring data was provided during FERC relicensing and the July 2, 2001 application for certification. Review of this information indicates no exceedences of the 18.0°C criterion for Lemolo No. 1, Lemolo No. 2, Clearwater No. 1 and Toketee reaches during June and July.

PacifiCorp Proposal
The proposed revisions pertain to the Lemolo No. 1, Lemolo No. 2, Clearwater No. 1, and Toketee Project reaches of the North Umpqua River:

- Remove *minimum instream flow requirements under the Temperature Management Plan (TMP)* that apply to the Lemolo No. 1, Lemolo No. 2, and Clearwater No. 1 reaches for June and July, and the Toketee reach for July.
- Remove instream monitoring requirements under the Stream Temperature Monitoring Plan (STMP) during June and July.
- Remove the adaptive management requirement that addresses post-license exceedences.
- Housekeeping change to Table 1 of the TMP to reflect deletion of the applicable range of minimum instream flow for Lemolo No. 2 reach during June and July.

ODEQ Analysis
In conducting our review of your proposal we considered the following information.

The revised temperature rule at OAR 340-041-0028 that applies to the Umpqua Basin including Project-affected waters. The 18°C biological based criterion for salmon and trout rearing and migration applies to the Project in the four stream reaches: Lemolo No. 1, Lemolo No. 2, Clearwater No. 1 and Toketee contained in your proposal.

The certification permits ODEQ to make changes in the TMP or STMP in accordance with condition 1.e.:

> *"With the written approval of the ODEQ, PacifiCorp may cease implementing the TMP or STMP or may implement a modified TMP or STMP. ODEQ may approve cessation or modification if ODEQ determines that it will not impair the achievement of any TMDL or allocation for the Project for*

temperature and will not contribute to an exceedence of the applicable temperature criteria in waters affected by the Project."

Stream temperature data supporting PacifiCorp's application for certification (July 2, 2001) sufficiently indicates that the Project waters in Lemolo No. 1, Lemolo No. 2, Clearwater No. 1, and Toketee project reaches of the North Umpqua River meet the revised biological temperature criterion of 18°C for salmon and trout rearing and migration during June and July.

In lieu of an approved TMDL for the North Umpqua basin, we further conducted a computer analysis of thermal effects within the Project and downstream of the Project to evaluate the Natural Thermal Potential (OAR 340-041-0028(8). This modeling demonstrates implementation of the minimum bypass reach flows of the June 13, 2001 Settlement Agreement will attain the biological temperature criteria in the North Umpqua River upstream of Steamboat Creek and the natural thermal potential downstream of Steamboat Creek. Impoundments were not modeled. The water temperature through the powerhouses were left at their current conditions during all computer simulations.

Under conditions 2.a. and 9.b. of the certification, Lemolo No. 2 tailrace will be rerouted in accordance with the Settlement Agreement Section 5.4. Other tailrace discharges that may exceed the thermal human use allowance will be addressed in the TMDL as provided in OAR 340-041-0028(12)(b)(B).

As you know, PacifiCorp is currently in the early design phase to meet Settlement Agreement Section 5.4 requirements. ODEQ and other state and federal agencies are collaborating with PacifiCorp. Among the considerations being discussed in this forum is the economic and technical feasibility of meeting Section 5.4 without undesirable consequences to existing stillwater habitat, water quality, aquatic resources, existing desirable vegetation, aesthetics, recreational uses and other factors. To the extent that the approved design for Settlement Agreement Section 5.4 affects the TMP and STMP, or is subject to TMDL allocations, ODEQ will make appropriate revisions to the certification.

We also considered other provisions of the temperature rule including but not limited to:

- OAR 340-041-0028(2) Policy. Acceptance of the proposed TMP revisions is consistent with the policy of the Environmental Quality Commission to protect aquatic ecosystems from adverse warming (and cooling) caused by anthropogenic activities.
- OAR 340-041-0028(11) Protecting Cold Water. The Lemolo No. 1, Lemolo No. 2, Clearwater No. 1, and Toketee project reaches are not designated critical habitat under provisions of the Endangered Species Act. Without the ESA designation and other findings required by the rule, the cold water protection narrative criteria is not applicable.

Action

ODEQ is revising Exhibit A – Temperature Management Plan, and Exhibit B – Stream Temperature Monitoring Plan of the June 28, 2002 certification as proposed by PacifiCorp.

The revised Exhibit A and Exhibit B are attached to this letter.

The effective date of the revised Exhibit A and Exhibit B is the date of this letter.

PacifiCorp is to post a copy of the revised Exhibit A and Exhibit B at the Toketee Control Center in accordance with certification condition 19.

Sincerely,

Kerri Nelson, Administrator
Western Region

Attachments

Cc: Resource Coordination Committee
FERC
Service List for FERC Project No. 1927
Kurt Burkholder, Oregon Department of Justice
Marilyn Fonseca, ODEQ
Paul Heberling, ODEQ

EXHIBIT A
(Revised June 2005)

Temperature Management Plan (TMP)

The following TMP has been approved by ODEQ in conjunction with the Certification. Temperature monitoring requirements are in Exhibit B.

1. In accordance with the schedule set forth in Table 1 below, PacifiCorp shall reduce Project diversions to maintain at least the minimum instantaneous instream flows specified in the table within the bypass reaches immediately downstream of the diversion dams:

Table 1, Minimum Bypass Reach Flows, Cubic Feet Per Second (CFS)

	Lemolo No. 1	*Lemolo* No. 2	*Clearwater* No. 1	*Clearwater* No. 2	*Toketee*	Fish Creek	Slide Creek	Soda Springs	Deer Creek
January			30						Full Flow
February			30						Full Flow
March			30						Full Flow
April									Full Flow
May						50/130	80/240		Full Flow
June						80/130	80/240		Full Flow
July						80/130	80/240		Full Flow
August						80/130	80/240		Full Flow
September						80/130	80/240		Full Flow
October			30						Full Flow
November			30						Full Flow
December			30						Full Flow
KEY	x/y means flows before (x) and after (y) anadromous fish passage facilities are provided at Soda Springs Dam.								
	Minimum bypass reach flows are effective December 31, 2005 (if the new FERC License has been issued) or by the first anniversary of the new FERC License, whichever is earlier. Post-passage minimum flows in the Fish Creek and Slide Creek bypass reaches are effective on the seventh anniversary of the new FERC License if fish passage facilities have been provided at Soda Springs Dam in accordance with the North Umpqua Settlement Agreement. No diversion of Deer Creek is allowed after the first anniversary of the new FERC License; except that PacifiCorp may divert water from Deer Creek up to the OWRD water right in Deer Creek in order to aid fish salvage operations in the Lemolo No. 2 power canal when the Lemolo No. 2 powerhouse is shut down, as set forth in the North Umpqua Settlement Agreement Section 9.5.								

2. Requirement deleted by revision approved by ODEQ June 2005.

3. Adaptive Management.

a. Requirement deleted by revision approved by ODEQ June 2005.

b. If the temperature monitoring reports submitted by PacifiCorp to ODEQ pursuant to Exhibit B show exceedences of applicable numeric criteria in the Fish Creek, Slide Creek, or Soda Springs bypass

reach, PacifiCorp shall by the following May 1 prepare and submit to ODEQ a report for the reach that evaluates the additional measures, if any, that PacifiCorp could feasibly implement to achieve the applicable numeric criterion. If, based on the report, ODEQ determines that there are additional, feasible temperature reduction measures that PacifiCorp could implement, PacifiCorp shall, subject to the limits set forth in Exhibit C of this Certification, implement the measures on a feasible schedule approved by ODEQ. After an initial report under this section, PacifiCorp shall submit this report to ODEQ every fifth year thereafter on May 1 until the applicable numeric criteria have been met within the reach for three consecutive years before the date of the report.

EXHIBIT B
(Revised June 2005)

Stream Temperature Monitoring Plan (STMP)

PacifiCorp shall prepare and implement a STMP by no later than six months prior to the effective date of the initial minimum instream flows identified in Exhibit A. The STMP, which PacifiCorp may modify with the written approval of ODEQ, shall be consistent with the following minimum provisions:

a. Quality Assurance/Quality Control (QA/QC) Plan

The STMP shall include a QA/QC plan that is consistent with applicable ODEQ Laboratory Guidance, unless otherwise approved by ODEQ.

b. Temperature Monitoring Devices.

The accuracy of temperature recorders shall be tested before and after field deployment to insure that they are operating within their designated range of accuracy. In addition to pre- and post-deployment checks, the temperature recorders shall be audited monthly during the field measurement period. The pre- and post-deployment and monthly field audit checks shall be made using an NIST (National Institute of Standards and Technology) traceable (calibrated and maintained) thermometer accurate to ± 0.2°C., or better, that has been checked against an NIST traceable thermometer.

c. Frequency

Hourly measurements of temperature shall be recorded each year during the period indicated at the sites listed below.

d. Monitoring Locations

The site codes used here correspond to those described in the Application for Certification Pursuant to Section 401 of the Federal Clean Water Act, Volume I, page xvii (PacifiCorp July 2, 2001).

(1) Requirement deleted by revision approved by ODEQ June 2005.

(2) Requirement deleted by revision approved by ODEQ June 2005.

(3) Requirement deleted by revision approved by ODEQ June 2005.

(4) Clearwater No. 1 bypass reach: CLR1B (December 1-February 28 for the first year of the new FERC license).

(5) Requirement deleted by revision approved by ODEQ June 2005.

(6) Fish Creek bypass reach: FISHT, FISHB (May 1-September 30)

(7) Slide Creek bypass reach: SLIDT, SLIDB (May 1-September 30)

(8) Soda Springs bypass reach: SODAB (May 26-September 30)

(9) Deer Creek mouth: DEERM (June 1-July 31 in the year following modification to the diversion as set forth in the North Umpqua Settlement Agreement Section 10.4).

e. Instream Flow Measurement

Instream flow is to be measured and recorded hourly in accordance with the North Umpqua Settlement Agreement Section 5.5.

f. Temperature Monitoring Reports

PacifiCorp shall provide ODEQ with annual STMP monitoring reports for the preceding water year (October 1-September 30). The annual STMP monitoring reports shall include the required hourly temperature and instream flow data (as applicable), pre- and post-deployment instrument calibration data, and monthly field audit data for the given year. The STMP monitoring reports shall be submitted to ODEQ (Western Region, Medford office) by December 31.

ATTACHMENT 4

B. Water Quality

B.1a Yes. The North Umpqua Hydroelectric Project (Project) is in compliance with the conditions in the Clean Water Act Section 401 Water Quality Certification (Section 401 WQC) issued by Oregon Department of Environmental Quality (ODEQ) on June 28, 2002, as modified by a letter from ODEQ dated June 6, 2005. The surface water Temperature Management Plan (TMP) and the Stream Temperature Monitoring Plan (STMP) that serve as Exhibits A and B respectively to the Section 401 WQC were modified in 2005 in response to a revision to Oregon's water quality numerical criteria for stream temperature (OAR 340-041-0028 effective 12-09-2003). The ODEQ letter containing the modified TMP and STMP is included in Attachment 3a to this application with the Section 401 WQC.

The ODEQ recently indicated at the Resource Coordination Committee (RCC) meeting on August 20, 2014, that all special monitoring activities required by the Section 401 WQC have now been completed and show the Project to be in compliance with water quality criteria. Required monitoring reports have been filed with the ODEQ and operational modifications have been implemented in accordance with the Section 401 WQC implementation schedule. A letter from the ODEQ, dated November 7, 2014, confirms PacifiCorp's compliance with the Section 401 WQC and that applicable water quality standards are being met (see Attachment 4a). Progress on major water quality improvement initiatives was documented in PacifiCorp's annual reports which are available on PacifiCorp's website (http://www.pacificorp.com/es/hydro/hl/nur.html; select the "Resource Coordination Committee" link, then select the "Annual Reports" tab to access the annual reports).

The only ongoing water quality monitoring requirements are: 1) continuous operation of the Soda Springs Water Quality Station, with annual reports to ODEQ (which routinely show all parameters to be within ODEQ criteria); and 2) Periodic monitoring of pH in Lemolo 1 forebay on a 5-year interval, beginning in 2018, to ensure that operational corrections continue to maintain water quality there.

2011 Turbidity Event

In a letter dated November 29, 2011, PacifiCorp informed LIHI that PacifiCorp received a notice of violation from ODEQ for turbidity on the North Umpqua River that occurred on July 1, 2011. During water-up following canal maintenance, a trashrack became blocked with debris, forcing water to overflow the power canal, resulting in slope failure and sediment discharge into the river. In accordance with the Settlement Agreement and FERC license, PacifiCorp consulted with the USDA Forest Service (USDA-FS), ODEQ, and the Oregon Department of Fish and Wildlife (ODFW) and prepared the *Flume 12 Remediation Plan* (Plan). A remediation plan was also a requirement of the Section 401 WQC and the Erosion Control Management Plan. The Plan describes immediate stabilization of the slope, rebuilding the spillway structure, development of revised waterway water-up procedures, and monitoring/mitigation of resources in the North Umpqua River impacted by this event. Implementation of the Plan included off-site mitigation

in the Soda Springs bypassed reach to further enhance habitat for anadromous fish. Impact and response reaches were identified in the Lemolo 2 bypassed reach, and monitoring was conducted, with a report submitted to the Technical Working Group. The assessment of resource impacts in the Plan concludes that the event had little impact on brown trout spawning in the immediate slide area and that aquatic habitat is providing similar functions and diversity in 2011 as compared to conditions that occurred in 1992. Monitoring is to be repeated in 2016. This Plan was approved by the resource agencies in April 2012 (Attachment 4b). Implementation of this Plan satisfies compliance requirements of the Settlement Agreement, FERC license, and Section 401 WQC. A letter from ODEQ, dated June 5, 2012 (Attachment 4c), withdraws the civil penalty for this incident and states that "PacifiCorp has complied with all 401 water quality certification requirements applicable to the event."

B.2 Yes. Two North Umpqua River reaches that have the potential to be affected by the Project are currently listed as impaired (category 5) for pH from RM 77 to RM 78 (reach downstream of Lemolo 2 Powerhouse) and for salmon/steelhead spawning temperature from RM 45.2 to RM 68.9 (reach from approximately 0.4 miles downstream of Soda Springs powerhouse, downstream to the Umpqua National Forest boundary near Susan Creek). Lemolo Lake (RM 91.8 to RM 94.2) was added to the list in 2010 for algae based on blue-green algae bloom advisories issued by the Oregon Health Authority.

Two reaches were recently delisted. Fish Creek, a tributary to the North Umpqua, was delisted after monitoring showed that the dissolved oxygen (DO) criteria were met and because the temperature Total Maximum Daily Load (TMDL) was approved. The reach of the North Umpqua downstream of Soda Springs dam (RM 68.9) was also delisted for temperature (year around temperature/core cold water habitat criteria) when the TMDL was approved. The current 303(d) list is in ODEQ's 2010 database/report which was approved by EPA on March 15, 2012 (http://www.deq.state.or.us/wq/assessment/rpt2010/search.asp). The newer 2012 integrated report (http://www.oregon.gov/deq/WQ/Pages/Assessment/2012report.aspx) has not yet been approved by EPA. ODEQ describes the current listing status of relevant reaches in a letter dated November 7, 2014 (Attachment 4a).

B.3 Yes. In a letter dated November 7, 2014, ODEQ determined that based on water quality monitoring data, Project operation does not contribute to pH excursions within the 303(d) listed reach of the North Umpqua River (RM 77) or to temperature exceedances (numeric criteria for both rearing and spawning periods of the year) within the 303(d) listed reach downstream of Soda Springs Dam (Attachment 4a). For the Lemolo Lake algae listing, a technical working group (TWG) that included ODEQ and other resource agencies, determined that based on three years of experimental actions, there is insufficient evidence to conclude that hydropower operations contributed directly to summer blue-green algae blooms (Attachment 4a). In the past two years, there have not been any Oregon health advisories issued for algae in Lemolo Lake. There are many complex factors, including contributions from upstream sources and fishery trophic dynamics that influence algae blooms in Lemolo Lake. PacifiCorp continues to work with ODEQ, USDA-FS, ODFW, and other stakeholders in the North Umpqua Lake Management

Group to continue monitoring, understanding, and improving the water quality and fishery in Lemolo Lake.

North Umpqua Temperature Listing

In 2010, the reach of the North Umpqua downstream of Soda Springs powerhouse (RM 68.9) was delisted for year-around temperature/core cold water habitat criteria because of the approved TMDL for temperature in the North Umpqua Basin (*Umpqua Basin Total Maximum Daily Load (TMDL)*, October 2006; http://www.deq.state.or.us/wq/tmdls/umpqua.htm). The TMDL modeling data indicated that PacifiCorp will comply with their load allocation by implementing the minimum instream flows stipulated in the North Umpqua Settlement Agreement. PacifiCorp began providing the minimum instream flows specified in the Settlement Agreement and in the 401 WQC in December 2005. The Project is in compliance with the TMDL's temperature load allocations and with the 401 WQC conditions that address the 303(d)-listed parameters, as explained in ODEQ's letter dated November 7, 2014 (Attachment 4a).

Downstream of Soda Springs powerhouse, (RM 68.9), continuous monitoring since 2001 shows that temperatures have not exceeded the salmon/steelhead spawning temperature criteria (the criteria for the current listing). Based on this monitoring, ODEQ determined that the Project does not contribute to temperature exceedences within this 303(d) listed reach (Attachment 4a). PacifiCorp will continue to collaborate as ODEQ progresses through their TMDL revisions to manage and/or delist this reach.

North Umpqua River pH listing

PacifiCorp is complying with measures listed in the Section 401 WQC and Settlement Agreement and has taken several actions to reduce potential Project contributions to pH exceedances in the North Umpqua River in the vicinity of the Lemolo No. 2 Powerhouse (RM 77-78). In the summer of 2009, PacifiCorp excavated accumulated sediment and macrophytes from the Lemolo No. 2 Forebay. In 2011, PacifiCorp completed the construction of the Lemolo No. 2 tailrace re-routing project in accordance with Settlement Agreement Sections 5.4 and 6.1, and the Section 401 WQC. Monitoring data confirmed that pH downstream of the powerhouse is within the prescribed range and ODEQ determined that Project operation does not contribute to pH excursions within the 303(d) listed reach (Attachment 4a).

PacifiCorp continues to monitor and report results as required by the 401 WQC. Progress on these activities is documented in PacifiCorp's annual reports (http://www.pacificorp.com/es/hydro/hl/nur.html; select the "Resource Coordination Committee" link, then select the "Annual Reports" tab to access the annual reports.)

In summary, operation of the North Umpqua facilities currently complies with the conditions of the 401 certification and the load allocations to the Project in the Umpqua Basin TMDL. Monitoring has demonstrated that by maintaining minimum flows in accordance with the TMP the facilities will continue to meet ODEQ numeric temperature criteria. Monitoring also shows that the Project does not contribute to the temperature exceedance in the 303(d) listed reach downstream of Soda Springs Dam. PacifiCorp has rerouted the powerhouse discharge into

Toketee Reservoir in accordance with the Settlement Agreement and monitoring of that reach has demonstrated that pH now meets state criteria. PacifiCorp continues to be actively engaged with the USDA-FS and the North Umpqua Lake Management Group to improve fisheries and water quality in Lemolo Lake and the basin. Implementation of these measures provides assurance that the Project will continue to meet water quality standards.

ATTACHMENT 4a

Oregon
John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Western Region Eugene Office
165 East 7th Avenue, Suite 100
Eugene, OR 97401
(541) 686-7838
FAX (541) 686-7551
OTRS 1-800-735-2900

November 7, 2014

Richard Grost
Aquatic Scientist
PacifiCorp Energy
825 NE Multnomah, Suite 1500
Portland, OR 97232

Re: North Umpqua Hydroelectric Project, FERC Project No. 1927
Compliance Determination for Low Impact Hydro Institute Certification

Dear Mr. Grost:

This correspondence is submitted in support of PacifiCorp Energy's application to obtain low impact certification from the Low Impact Hydroelectric Institute (LIHI) for their North Umpqua Hydroelectric Project (FERC No. 1927). The information provided in this correspondence addresses questions presented in the Low Impact Hydropower Questionnaire pertaining to water quality.

B: Water Quality

Question B.1.a: *Is the Facility in Compliance with all conditions issued pursuant to a Clean Water Act Section 401 water quality certification issued for the Facility after December 31, 1986?*

DEQ Response: YES. On June 25, 2002, the Oregon Department of Environmental Quality (DEQ) issued PacifiCorp a water quality certification pursuant to Section 401 of the federal Clean Water Act (CWA). The Certification requires PacifiCorp to monitor water quality at certain project locations to verify the Department's finding that operation of the relicensed project will meet Oregon water quality standards and other relevant provisions of state law.

Water quality data collected by PacifiCorp pursuant to the Certification conditions demonstrate compliance with applicable standards. In particular, water quality data support the following findings:

Water Quality Below Soda Springs Powerhouse

Certification Condition 3(j) requires PacifiCorp to continuously monitor the following parameters below Soda Springs powerhouse: temperature; pH; dissolved oxygen (DO); specific conductance; and turbidity. Measurements recorded at this location confirm water quality meets established numeric criteria.

Temperature Monitoring

The Certification includes a Stream Temperature Monitoring Plan (STMP) to assess whether minimum required flows achieve applicable numeric temperature criteria in Project reaches. Data collected between 2006 and 2009 confirm temperature in affected Project reaches do not exceed applicable numeric criteria.[1] In correspondence dated December 20, 2013, DEQ determined the requirement to monitor for thermal effects of project operation in accordance with the Temperature Management Plan (TMP) had been met.

In 2012, PacifiCorp reduced diversions from the Fish Creek and Slide Creek bypassed reaches in accordance with Certification Condition 3(a) and Sections 5 and 10.4 of the North Umpqua Settlement Agreement. These actions were intended to meet minimum instream flow objectives upon completion of upstream passage facilities at Soda Springs Dam. Although the Certification does not require further monitoring of these reaches, DEQ expects that higher more stable flows in these reaches will benefit water quality.

Water Quality Monitoring

The Certification requires PacifiCorp to monitor water quality parameters including pH, dissolved oxygen (DO), chlorophyll-a, and total dissolved gas (TDG) to confirm that project operations under the new license meet Oregon DEQ water quality objectives. DEQ has determined that PacifiCorp's requirement to monitor these water quality parameters has been met.

Question B.2: *Is the Facility area or the downstream reach currently identified by the state as not meeting water quality standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act?*

DEQ Response: YES. The North Umpqua River is identified as impaired on Oregon's 2010 303(d) list for pH from RM 77 to RM 78 (i.e., above and below the Lemolo 2 Powerhouse) and for temperature below Soda Springs Dam. Lemolo Lake is also listed from RM 91.8 to 94.2 for algae based on blue-green algae bloom advisories issued by Oregon Health Authority.

Question B.3: *If the answer to question B.2 is yes, has there been a determination that the Facility is not a cause of that violation?*

DEQ Response: YES. PacifiCorp performed several actions to reduce pH exceedences in the vicinity of the Lemolo 2 Powerhouse including rerouting the powerhouse discharge directly to Toketee Reservoir and dredging sediments from the Lemolo 2 forebay to reduce macrophyte growth. Monitoring data collected in accordance with Certification 2(d)(3) confirmed pH below the powerhouse is within the prescribed range. Based on these data, DEQ determined Project operation does not contribute to pH excursions within the 303d listed reach of the North Umpqua River.

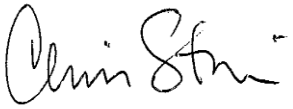
[1] Stream temperatures greater than 18.0°C were recorded in Fish Creek during 2007 and 2009. However, all Project diversions had ceased prior to each of these documented temperature excursions. DEQ recognizes that the Project does not contribute to thermal loading during periods when Project diversions do not occur.

Temperature monitoring data collected below the Soda Springs powerhouse confirm temperature in the river is below the biologically based numeric criteria for both rearing and spawning periods of the year. Based on these data, DEQ determines the Project does not contribute to temperature exceedances within the 303d listed reach below Soda Springs Dam.

In 2008, PacifiCorp completed Chlorophyll-a monitoring in Lemolo Lake as required by Condition 8(a) of the Certification. The sampling data indicate concentrations of Chlorophyll-a in Lemolo Reservoir remain significantly below the numeric criteria for this parameter. However, between 2006 and 2008, Lemolo Lake experienced 5 blue-green algal blooms resulting in health advisories issued by Oregon Health Authority. In July 2007, PacifiCorp, DEQ, resource agencies, and stakeholders convened a technical workgroup (TWG) to address the occurrence of BGA blooms in Lemolo Reservoir. It is suspected that BGA blooms may be related to nutrient levels, biological imbalances, reservoir management methods, or a combination of these and/or other factors. For three years, the TWG implemented experimental actions including brown trout enhancement, removal of invasive fish species (i.e., tui chub), and experimental reservoir elevation manipulations intended to disrupt algal growth cycles. After three years, the TWG determined there was insufficient evidence to conclude that hydropower operations contributed directly to summer BGA blooms. This finding was based, in part, on the occurrence of BGA blooms on non-hydropower lakes and reservoirs throughout the state and the absence of a BGA correlation at Lemolo Lake during periods of deep reservoir drawdown. In 2010 the TWG disbanded.

In October 2006, DEQ released a temperature Total Maximum Daily Load (TMDL) for waters of the Umpqua Basin. The TMDL concluded that Project diversions under the previous license resulted in thermal impacts to the river. TMDL modeling data indicated PacifiCorp will comply with their load allocation by implementing the minimum instream flows stipulated in the North Umpqua Settlement Agreement. Beginning in December 2005, PacifiCorp began providing higher and more stable minimum instream flows to the bypass reaches as prescribed in the Settlement Agreement and 401 certification.[2] Monitoring data confirm that PacifiCorp has maintained compliance with the bypass flows modeled by the TMDL and prescribed by the Settlement Agreement and 401 certification.

Please feel free to contact me should you have any questions.



Christopher Stine, PE
Water Quality Engineer

ec: File

[2] When seasonal base flows decline below prescribed minimum instream flows, PacifiCorp ceases diversions from these reaches.

ATTACHMENT 4b

Flume 12 Remediation Plan

North Umpqua Hydroelectric Project (FERC No. 1927)

April 11, 2012

Approved:

(for) Alice B. Carlton
Forest Supervisor
U.S.D.A Forest Service — 4-24-12 Date

David A Hanz
Oregon Department of Fish and Wildlife — 4/25/12 Date

Oregon Department of Environmental Quality — 4-25-12 Date

PacifiCorp Energy — 4/25/12 Date

Background

Section 14.3 of the North Umpqua Settlement Agreement (SA) requires the preparation of a site-specific Remediation Plan, in consultation with the USDA Forest Service (USFS), Oregon Department of Fish and Wildlife (ODFW), and Oregon Department of Environmental Quality (ODEQ), in the event of canal failure or any other occurrence resulting in erosion due to operation of the North Umpqua hydro project. This requirement is also included in the Clean Water Act Section 401 Water Quality Certification of the North Umpqua Federal Energy Regulatory Commission license and the Erosion Control Management Plan. The purpose of this Remediation Plan (Plan) is to meet these requirements.

On June 30, 2011, during water-up following canal maintenance, a trashrack within the Lemolo 2 canal became blocked with debris and forced water to overflow into the Flume 12 spillway facility located approximately six miles downstream of the Lemolo 1 powerhouse (**Figure 1**). PacifiCorp responded to correct the overflow immediately upon identification of the incident and hydro operations staff stopped the overflow by 0300 hrs on July 1, 2011. Field reconnaissance began during daylight July 1. Estimates are that flows spilled through and over the spillway transition structure (which also became blocked by debris) for up to eight hours and peaked at about 400 cfs. The spill eroded the slope, depositing approximately 4,000 cubic yards of soil and rock near the bottom of the slope, a portion of which entered the channel of the North Umpqua River. During business hours of July 1, 2011, PacifiCorp reported the event to the Oregon Emergency Response System and coordinated an emergency response to this event in consultation with the USDA Forest Service, Oregon Department of Fish and Wildlife, Oregon Department of Environmental Quality, and other members of the Resource Coordination Committee; an update was also emailed to the RCC on July 6, 2011 (Appendix A).

This Plan describes the progress made since July 1 and future actions to stabilize and remediate the site, and includes:

- **Slope Stabilization and Spillway Repair –** Measures undertaken immediately to stabilize the slope and repair the spillway facility;
- **Revised Canal Water-up Procedures –** New procedures for refilling the waterway following maintenance to prevent such events in the future;
- **Assessment of resource impacts** – Studies conducted in 2011 to assess impacts to resources from the erosion event;
- **Resource Mitigation –** Measures to be implemented in 2012 in the Soda Springs bypass reach as in-lieu mitigation for resource impacts caused by the erosion event; and
- **Resource Monitoring –** Procedures for monitoring two study sites in the North Umpqua River in the vicinity of the event to document potential effects over a 5-year period.

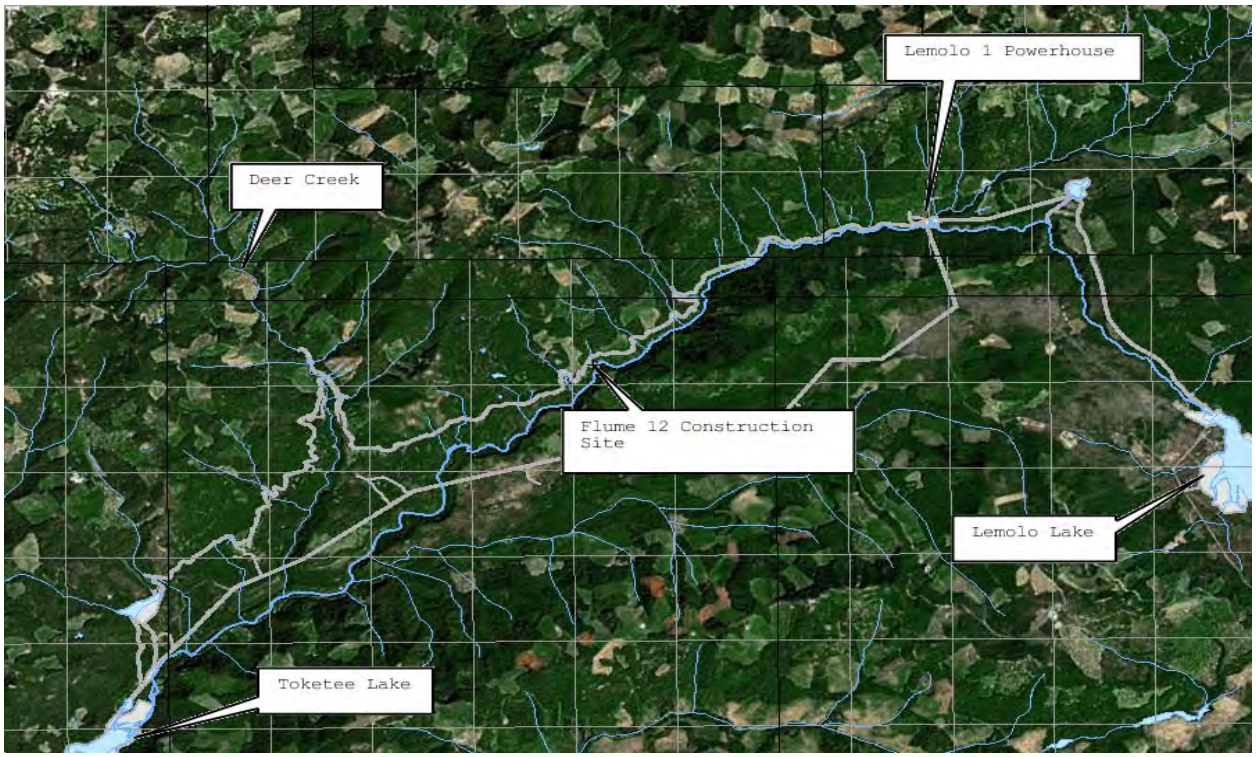


Figure 1. Vicinity Map

Slope Stabilization and Spillway Repair

Emergency work began on July 1, the day the event occurred. Erosion had undercut the spillway transition structure and immediate action was necessary to prevent additional slope movement or collapse of the transition structure (**Figure 2**). PacifiCorp mobilized a geotechnical engineer and a contractor for a site evaluation. A thorough evaluation of the site conditions was made.

Figure 2. Erosion at Flume 12 Spillway

Safety was a primary concern as further erosion would endanger personnel working around and below the site. In consultation with the USFS, the canal road (#3400072) was closed to public use. To prevent additional erosion damage and risk of personnel injury, a transition structure tieback system was designed and installed (**Figure 3**). This involved drilling three anchors and constructing the tieback system. At the completion of construction, the clamp and cables were removed allowing traffic to resume on the canal road.

Figure 3. Transition Structure Tieback System

Evacuation routes were identified and constructed to allow for the safe egress of construction personnel in the event of another slope failure during construction (**Figure 4**). The egress routes included temporary handrails, ropes and defined trails out of the work zone.

Figure 4. Emergency evacuation route

Approximately 300 feet of temporary road was constructed to access the lower area of the work zone (**Figure 5**). The road was constructed at a 20%+ slope to minimize the length and still allow equipment access. The width of the road was kept to the minimum needed for equipment passage. This road allowed for the removal of the destroyed culvert section of the spillway on the slope, installation of the concrete buttress and riprap to support the reconstructed spillway, and reconnection of the 36-inch corrugated metal pipe that drains the area above Flume 12.

Figure 5. Temporary Construction Access

After work with heavy equipment was completed on the slope, stockpiled material that was removed during road construction was utilized to restore the slope to original contours (**Figure 6**). Vegetative material that had been removed was reused and spread over the slope to help provide cover for the site.

Figure6. Decommissioned temporary access road

Approximately 200 cubic yards of gunite was applied to the slope for construction safety and slope stability (**Figure 7**). Prior to gunite installation, loose material was unraveling below the gabion wall and transition structure, including additional sloughing of approximately 500 cubic yards of material directly below the road following a mid-July rain event. Wire mesh and gunite was placed on the slope to hold the fill in place until the riprap was installed.

Figure 7. Slope stabilization measures

A concrete buttress (55'x 8'x 5') was installed at the toe of the slope to hold the riprap on the slope and serve as an anchor for the transition structure (**Figure 8**). The buttress is also the foundation structure for the box culvert of the new spillway structure. The 36-inch corrugated drain pipe was cast through the buttress. One 3-inch and two 2-inch drains were installed to relieve hydraulic pressure behind the buttress. The buttress was anchored to the bedrock with rebar dowels installed 12-inch on center.

Figure 8. Concrete Toe Buttress

Approximately 50 feet of new 36-inch diameter corrugated metal pipe will be connected to the existing culvert. The buttress will anchor the pipe to the slope. This pipe drains the area above Flume 12 and bypasses the water below the slope to the original outlet point.

Approximately 4,000 cubic yards of riprap (12-60 inch diameter) were placed and tied together with concrete grout for additional structural stability (**Figure 9**). The riprap is also the foundation support for the open box culvert.

Figure 9. Grout filled rip rap and box culvert support

A concrete foundation provides full support on the bottom of the new box culvert section. The foundation continues up the slope to the transition structure. Approximately 120 feet of steel box culvert was installed, its side heights varying from 4' to 8' with anchor rods installed 20 feet into the grouted rip-rap (**Figure 10**). The original structure used a half-round corrugated pipe tied back through 2-inch minus fill material. The square cross section of the steel box culvert is larger and the smooth surface has a lower coefficient of friction. The new box culvert is sized for the capacity of the waterway system. The stiffeners on the box culvert were raised 2 feet above the top of box to allow debris to pass without obstruction.

Figure 10. Completed Flume 12 spillway

The slope had been remediated and the new spillway structure completed by November 30, 2011. Survey monitoring of the site during construction indicated that there was no movement of the transition structure, gabion walls, and the slope after the slope was stabilized with wire mesh and gunite.

Revised Canal Water-up Procedures

The trashrack and spillway structure at Flume 12 was originally constructed to provide for controlled and limited overflow that could potentially occur upstream of the Lemolo 2 canal sagpipe. To help prevent clogging due to potential accumulated debris, new procedures were developed for watering up the canal following routine maintenance.

- Safety
    - Conduct tailboard/pre-job brief with all appropriate personnel, Toketee Control Center Operator(s), Maintenance Personnel, Plant Operators and Electrical Crafts
    - Plan canal rewatering events to begin early on normal workdays with sufficient daylight and staff to complete water-up and monitoring during daylight hours.
    - Prior to opening headgate, patrol canal to ensure no persons or items in canal that could cause potential public safety concern
    - Remove from canal any debris or obstructions
    - Ensure all tag-out's and clearances have been properly removed, documented, and Toketee Control Center notified of updated conditions

- Canal Monitoring, Shutoff, and Dump systems: Pre-operational Inspection
    - Plant Operators verify canal water level sensors are functional
    - TCC Operators verify alarms are functional
    - Plant Operators visually inspect the entire length of the canal segment for the presence of brush or debris which may be mobilized during flows
    - Trash racks are inspected
    - Plant Operators are to patrol canal and ensure all gates are in the fully raised position
        - Drain gate valves are closed at canal gates 1-5
        - Trigger systems are active and reset, ready for operation with the retainer pin actuator in the extended position
        - Dump gate AUTO/OFF/HAND control switches set to "AUTO" position
        - Canal headgate AUTO/LOCAL/OFF control switch in "AUTO" position
        - Canal headgate VFD "REMOTE" indicator light "ON"
        - Dump station battery voltages are in acceptable range above 23VDC
        - Water generators, one located at each dump gate and monitoring site, are free of debris and are in the down and ready for service positions
        - Rock traps located at Flumes 3, 7, 9, and 15 are closed
    - TCC Operators verify differential set-point is set at 50% and rate of change set-point is set at 1.0'
        - Verify Canal Monitoring, Shutoff, and Dump system is ready for activation on the LE2CNLSHUTOFF screen. Canal Monitoring system should indicate "ENABLED" in green letters. If it says "DISABLED" enable system by clicking "ENABLE SYSTEM" button on the PLC screen.

- Program alarm settings for absolute canal freeboard limits at any of the dump gates or monitoring stations are exceeded.

- Ramping
  - TCC Operator will begin ramping remotely using PLC controls and maintain appropriate bypass flow ramping rates as outlined in the *Compliance Handbook*
    - Plant Operators will provide local ramping at the canal headgate if necessary. Plant Operator must stay in regular contact with TCC Operators to ensure ramp rates are not exceeded. Canal headgate control switch must be returned to "AUTO" and Canal Shutoff System returned to "ENABLE" after every local headgate position change
  - Plant Operators are to patrol the canal for the entire duration of ramping, from the first pulse of water up to a full-canal condition. In addition, they will keep TCC Operator continually informed of conditions
    - Plant Operator must follow water down canal
      - Ensure all drains and rock traps are sealed
      - Ensure debris are not restricting canal flows
      - Ensure ice and snow are not damming water flow
      - Clean all debris from canal headgate rack, Flume #12 backhoe rack, Flume #13 sag pipe rack, and Lemolo No.2 Forebay penstock headgate.
      - Clean and monitor racks at regular intervals during ramping to ensure trash rack differentials do not increase beyond 1.0'. Call out additional personnel if needed to monitor racks/patrol canal.
  - TCC Operator will continually monitor canal, bypass reach, river flow, and canal monitoring system for expected levels based on calculated ramp levels, flow cfs changes, and water travel time table.
      - If ramp levels do not meet intended results of the calculated flows in the time frame expected, immediately contact Plant Operator(s) patrolling canal and verify whether unusual conditions exist. TCC Operator will perform corrective actions if necessary based on response from Plant Operator.
  - TCC Operator will trigger Canal Dump Gate system as necessary if an overtopping event is reported from Plant Operator patrols during water-up to ensure that overtopping is minimized.

Assessment of Resource Impacts

Erosion caused by the Flume 12 Spillway event on June 30, 2011 washed soil and rock (gravel, cobble, boulders) from the spillway and adjacent hillside into the riparian area and river channel. This material added to other previous slide material to apparently further constrict the channel at the base of the spillway. This Plan addresses remediation of both initial and potential future impacts to aquatic habitat related to this event.

Site Description

The Lemolo 2 bypass reach is characterized by steep unstable slopes and flashy tributaries, and has a history of landslides, both natural and due to anthropogenic activities. LWD and spawning gravel are relatively abundant in the Lemolo 2 bypass reach (PacifiCorp 1995). Survey results also indicate that the area's channel substrate is cobble dominated with a "fair" pool/riffle ratio (USFS 1996).

The affected reach near the Flume 12 spillway is within a steep canyon and only accessible by foot or helicopter. This reach has been affected by several past slides down the slope below the spillway and possibly down Barkenberger Cr. These slides have helped shape the channel by forming a pool upstream of the debris flow, and a long, narrow riffle through the debris flow that is evident in aerial photos taken in May 1992 and summer 2005 (**Figures 11 and 12**). Habitat mapping surveys on the ground in July 1992 indicate that the pool averaged 29 ft wide and the riffle averaged 22 ft wide at a flow of about 40 cfs (PacifiCorp 1995). A photo made at the pool in July 1992 (PacifiCorp 1995, **Figure 13**) shows a steep, high terrace of rocky debris alongside the wetted channel, similar to the current situation, but with a more weathered surface. Slide material appears to be maintained in place during lower flows by a right-bank rock point that shunts the thalweg toward the left bank. Although there have been several high flow events up to the 20-yr recurrence interval since 1992, there are no recent ground-level photos known to exist of this area that may document site conditions immediately prior to the June 30, 2011 slide event.

Following the slide event, the habitat condition appeared similar to that described above but with a fresh deposit of rocky debris which has increased the size and depth of the upstream pool while narrowing the riffle flowing over the new material for several hundred feet of river length. Based on a Wolman Pebble Count the USFS indicated that the new material within the river channel was of similar average particle size to that immediately upstream, but appeared more angular in shape (Street 2011; Appendix B). Within the rockslide are occasional large boulders, logs, and trees. There were also several lengths of culvert pipe lying within and in the river channel downstream of the material. These culvert pieces were gathered by hand crews and removed by helicopter on October 13, 2011. Although the narrow riffle has high water

velocities through the thalweg, it also has a coarse bottom substrate and slower margins which appear to allow for fish passage, with no barriers and no obvious obstructions.

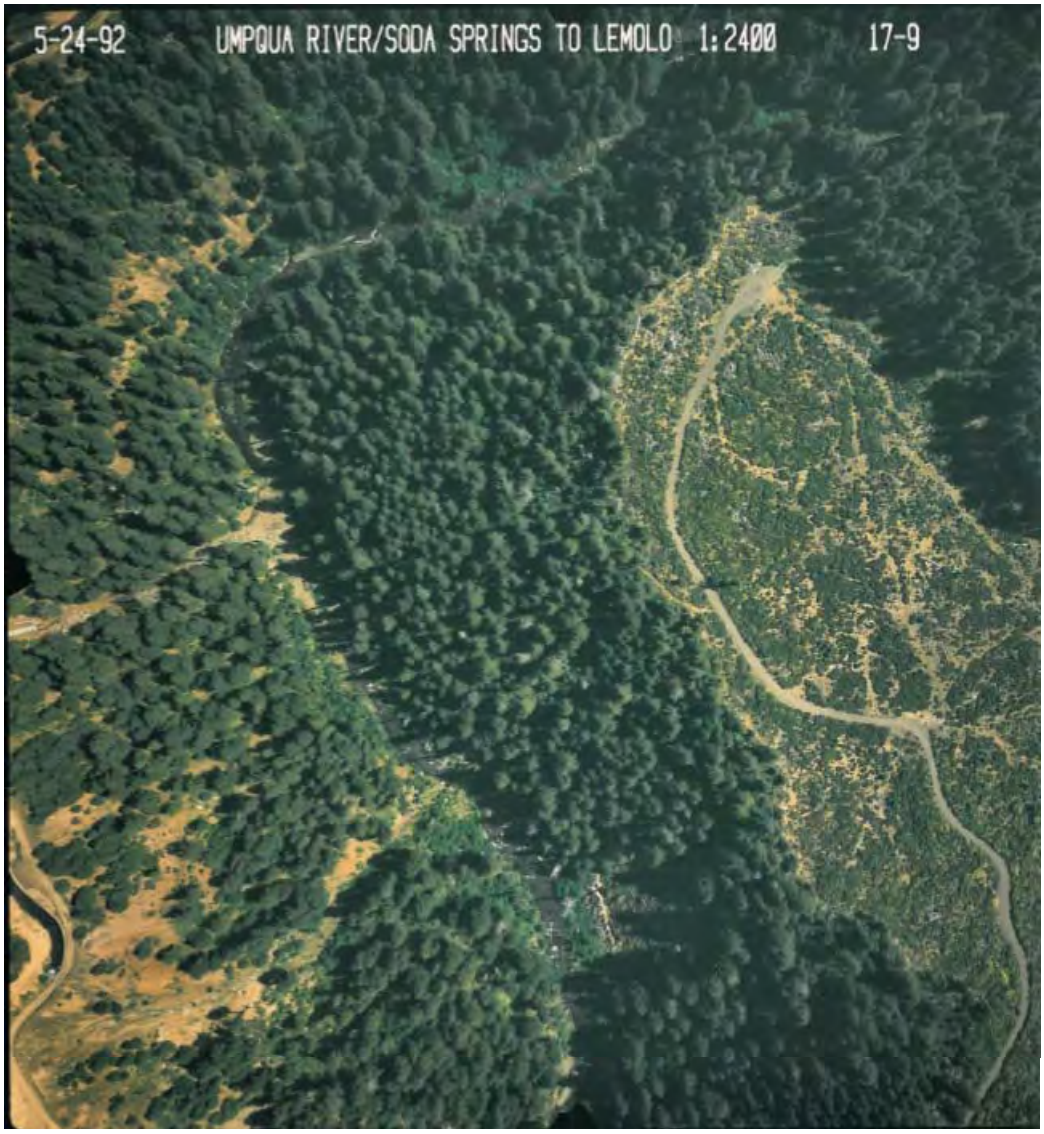


Figure 11. Aerial photo made May 24 1992, showing Flume 12 spillway in center of left side with debris flow at downslope end along river.

Figure 12. Aerial photo made 2005, scale 1:2500, showing Flume 12 spillway in center of image with debris flow at downslope end along narrow riffle reach of river.

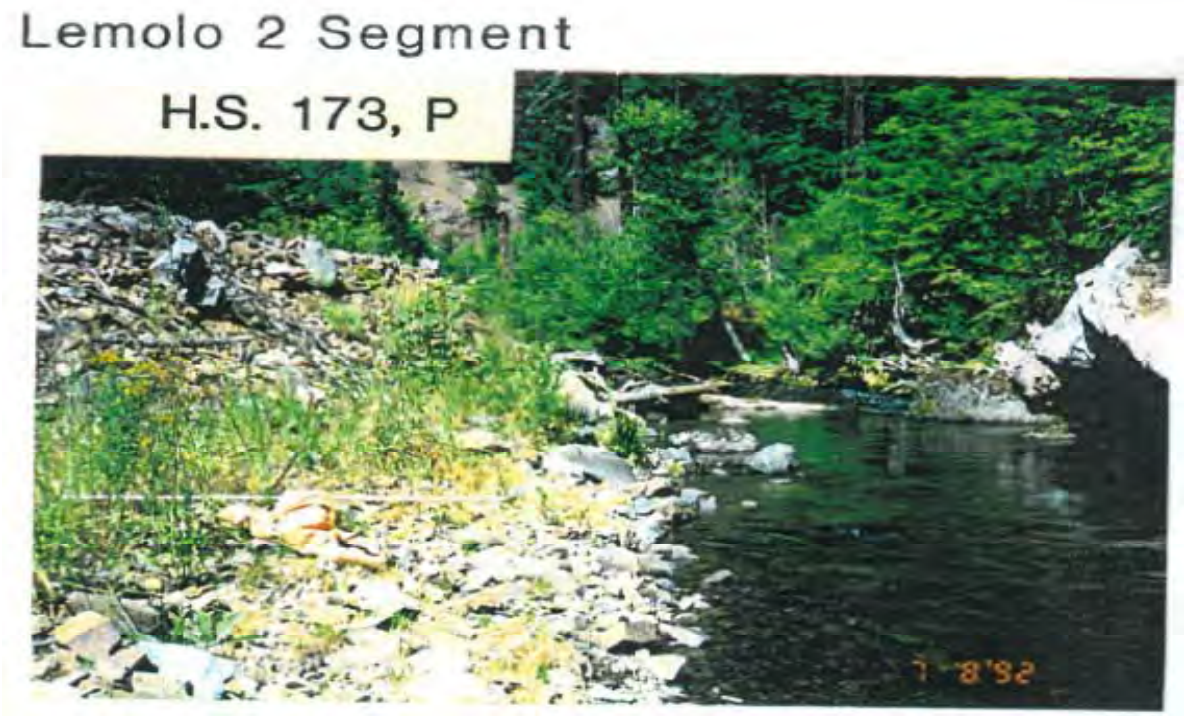


Figure 13. Ground-level view of rocky debris flow at Habitat Segment 173, Pool (near end of Flume 12 spillway) on July 8 1992.

As part of a more detailed assessment, PacifiCorp made aerial observations and photos of the Flume 12 area and river reach on October 13, 2011. These photos were used during an on-the-ground aquatic habitat assessment on November 4, 2011 by PacifiCorp and Meridian Environmental (Appendix C). This assessment compared fish habitat parameters from Flume 12 downstream to the confluence of Patricia Creek (Flume 12 Reach) with data collected during relicensing studies in 1992. Although some minor changes seem to be present compared with previous data, the report concluded that there appears to be little difference at this point among habitat types and distribution within the study area. Overall the reach was characterized as having a healthy diversity of habitat types and features. Besides helping to characterize direct impacts from the event, this assessment provides a baseline for future monitoring of fish habitat characteristics.

Resource Mitigation

Resource impacts thus far appear minor, as described above. Remediation in 2011 has stabilized the spillway slopes to control erosion, reconstructed an improved spillway structure, removed the sections of culvert from the river channel, and revised procedures to avoid a repeat event. Mechanical remediation of the river channel using heavy equipment to remove slide debris and reshape the channel was initially considered. However, the short-term construction impacts would likely have outweighed any benefit, and the risks associated with using large equipment within the remote river (e.g., fuel/oil spills and inability to rapidly evacuate if necessary) were considered unacceptable. The practicality of future remediation within the remote canyon will be inhibited by similar access, risk, and safety constraints. Similarly, the need for remediation may remain unclear (even after years of monitoring) due to the range of natural variability and uncertainty inherent in aquatic habitat features in a canyon subject to episodic natural events like slides, logjams, and tributary influences.

In lieu of any further remediation in the Lemolo 2 bypass reach, mitigation will be provided to directly and immediately benefit the highest priority resource in the hydropower project area – native anadromous fish – during 2012. The estimated cost of detailed monitoring and helicopter-based wood and gravel remediation in Lemolo 2 bypass reach is $35,000 over a 5-year period. Based on SA resource priorities, that investment will provide greater resource benefit as $35,000 of spawning gravel contributed to the SA 8.3 Soda Springs bypass reach spawning habitat project, and subsequently will benefit spawning habitat in downstream reaches consistent with the SA 7.2 gravel augmentation program. This contribution would raise PacifiCorp's total 2012 contribution to Soda Springs bypass reach habitat work to $50,000, thus supporting the majority of work and commensurately extending the viability of the SA 7.2 and SA 8.3 funds for future needs.

Resource Monitoring

Monitoring of bedload movement and fish habitat features will occur to determine whether resource impacts remain minimal as expected, and to thus inform the response to any similar event should one occur in the future. Monitoring will include a baseline assessment in 2011-2012, and a follow-up assessment in 2016. Each will encompass two reaches: 1) the Flume 12 Reach, in order to document any movement of the eroded spoils from their November 2011 location and any change to the measured characteristics; and 2) a Response Reach, comprising a ½ mile long reach in the vicinity of Charlie Creek (**Figure 14**).

Figure 14. Location of Response Reach near Charlie Creek, in relation to the Flume 12 slide area.

Baseline data for the Response Reach will be collected in 2012 to document habitat attributes as measured and characterized in the Flume 12 Reach in November 2011 (Appendix C). In addition, we will locate by GPS and/or by sketching on aerial photos (or maps) the following features:

- The downstream toe of the angular gravel deposit within the thalweg,
- The location of any scour bars and cross sections for bedload monitoring,
- Photo points and views,
- spawning habitat, and
- redds.

On a coarse scale, high elevation aerial and satellite photography will be analyzed as it becomes available from the county, USFS, and other agencies or efforts, to assess the gross changes to the area and channel. Lower-elevation aerial photos such as those made in October 2011 will also be made again as feasible. At ground level, several photo points will be established and photos repeated at each monitoring event. These will include some of the photo points from the 1992 studies and the November 2011 baseline monitoring.

Most monitoring is anticipated to occur during November to coincide with the lowest flow condition (50 cfs, consistent with monitoring in 1992 and 2011) and with brown trout spawning to aid in identification of spawning habitats and redds. One June survey will be made in an attempt to locate rainbow trout redds; however, past experience indicates that they are difficult to identify due to high flows, sparse population, and being temporally spread over a more protracted spawning period. Unless determined differently in the field, it can be assumed that rainbow trout will use similar habitats to brown trout due to their similar size.

Monitoring will be repeated in 2016, five years after the event. Monitoring results will be compiled as in 2011 to make comparisons among earlier surveys for review by the FHS TWG to determine the mobility of slide material and any impacts to fish habitat. This information will help to inform the response to any similar event should one occur in the future.

References

Street, C. 2011. Lemolo 2 Erosion Report, USFS, August 8, 2011 (as revised after August 16, 2011); 9 pp.

PacifiCorp 1995. Application for New License for Major Modified Project, North Umpqua Hydroelectric Project, FERC No. 1927. Volumes 25, 29.

U.S.D.A. Forest Service 1996. Upper North Umpqua River Stream Survey, Diamond Lake Ranger District, Umpqua National Forest

Appendix A

July 1, 2011, e-mail notification to the agencies regarding the Flume 12 Event

From: Grost, Richard
Sent: Friday, July 01, 2011 12:37 PM
To: 'Dave Harris'; Chris Stine (stine.chris@deq.state.or.us); Bill E Gamble; 'Pam Sichting'; 'cstreet@fs.fed.us'
Cc: 'Ariel Hiller'; 'rob_burns@fws.gov'; 'Craig Kohanek (ron.c.kohanek@wrd.state.or.us)'; David Waltz; 'Ed Meyer'; Garrett, Monte; Blum, Michael
Subject: NUHP erosion event on Lemolo 2 canal 6-30-11

Hi folks – in accordance with the SA 14.3 and WQ Cert Condition 3(i), this is your initial notification that an erosive event has occurred today along the Lemolo 2 canal of the North Umpqua Hydroelectric Project. The investigation into specifics and planning for remediation are in progress and may take a week or so. The general description at this point seems to be:

Where: Lemolo 2 canal at Flume 12, just upstream of the sag pipe along the Burma Rd. (T26S, R4E)

What: water spilled over canal into the spillway, but part of the spillway culvert system washed out causing erosion of hillslope soils down into the North Umpqua River, Lemolo 2 bypass reach, downstream of Barkenburger Cr. The volume of flow spilling is unknown.

When: spill was first suspected at 0100, when TCC operators called our area operators to investigate. Area operators found the trashrack plugged and water spilling over the canal spillway. The trashrack was immediately cleared of debris and spill ceased by 0300. The lower spillway washout was not discovered until daylight investigations ensued.

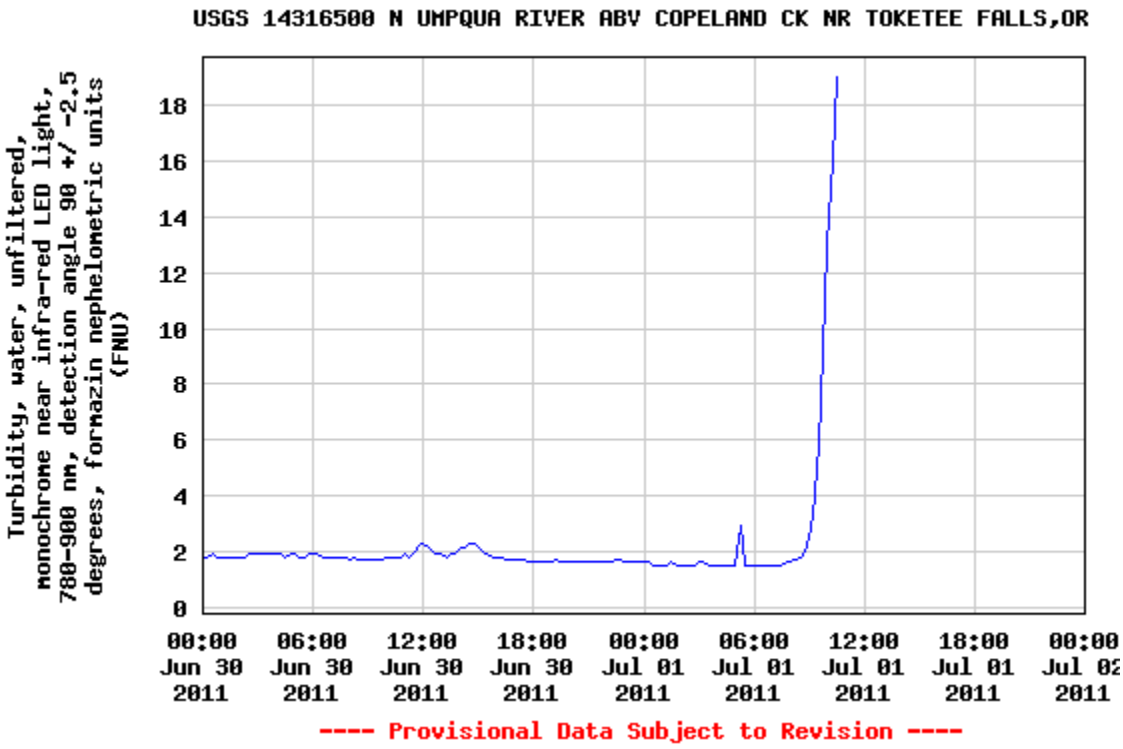
Why: debris apparently accumulated in the canal during the 3-week maintenance shutdown, and was mobilized as the canal was being gradually refilled during the evening of 6-29-11, gradually blocking the trashrack until spill occurred. Debris may also have spilled out of the canal and blocked the spillway culvert, initiating the erosion.

Impact: the only known impact at this time is higher than normal turbidity in the lower Lemolo 2 bypass reach, Toketee Reservoir, and on downstream through the Wild and Scenic Reach. As of 10:30 today, turbidity in the Lemolo 2 bypass reach appeared to be approaching background levels (similar to the previous day), while Toketee Reservoir remained mostly turbid, and turbidity at the Copeland gage was rising to 19 NTUs (similar to a winter storm level; see figure below) as the plume worked into the Wild and Scenic Reach. The plume of high turbidity should gradually dissipate thru today and tomorrow so that the W&S reach approaches normal clarity by Sunday.

Reporting: As required by the SA and WQ Cert, the Oregon Emergency Response System was called at 11:45, initiating Incident # 2011-1569. The USFS and ODFW are being notified by this message and also by phone.

Questions?: Rich Grost, Aquatic Scientist, PacifiCorp Energy, 541-498-2617, rich.grost@pacificorp.com

Most recent instantaneous value: 19 07-01-2011 10:30 PDT



July 6, 2011, e-mail notification to the agencies regarding the Flume 12 Event

From: Grost, Richard
Sent: Wednesday, July 06, 2011 4:38 PM
To: Grost, Richard; Dave Harris; Chris Stine (stine.chris@deq.state.or.us); Bill E Gamble; Pam Sichting; cstreet@fs.fed.us
Cc: 'Ariel Hiller'; rob_burns@fws.gov; Craig Kohanek (ron.c.kohanek@wrd.state.or.us); David Waltz; Ed Meyer; Garrett, Monte; Blum, Michael; Schevenius, Scott; Albertelli, Steve
Subject: RE: NUHP erosion event on Lemolo 2 canal 6-30-11

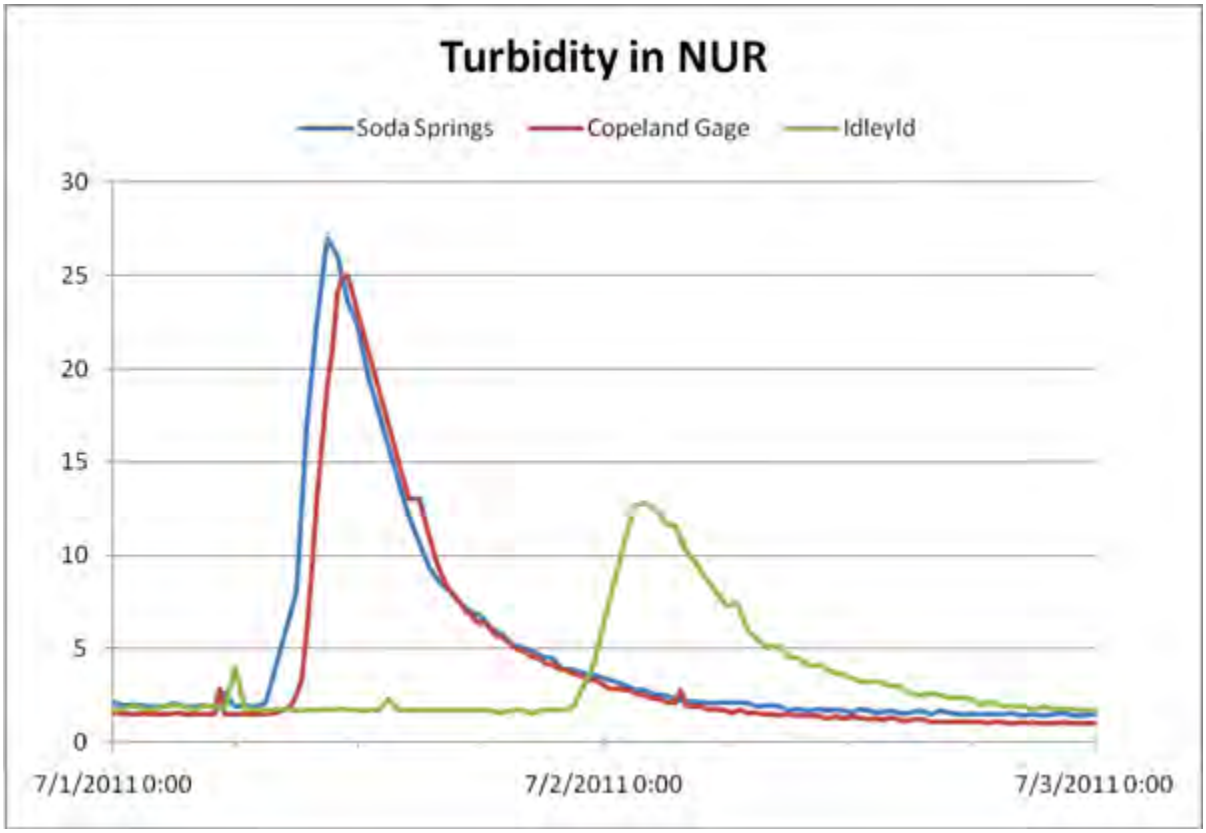
After more investigation, we can provide the following updates to our initial report:

What: We estimate that spill from the canal into the spillway occurred over perhaps 8 hours and gradually increased (as water was being ramped into the canal) up to a peak of perhaps 400 cfs. It is unknown at what time during this period the culvert failed and initiated the slope erosion.

Impact: The turbidity plume peaked at about 27 NTUs at the upstream end of the Wild and Scenic reach, and about 13 NTUs at the downstream end of the reach 15 hours later (see figure below). A substantial volume of rock and soil was washed from the spillway sideslope into the North Umpqua River (see attached photo).

Following our analyses, system improvements, including new alarms and clearer control interfaces, are being implemented to prevent a repeat of this event.

Remediation planning for the eroded slope and damaged infrastructure is also underway, with a plan expected late this week for agency consultation.



End of Appendix A

Appendix B

USDA-FS Summary Report of the Flume 12 Event

Flume 12 Incident Report

August 8, 2011 (Original Report)

September 19, 2011 (Multi-agency/PacifiCorp Report)

Craig Street-USFS

A landslide occurred in the early morning hours of July 1, 2011 along the 3400-072 Road, also known as the "Burma" Road. This area is located just west of Barkenberger Creek at T 26 S, R 4 E, Section 2, NW/SW. The slide was precipitated by overflow from a trestled portion of the canal. Overflow, of up to 400 cubic feet per second (cfs) for up to eight hours, occurred as a result of cut brush within the canal that accumulated on and plugged the trash rack located immediately upstream from a subsurface portion of the canal known as the "Sag Pipe". The brush was cut within the previous two weeks by PacifiCorp when the canal was dry for generator maintenance. Normally a "concrete transition structure" would funnel the overflow into a "half-pipe" cmp several hundred feet downhill to an area of armored channel and thence into the North Umpqua River. The volume and duration of flow exceeded limitations of the design and the half pipe became disengaged, causing the flow to spill directly into the more vulnerable upper half of the channel. In addition, the heavy and sustained flow resulted in the lower half of the channel being highly incised and eroded. This fluvial erosion caused an estimated 3,500 cubic yards (c.y.) of primarily gravel and cobble sized material to move down the slope several hundred feet and cross the North Umpqua River, with the majority coming to reside within the wetted width of the river (Photo 1 and 2). Approximately 500 c.y. of additional material was added through a landslide that occurred on the night of July 18th as a result of receiving approximately one inch of rain that day/night.

The vast majority of material was angular, probably due to both placement of this material when other previous landslide events occurred in this channel as well as rock native to the site. Reportedly, this is the third or fourth time a slide event has occurred in this channel. The channel currently is highly incised and eroded down to bedrock in the upper half of its course (Photo 3). The lower half below the original concrete buttress is also highly incised and eroded down to bedrock with occasional large boulders observed. A mixture of fines, gravel, cobble, boulders and woody debris from the slide activity occupies the lower one-quarter of the channel

Photo 1- Slide route looking uphill towards the Burma Road from the North Umpqua River; 7/27/11

Photo 2- Slide material within the wetted width of the North Umpqua River, looking upstream. Main channel crosses right to left in upper half of photo, just below man shown for scale; 7/27/11

Photo 3- Post-slide bedrock channel; looking down from the Burma Road; 7/6/11

Initially the Oregon Emergency Response System (OERS), Forest Service (FS), and Oregon Department of Fish and Wildlife (ODFW) were notified on Friday July 1 by Rich Grost and Monte Garrett. Numerous other agencies and individuals were notified the same day. Maximum turbidity was 27 NTU in the Soda Springs Bypass Reach. Turbidity of a lesser magnitude persisted for two days downstream of the hydro project due in part to residence time in Toketee and Soda Reservoirs.

The FS first visited the site on July 6 after discussing by phone with Rich Grost. Photographs were taken of the slide and drilling for installation of cable tie-backs to stabilize the concrete transition structure (Photos 4 and 5). An idea of planned work was gathered by talking to the Contractor. Discussions also occurred with both Steve Albertelli and Scott Schevenius of PacifiCorp.

Photo 4- Drilling to install tie-backs to stabilize the “concrete transition structure”; 7/6/11

Photo 5- Concrete transition structure and origin of slide; looking up the slide route towards the Burma Road; 7/6/11

The FS was notified on July 6 of an opportunity to comment on the draft Emergency Erosion Control Remediation Plan. Wildlife, Fisheries, Botany, and Cultural Resources were briefed and the FS provided input prior to issuance of the draft plan on July 7. PacifiCorp's remediation plan is as follows: "*The remediation involves stabilization of the existing concrete transition structure adjacent to the road and backfill with large diameter (12" to 60") riprap to support installation of a new 8'-diameter full-pipe. The transition structure will be temporarily stabilized with 1.5-inch diameter steel rod tie-backs until the riprap can be filled in and grouted beneath the transition structure. Concrete and gunite will be used to reinforce the gabion baskets and riprap immediately below the road and transition structure. The riprap base supporting the new pipe will be held in place by a 55' x 5' x 10' concrete buttress near the bottom of the slope. A concrete apron will be installed below the buttress at the outlet of the pipe where the channel transitions to a native bedrock and cobble course between the outlet and the river. Work on the slope will be accomplished via a temporary access road on the north side of the spillway. The approximately 15' wide road will be at an approximately 20% slope and will be pulled back and decommissioned with original materials following use. The decommissioned road alignment and any restored slopes with suitable soils (i.e. non-riprap areas) will be reseeded and/or revegetated pursuant to the VMP and in coordination with Eric Baxter.*"

The FS again visited the site on July 27 and observed that the upper portion of the slope had been covered with wire and "shot-creted" for stabilization and the cable tie-backs had been installed (Photo 6). The access road had also been constructed and was approximately 300 feet in length and of steep grade (Photo 7). The FS initiated photopoints and conducted Wolman pebble counts upstream and downstream of the slide area, in areas of non-slide related material, and slide based material, respectively.

Photo 6- Wired and "shot-creted" channel; 7/27/11

Photo 7- Emergency Erosion Control Remediation Plan road. Burma Road/canal is on the upper right corner of photo; 7-27-11

Areas of slide deposition up to 10 feet in depth were observed (Photo 8). The river channel was constricted to approximately 15 foot widths at both the upstream end and at the mid-point of the depositional area (Photos 9 and 10). Normal wetted width in this area would be approximately 75 feet. The slide deposition area ran from approximately 50 feet upstream from the slide centerline downstream an estimated 250 feet. Several sections of corrugated metal pipe (cmp) were observed both within the slide path and within the slide deposition area along the river bank (Photos 11 and 12). Some of the cmp appeared quite old and are thought to have been remnant material from previous slides in the channel.

Photo 8- North bank of the North Umpqua River looking downstream with 10 foot deep slide material. Mouth of slide is mid-photo on right. This area was originally within the channel's wetted width. Channel is constricted to a 15 foot width to the left of log; 7/27/11

Photo 9- North Umpqua River looking downstream. Upper extent of slide material shown with constricted main channel in left center of photo; 7/27/11

Photo 10- North Umpqua River looking upstream. Upper-mid portion of slide deposition shown with constricted main channel; 7/27/11

Photo 11- Cmp on floodplain of North Umpqua River; 7-27-11

Photo 12-Cmp located near mouth of slide; looking from north bank of river up towards the Burma Road; 7/27/11

The pebble counts indicated D50s of "Very Coarse Gravel" (45-64 mm) at both sites, with substrate in the slide area markedly more angular than the rounded material above the slide area. A relatively small amount of fines (<2mm) were observed in both sites. The relatively low amount of fines in the slide material may be attributed to: 1) the large and sustained "flushing" flow of canal water after the channel had been eroded to bedrock; 2) a portion of the slide material being "offsite" coarse rock fill, and 3) subsequent heavy precipitation washing existing fines into the deep, angular deposition as well as downstream. As the larger material is mobilized by high winter flows, additional turbidity can be expected.

Potential issues would be those related to introduction of fine sediment and associated turbidity. Immediate effects would have been primarily to incubating and emerging rainbow trout within the Lemolo 2 Bypass Reach of the North Umpqua River.

Appendix C

Site Assessment – Meridian Environmental December 7, 2011

FLUME 12 SLIDE EVENT
RESOURCE IMPACT ANALYSIS
DECEMBER 7, 2011

Meridian Environmental
Seattle, WA

Introduction

An accidental erosion event in the Flume 12 Spillway during the summer of 2011 washed soil and rock (gravel, cobble, boulders) from the spillway and adjacent hillside into the riparian area and river channel of the Lemolo No. 2 bypass reach. PacifiCorp developed the Flume 12 Remediation Plan to address the effects of this event on aquatic habitat. Specifically, the purpose of this report is to:

1. Describe direct and indirect impacts of the slide event on aquatic habitat in the bypass reach.
2. Describe existing habitat condition (fall 2011) that will serve as a baseline for monitoring changes that may result from remediation of the affected area.

Methods

The 2011 aquatic habitat survey was conducted on November 4, 2011 from the Patricia Creek confluence, proceeding in the upstream direction to just beyond the Flume 12 debris slide (a 2,333-foot-long sub-reach within the 11-mile-long Lemolo No. 2 bypass reach of the North Umpqua River). Changes to aquatic habitat that may have resulted from the slide event were assessed by comparing current habitat conditions between Patricia Creek and the Flume 12 Spillway with those documented during aquatic habitat surveys completed in 1992. River-level and aerial photos taken in 1992 (the most recent pre-slide documentation available) were used to identify landmarks in the field and quantitative habitat data was collected using the same methods that were employed in 1992 to determine habitat unit widths, maximum depths, slopes, substrate condition, percentage of spawning habitat, amount of woody debris, and other characteristics (see Attachment 1). Following the survey, habitat metrics were summarized and compared to data collected during the 1992 survey to assess habitat changes that may be related to the recent Flume 12 slide event.

The November, 2011 survey date was selected to minimize the difference in flow conditions between survey years. Under the current Lemolo 2 operating regime, flow releases are at their lowest (50 cfs) during November, and most similar to flow conditions (40 cfs) in 1992.

2011 Survey Results and Comparison with 1992 Survey

The 19-year interval between 1992 and 2011 complicates the comparison of habitat data between survey years, because a variety of factors may have contributed to the changes observed. These include natural processes (e.g., floods, erosion) and implementation of resource management measures (e.g., higher instream flow releases, bank stabilization efforts) that have occurred over the past 19 years, as well as the slide event that occurred in 2011. However, comparison of 2011 data with 1992 data proved informative.

In general, medium and fast water velocity habitats comprised the majority of habitat unit types observed in the reach from Patricia Creek to Flume 12 in both survey years (Table 1). The proportion of each habitat type, based on surface area, was very similar between 1992 and 2011 (Table 1), as was the distribution of habitat types (Figure 2) and water surface slope (Figure 1). However, a slight steepening of the riffle downstream of the flume slide and flattening due to enlargement of pool upstream of flume slide can be seen in Figure 1.

Photo comparisons (photo pairs 1 through 4) also indicate similar habitat types in both survey years. However, the total area was larger in 2011, likely due to the higher minimum flow now released to the Lemolo No. 2 bypass reach (compared to 1992). Habitat unit types identified during the 2011 survey are also depicted on figures 2, 3 and 4.

Table 1. Habitat type proportions (Patricia Creek to Flume 12 area).

Habitat Type	1992 (ft^2)	2011 (ft^2)	1992 (%)	2011 (%)
Slow (pool, glide)	8,156	11,340	9%	11%
Medium (riffle, riffle w/ pockets)	47,282	58,259	54%	57%
Fast (rapid, cascade)	32,521	32,846	37%	32%
Total	**87,959**	**102,445**	**100%**	**100%**

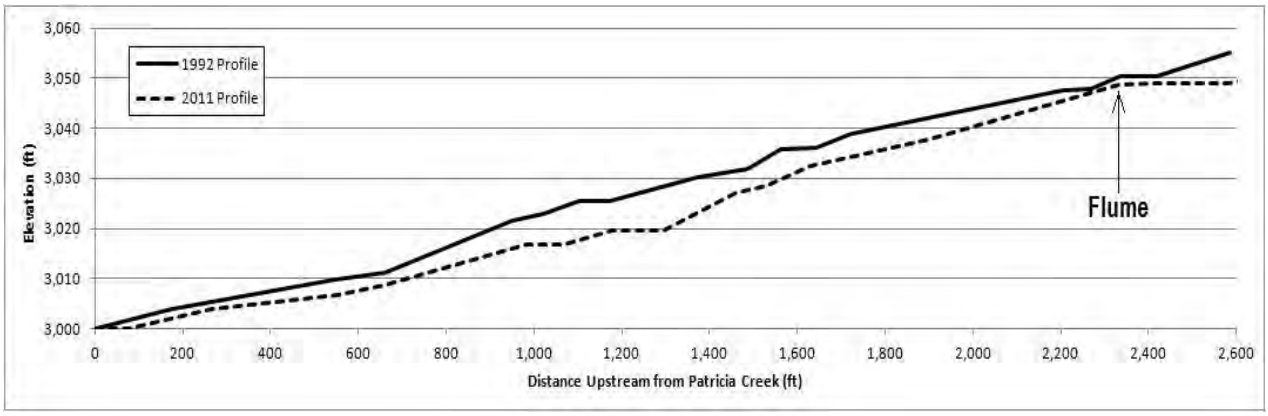


Figure 1. Water surface slope in the Lemolo 2 sub-reach as recorded during field surveys in 1992 and 2011.

In 1992, substrate data were summarized for the entire 11-mile-long Lemolo No. 2 bypass reach, rather than reported by individual sub-reach. However, substrate size class distribution measured in the 2,333-foot sub-reach from Patricia Creek to Flume 12 in 2011 was similar to the size class distribution reported in the Lemolo No. 2 bypass reach in 1992. The percent spawning area (suitable salmonid spawning gravel) in the Patricia Creek to Flume 12 sub-reach was estimated to be 5 percent (average of all habitat units) in 2011. In 1992, the percent spawning area in the Lemolo 2 reach was approximately 7 percent (PacifiCorp 1995). Embeddedness of gravel/cobble was considered low (in the 0-25 percent category) in both years, likely indicating little or no impact on spawning gravel quality associated with fine sediment deposition. Additional substrate observations noted in 2011 are listed below:

- First sign of fresh angular gravel began to appear at habitat unit #7.
- Downstream toe of the large mid-channel angular gravel bar was in habitat unit #13.
- Six brown trout redds were observed (some with active spawning pairs) all within 5 feet of the bank and near cover, as typical of small brown trout.
- Some of the brown trout redds were observed in areas with fresh angular gravel (see Figure 4).

Table 2. Percent substrate of total wetted habitat area.

Year (Reach)	Silt/Fine Organic	Sand	Gravel	Cobble	Boulder	Bedrock
1992 (Lemolo No. 2 bypass reach)	1%	7%	26%	50%	16%	1%
2011 (Patricia Creek to Flume 12	1%	3%	19%	53%	22%	1%

Comparing 1992 and 2011 channel forms, width:depth ratio has probably increased for pools, but decreased overall (Table 3).

Table 3. Width:depth ratios (Patricia Creek to Flume 12 sub-reach).

Year	Mean Pool Depth (ft)	Mean Pool Width (ft)	Pool W:D	Total W:D
1992	4.2	27.5	6.5	19.3
2011	4.0	39.5	9.8	15.3

Photo Pair 1. 1992 Unit 166 appears similar to 2011 Unit 9 (1992 left, 2011 right).

Photo Pair 2. 1992 Unit 169 appears similar to 2011 Unit 12 (1992 left, 2011 right).

Photo Pair 3. 1992 Unit 173 appears similar to 2011 Unit 14 although the gradient is higher in the 2011 photo (1992 left, 2011 right).

Photo Pair 4. 1992 Unit 176 appears similar to 2011 Unit 15, except that the Flume 12 debris fan has caused a dam-pool that backwaters the area upstream in 2011(1992 left, 2011 right).

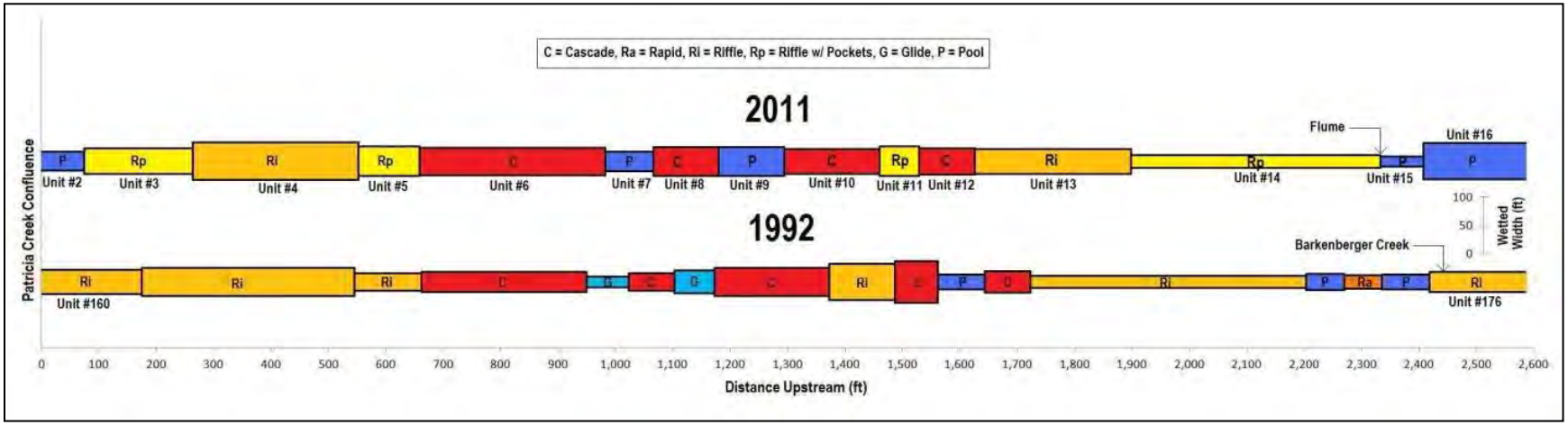


Figure 2. Habitat unit sequence profile (based on measured unit length and average width).

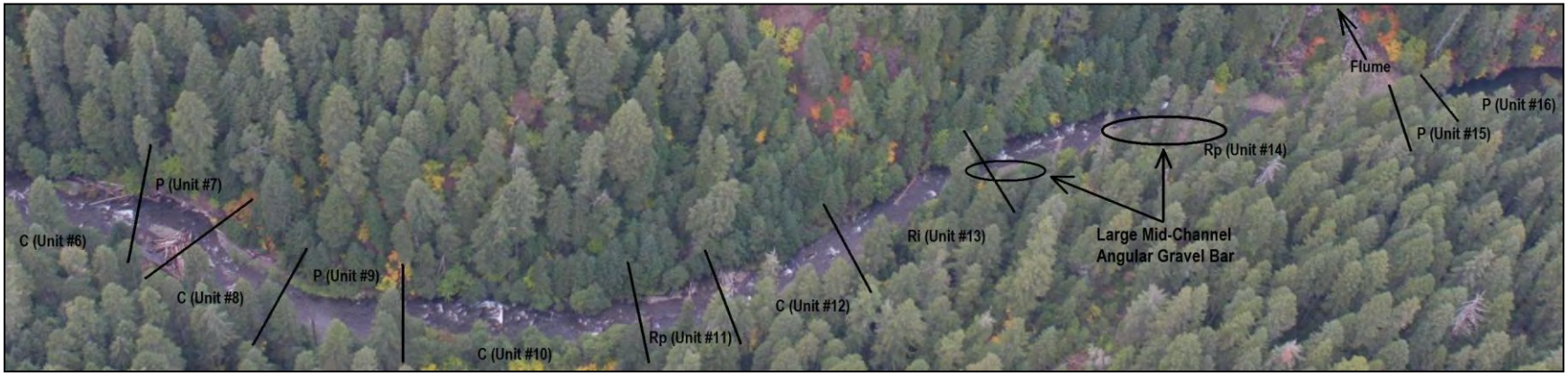


Figure 3. 2011 aerial photo (post Flume 12 slide event) showing 2011 habitat survey unit types and breaks (note image begins upstream from Patricia Creek confluence).

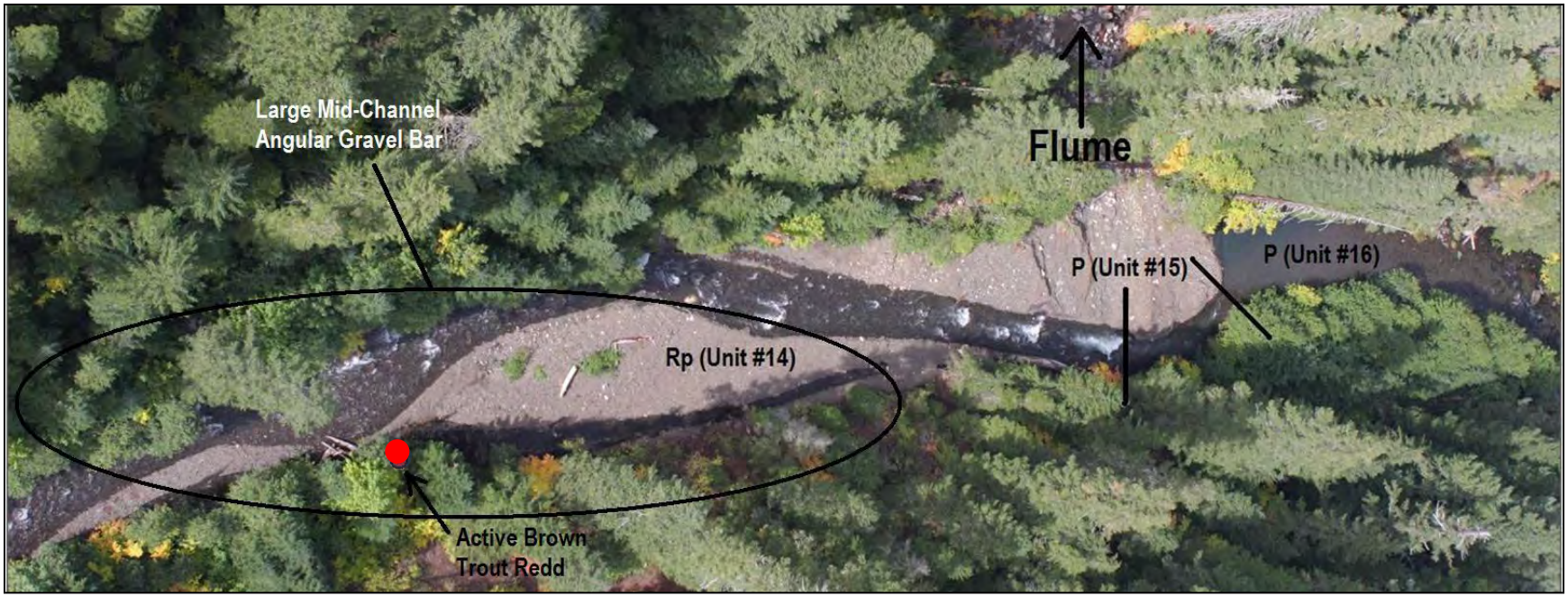


Figure 4. Aerial photo of immediate Flume 12 area deposition zone, post-slide event (2011). Red dot indicates approximate location of active brown trout redd in side channel.

As is the case for substrate, the 1992 large woody debris (LWD) abundance data are not available specific to the Patricia Creek to Flume 12 sub-reach. However, the Lemolo 2 reach as a whole rated "good" according to the ODFW/USFS Habitat Benchmark Rating for woody debris abundance in 1992 with an average of 51 pieces per mile in the channel (PacifiCorp 1995). . In 2011, there were numerous long-standing LWD jams and individual pieces of LWD in the surveyed sub-reach. Although the presence of several large logs jams made it difficult to accurately quantify the number and size class of each piece of LWD, it was apparent that this material provides a substantial amount of cover for fish (estimated at 6 percent of the total habitat area) and has contributed to the formation of pools and increased habitat complexity (Figure 5). It was also evident that little new LWD entered the channel as a result of the slide event, based on the age of the LWD that was observed in and near the channel.

Figure 5. Photographs of LWD distributed throughout the 2011 Patricia Creek to Flume 12 slide sub-reach survey.

Flume 12 Slide Event Impact Analysis

In general, there appears to be little difference between habitat types and habitat type distribution in the sub-reach between Patricia Creek and Flume 12 from 1992 to 2011, although the width:depth ratio has increased slightly in pools. However, all pools observed during the 2011 survey were greater than 3.3 feet (1 meter) deep. In wadeable stream reaches, pools deeper than about 3.3 feet are generally considered to be high quality fish habitat, according to the Oregon Department of Fish and Wildlife Aquatic Inventory Stream Habitat Assessment Method.

Changes in width:depth ratio may be due to the Flume 12 slide event in 2011, but may also be the result of natural sediment mobilization associated with high flow events that have occurred in the Lemolo No. 2 bypass reach over the past19 years. The 1992 field data identified a few landslide or earth flow locations in the Lemolo No. 2 bypass reach. While extremely large slides or numerous eroding banks deliver an excess of sediment and can be detrimental to aquatic life, the Lemolo 2 reach downstream from the Flume 12 side is fairly steep, confined, and high energy, and is therefore likely capable of moving bedload and eroding angular rock quite rapidly. Both the 1992 and 2011 habitat surveys indicate that the river bank downstream of Flume 12 is generally stable; fine sediment accounted for about 1 percent of the total wetted substrate, and gravels and cobbles were not embedded in either survey year (Table 2).

In 1992, the Lemolo 2 reach supported adult and juvenile rainbow and brown trout, with adult trout densities (> 150 mm in length) ranging from 0 to 46 trout per habitat unit and averaging 263 trout per mile (PacifiCorp 1995). Several brown trout spawning pairs were observed on active redds during the 2011 survey downstream of the Flume 12 slide, some even in areas with fresh angular substrate. These observations suggest the Flume 12 event had little impact on brown trout spawning in the immediate slide area. Overall, monitoring data suggest that aquatic habitat is providing similar functions in 2011 as compared to 1992, and overall diversity of habitat types and features are similar to that which occurred in 1992, which apparently support rainbow and brown trout production.

Recommended Future Monitoring Metrics

As remediation occurs and natural high flows continue to transport sediment through the Lemolo 2 channel downstream of the Flume 12 slide, continued habitat monitoring would help to determine if significant habitat changes occur as a result of flume stabilization and in-channel sediment mobilization. We recommend using the same methods employed in 2011 (and 1992) to monitor the following habitat metrics between Patricia Creek and Flume 12 during 2012:

- Total area by habitat type (slow, medium, fast velocity habitats)

- Substrate composition by size class type with visual assessment of overall angularity along the channel longitudinal profile
- Spawning gravel area
- Pool quality (pool area, maximum depth, and width:depth)
- Overall width:depth

We also recommend that the best aerial and in-river photo points from 1992 and 2011 be re-photographed and that future mapping efforts target similar flow conditions to minimize the influence of flow as a variable in any channel changes that may be observed. In addition, establishing and resurveying a set of up to five benchmarked channel cross sections could aid in tracking channel width and depth changes immediately downstream from the slide.

References

PacifiCorp. 1995. Application for New License for Major Modified Project. North Umpqua Hydroelectric Project. FERC Project N. 1927. Exhibit E – Appendix 3-1. Final Technical Report for Aquatic Resources Study. PacifiCorp. Portland Oregon. January 1995.

ATTACHMENT 4c

Oregon
John A. Kitzhaber, MD, Governor

Department of Environmental Quality
Headquarters
811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
FAX (503) 229-6124
TTY: 711

June 5, 2012

Michael R. Campbell
Stoel Rives, LLP
900 SW Fifth
Portland, OR 97204

Re: Notice of Civil Penalty Assessment and Order
Case No. WQ/I-WR-11-144
In the Matter of:
PacifiCorp

On October 10, 2011, the Department of Environmental Quality (DEQ) issued PacifiCorp a $9,600 civil penalty for causing pollution of waters of the state [(Oregon Revised Statute (ORS) 468B.025(1)(a)] when PacifiCorp caused or allowed a discharge of turbid water from its North Umpqua River Hydroelectric Project to the North Umpqua River.

The Oregon Attorney General has advised DEQ that enforcement of ORS 468B.025(1)(a) in this particular instance is pre-empted by the Federal Power Act. In addition, PacifiCorp complied with all 401 water quality certification requirements applicable to the event. The Department is therefore withdrawing the Notice and Order.

If you have any questions, please call Jeff Bachman, DEQ Office of Compliance and Enforcement, at (503) 229-5950.

Sincerely,

Leah E. Koss

Leah Koss, Manager
Office of Compliance and Enforcement

Enclosure
cc: Business Office, DEQ
Chris Stine, Western Region, Eugene Office, DEQ

RECEIVED
JUN 07 2012
STOEL RIVES LLP

ATTACHMENT 5

C. Fish Passage and Protection

C.2 Yes. The North Umpqua hydroelectric project is in compliance with Mandatory Fish Passage Prescriptions and resource agency recommendations regarding anadromous fish. The North Umpqua Settlement Agreement reflects agency recommendations that were subsequently adopted in Section 18 prescriptions by the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS).

PacifiCorp has completed the design and construction of all facilities for upstream and downstream fish passage outlined in the Settlement Agreement in consultation with USFS, USFWS, ODFW, and NMFS. The largest and newest project, fish passage facilities at Soda Springs dam, were completed in 2012 (Section 4.1.1 and 4.1.2 in the Settlement Agreement). Following damage to the primary fish screens in the winter of 2012, the screen facility was improved and repaired and returned to service in March 2014. To monitor the passage of anadromous fish past Soda Springs dam, PacifiCorp has established a fund to implement a Long Term Monitoring and Predator Control Program. PacifiCorp contributes $100,000 annually (in 2001 dollars) to this fund for the duration of the license (Section 19.2 in the Settlement Agreement). Creating fish passage at Soda Springs dam provides access to over 80 percent of the pre-project spawning and rearing habitat that was previously inaccessible to anadromous fish, especially for spring Chinook salmon in the mainstem North Umpqua River and steelhead in Fish Creek.

PacifiCorp has completed construction of all of the prescribed fish passage and protection improvements, and now has them in service. In April 2006, construction was completed on upgrades to the fishway at the Lemolo No. 2 diversion (Section 4.3.1 in the Settlement Agreement). In November 2007, a tailrace barrier was constructed at the Soda Springs powerhouse to prevent false attraction, delay and use of the tailrace by anadromous fish, thus ensuring access to enhanced habitat and increased instream flows in the bypass reach (Section 4.1.1 in the Settlement Agreement). Another new tailrace barrier was constructed at the Slide Creek powerhouse in 2011. PacifiCorp also completed construction of a fish screen at the Fish Creek intake in 2008 (Section 4.3.2 in the Settlement Agreement) and additional modifications that increase velocity across the screens to prevent debris buildup were completed in 2012.

In addition, the Settlement Agreement requires that PacifiCorp provide mitigation measures and funding to benefit wild anadromous and other migratory fish populations in lieu of constructing fish passage facilities that would have limited benefit at North Umpqua project developments upstream of the natural barrier of Toketee Falls (Section 4.3.4 in the Settlement Agreement) and at Slide Creek Dam (Section 4.2 in the Settlement Agreement). These improvements are detailed in a Memorandum of Understanding between PacifiCorp and ODFW, included as Attachment E to the Settlement Agreement.

Documentation of compliance with these mandatory mitigation measures is provided on PacifiCorp's website (http://www.pacificorp.com/es/hydro/hl/nur.html; select "Resource Coordination Committee" link, then select the "Annual Reports" tab to access the annual reports.)

C.6 Yes. The North Umpqua hydroelectric project is in compliance with Mandatory Fish Passage Prescriptions and resource agency recommendations regarding riverine fish. As noted above, the Settlement Agreement reflects agency recommendations that were subsequently adopted in Section 18 prescriptions by the USFWS and NMFS.

The fish passage prescriptions require that the modifications to the fishway at the Lemolo No. 2 diversion facilitate passage of trout (Section 4.3.1 in the Settlement Agreement). PacifiCorp met this requirement with the modifications to Lemolo No. 2 that were completed in April 2006. The fishway is now in compliance with current state standards for providing upstream passage of resident trout. Rainbow trout are the only native trout species currently existing in project reservoirs and forebays and in project-affected reaches upstream of Slide Creek dam.

C.7 Yes. The North Umpqua hydroelectric project is in compliance with resource agency recommendations for riverine, anadromous and catadromous fish entrainment protection. In 2007, a tailrace barrier was constructed at the Soda Springs powerhouse to protect adult salmon and steelhead, and a tailrace barrier at the Slide Creek powerhouse was completed in 2011 (Section 4.1.1 in the Settlement Agreement). The trashrack at the Toketee intake was modified in 2010 to minimize downstream movement of trout longer than five inches (Section 4.3.3 in the Settlement Agreement). Management of Lemolo Lake reservoir has also been modified under the New License to reduce entrainment of fish and improve the sport fishery (Settlement Agreement 9.3).

ATTACHMENT 6

D. Watershed Protection

D.2 Yes. PacifiCorp has established funds to implement watershed protection and enhancement measures that were agreed to by the parties to the North Umpqua Settlement Agreement. Together, these funds and protection measures provide the ecological and recreational equivalent of land protection in D.1 above. The funds include:

- PacifiCorp is making graduated payments totaling $8 million and contributing an additional $250,000 annually for the duration of the license to a *Mitigation Fund*. This Fund was established to implement projects that mitigate the facility's impacts to wetlands and stillwater amphibian habitat, riparian and aquatic species connectivity, vegetation management, terrestrial species connectivity, and soil loss and soil productivity resulting in erosion (Section 19.3 in the Settlement Agreement).
- A *Tributary Enhancement Fund* that PacifiCorp initially established with $2 million. PacifiCorp contributed an additional $430,000 annually to the fund for seven years (2005-2011) per Section 19.1 in the Settlement Agreement. In addition, PacifiCorp is contributing $162,000 annually to the Oregon Department of Fish and Wildlife for the purposes of (1) monitoring tasks associated with the Tributary Enhancement Program and (2) oversight of on-site mitigation measures performed by PacifiCorp or other entities.

In 2006, PacifiCorp also finalized a *Resource Coordination Plan* that was developed in consultation with the resource agencies through the Resource Coordination Committee. The plan is designed to ensure that there is effective coordination and implementation of the myriad protection, mitigation, and enhancement measures identified in the Settlement Agreement and the project license. It is also intended to help facilitate resource agency coordination with regards to ongoing project operations and maintenance related to construction activities. The Plan is available on PacifiCorp's website (http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Hydro/Hydro_Licensing/North_Umpqua_River/Resource_Coordination_Plan_Final_7_31_06.pdf).

ATTACHMENT 7

E. Threatened and Endangered Species Protection

E.1 Yes. In 2002, the following species were potentially present in the North Umpqua hydroelectric project area and/or downstream reach and were federally listed as threatened or endangered: Columbian white-tailed deer *(Odocoileusvirginianus leucurus*), rough popcornflower (*Plagiobothrys hirtus),* Oregon Coast coho salmon *(Oncorhynchus kisutch),* Canada lynx (*Lynx canademts*), northern spotted owl *(Strix occidentalis caurina),* bald eagle *(Haliaeetus leucocephalus),* and Kincaid's lupine (*Lupinus sulphureus* var. *kincaidii).* Since that time, bald eagle and the Douglas County Distinct Population Segment (DPS) of the Columbian white-tailed deer have been delisted. Bald eagle remains on the state of Oregon's list of threatened and endangered species, and rough popcornflower, Kincaid's lupine, and northern spotted owl are also state listed. Other state listed species that are potentially present in the project area include California wolverine (*Gulo gulo luteus),* peregrine falcon *(Falco peregrinus anatum),* and Umpqua mariposa lily *(Calochortus umpquaensis*).

As of October 2014, the federally- and state-listed Oregon spotted frog (*Rana pretiosa*) and gray wolf (*Canis lupus)* are also potentially present in the project area. Spotted frogs are not known to occur in Douglas County, and gray wolves are currently south or east of the project, but both have potential to occur in the project area.

As the Federal Energy Regulatory Commission's (FERC) designated non-federal representative for the purpose of conducting informal Section 7 consultation with the USFWS and the NMFS under the Endangered Species Act (ESA), PacifiCorp filed a Draft Biological Assessment and Essential Fish Habitat Assessment with the FERC on February 15, 2002. A species listed as potentially present in the area by the USFWS, Oregon chub (*Oregonichthys crameri)* was not included in the Biological Assessment because it is not believed to occur in the project area. A potentially present state listed species, wayside aster (*Eucephalus vialis*), is also not known to occur in the project area.

On December 17, 2002, the NMFS filed a final Biological Opinion, in which it concluded that operating the project under the terms of the Settlement Agreement would not be likely to jeopardize the continued existence of Oregon Coast coho salmon. On December 23, 2002, USFWS filed a final Biological Opinion that concludes that the project would not be likely to adversely affect rough popcornflower, Kincaid's lupine, or Canada lynx. USFWS also concluded that operating the project under the terms of the Settlement Agreement would not be likely to jeopardize the continued existence of the northern spotted owl, bald eagle, or white-tailed deer, and would not be likely to adversely modify designated spotted owl critical habitat.

FERC's Environmental Impact Statement echoed the assessment of impacts to federally listed species made by the USFWS and NMFS Biological Opinions and concluded that operating the

project under the terms of the Settlement Agreement would also not be likely to adversely affect peregrine falcons, wolverines, or the Umpqua mariposa lily.

E.2 Yes. The North Umpqua hydroelectric project is in compliance with the relevant recommendations in the recovery plans that have been adopted for threatened and endangered species present in the project area or the downstream reach. The NMFS and the USFWS were integral to the collaborative development of the Settlement Agreement, and as such, it was designed to complement endangered and threatened species recovery efforts. These plans include:

- the *Post-Delisting Monitoring Plan for the Douglas County Distinct Population Segment of the Columbian White-tailed Deer* (Odocoileus virginianus leucurus), adopted by the USFWS in July 2006 (http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2006_register&docid=fr26jy06-97);
- the Oregon Department of Fish and Wildlife's *Oregon Coast Coho Conservation Plan*, adopted in March 2007; (http://www.dfw.state.or.us/fish/CRP/coastal_coho_conservation_plan.asp);
- the *Revised Recovery Plan for the Northern Spotted Owl*, adopted by the USFWS in June 2011 (http://ecos.fws.gov/docs/recovery_plan/RevisedNSORecPlan2011_1.pdf); and
- the *Recovery Plan for the Rough Popcornflower*, adopted by the USFWS in September 2003 (http://ecos.fws.gov/docs/recovery_plan/030925a.pdf).

In addition, a *Recovery Outline for the Contiguous United States District Population Segment of Canada Lynx* (*Lynx Canadensis)* (http://ecos.fws.gov/docs/recovery_plan/final%20draft%20Lynx%20Recovery%20Outline%209-05.pdf) has been prepared by the USFWS to guide recovery efforts until a recovery plan is completed. A *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (http://ecos.fws.gov/docs/recovery_plan/100629.pdf) that addresses Kincaid's lupine has been finalized and was adopted by the USFWS in May 2010. The North Umpqua hydroelectric project is in compliance with all relevant recommendations in these plans.

E.3 Yes. The North Umpqua hydroelectric project is in compliance with the terms and conditions of the incidental take statements issued by NMFS and USFWS as part of their respective Biological Opinions.

USFWS included four terms and conditions in their incidental take statement for northern spotted owls, white-tailed deer, and bald eagles. These consist of limiting disturbance-causing activities near owl habitat between March 1 and July 15, conducting vegetation management and powerline maintenance outside of the fawning period, monitoring and reporting on all activities that are likely to affect a listed species, and reporting of all new bald eagle nests and roost sites. Minor clarifications and modifications to the incidental take statement were documented in a letter from the USFWS dated March 7, 2007. PacifiCorp is in compliance with these terms and

conditions and most recently submitted the 2013 *Annual Threatened and Endangered Species and Bald Eagle Monitoring Report* to USFWS and FERC on February 12, 2014.

The NMFS issued 36 terms and conditions in their incidental take statement for Oregon Coast coho salmon. The terms and conditions addressing flow conditions, riparian vegetation, erosion and sediment control, fish passage, tributary enhancement, spawning habitat, and aquatic connectivity are consistent with the Settlement Agreement. In addition, the agency prescribed conditions for construction activities in or near watercourses and required additional post-construction monitoring reports that address erosion control. The terms and conditions and, where applicable, their corresponding sections of the Settlement Agreement, are included in Attachment 7a to this application.

Documentation of compliance with the incidental take statement terms and conditions that are specifically identified in the Settlement Agreement can be found in PacifiCorp's annual reports (http://www.pacificorp.com/es/hydro/hl/nur.html; from the North Umpqua project homepage, select the "Resource Coordination Committee" link, then select the "Annual Reports" tab to access the annual reports.)

ATTACHMENT 7a

Table 2-3. Terms and conditions of National Marine Fisheries Service's incidental take statement (NMFS 2002).

Terms and conditions	Settlement Agreement Sections
9.4.1 Instream Flows, Flow Fluctuations, Riparian Vegetation, Erosion and Sediment Control—Implement NMFS reasonable and prudent measure no. 1 with the following provisions:	
a. Implement the minimum instream flow measures.	5.1–5.9 and tables 1 and 2 of Appendix C
b. Implement the ramping measures.	6.1–6.9
c. Ensure that ramping criteria for the Wild and Scenic River reach are maintained during emergency shutdowns. In accordance with section 6.8 of the Settlement Agreement, this is to happen via necessary measures to achieve this requirement, including, but not limited to, installing a new bypass valve or improving the existing valve at Soda Springs powerhouse by the date the new license becomes final or 2004, whichever is earlier.	6.4 and 6.8
d. Develop and implement a vegetation management plan, including measures set forth in Section 9.4.2(n) – (q) of these terms and conditions.	12.1
e. Implement noxious-weed control measures.	12.2
f. Implement erosion- and sediment-control measures.	14.1–14.8
g. Perform road and bridge decommissioning.	15.1–15.5.1
9.4.2 Construction Activities In or Near Watercourses—Implement NMFS reasonable and prudent measure no. 2 with the following provisions:	
a. Complete all in-water work occurring on the downstream side of Soda Springs dam within the work period of July 1 and September 15.	NA[a]
b. Conduct no in-water work on the downstream side of Soda Springs dam outside this work period without prior written authorization from NMFS, in consultation with ODFW.	NA
c. Ensure that construction activities associated with habitat enhancement and erosion control measures meet or exceed best management practices and other performance standards contained in the ODEQ for the National Pollutant Discharge Elimination System ("NPDES") 1200-CA permit (General NPDES Stormwater Discharge Permit).	NA
d. Inspect all erosion control devices weekly, at a minimum, during construction to ensure that they are working adequately.	NA
e. Ensure that erosion control materials (e.g., silt fence, straw bales, aggregate) in excess of those installed are available on site for immediate use during emergency erosion control needs.	NA
f. Ensure that vehicles operated within 150 ft of the waterway are free of fluid leaks; conduct daily examination of vehicles for fluid leaks during periods operated within or above the waterway.	NA

Table 2.3. (continued).

Terms and conditions	Settlement Agreement Sections
g. During completion of habitat enhancement activities, allow no pollutants of any kind (sewage, waste spoils, petroleum products, etc.) to come in contact with the water body or wetlands nor their substrate below the mean high-high water elevation or 10-year flood elevation, whichever is greater.	NA
h. Evacuate any areas used for staging, access roads, or storage and remove all materials, equipment, and fuel if flooding of the area is expected to occur within 24 hours.	NA
i. Conduct vehicle maintenance, re-fueling of vehicles and storage of fuel at least 150 ft from the waterway.	NA
j. At the end of each work shift, ensure that no vehicles are stored within or over the waterway.	NA
k. Prior to operating within the waterway, clean all equipment of external oil, grease, dirt or caked mud; conduct any washing of equipment in a location that would not contribute untreated wastewater to any flowing stream or drainage area.	NA
l. Use temporary erosion and sediment controls on all exposed slopes during any hiatus in work exceeding 7 days.	NA
m. Place material removed during excavation only in locations where it cannot enter sensitive aquatic resources; store and reuse any topsoil removed on-site to the greatest extent possible.	NA
n. Minimize alteration or disturbance of the stream banks and existing riparian vegetation to the greatest extent possible.	NA
o. Apply no herbicide as part of this action; mechanical removal of undesired vegetation and root nodes is permitted.	NA
p. Identify and mark clearing limits; begin no construction activity or movement of equipment into existing vegetated areas until clearing limits are marked.	NA
q. Retain all existing vegetation within 150 ft of the edge of bank, downstream from Soda Springs dam to the greatest extent possible.	NA
*9.4.3 **Fish Passage***— Implement NMFS reasonable and prudent measure no. 3 with the following provisions:	
a. Provide upstream fish passage at Soda Springs dam.	4.1.1
b. Provide fish screens at Soda Springs dam for downstream fish passage.	4.1.2
c. Implement changes to Soda Springs dam operations or facilities if performance standards listed in Appendix B, Part 1, Table 1 of the Settlement Agreement are not met during a post-construction evaluation period; such changes may include: (i) improved hydraulic balancing of screens or structural modifications; (ii) construction of additional screening facilities; (iii) seasonal shutdowns of turbines; or (iv)reductions in flow diversions.	4.1.2(e)
d. Install a fish screen at the Fish Creek intake which meets ODFW's March 2001 screen design criteria.	4.3.2(a) and Appendix B, Part 2

Table 2.3. (continued).

Terms and conditions	Settlement Agreement Sections
9.4.4 Fluvial Geomorphic Processes, Spawning Habitat, Aquatic Connectivity, Tributary Enhancement, and Other Mitigation Measures—Implement NMFS reasonable and prudent measure no. 4 with the following provisions:	
a. Implement gravel augmentation, woody debris and sediment passage measures.	7.1–7.4
b. Reconnect the Clearwater River to the Toketee bypass reach.	7.5
c. Perform spawning habitat enhancement measures.	8.1–8.3.5
d. Improve aquatic connectivity.	10.1–10.7
e. Perform culvert upgrades.	15.6
f. Fund tributary enhancement, long-term monitoring and predator control plans, a mitigation fund and an early implementation fund.	19.1–19.5.4
9.4.5 Monitoring—Implement NMFS reasonable and prudent measure no. 5 with the following provisions:	
a. Monitor the effectiveness of the proposed protection, minimization and enhancement measures in accordance with the scope and schedules of the Settlement Agreement, and provide results of such monitoring to NMFS as required in those sections.	4.1.1(b) and (d); 4.1.2(b); 4.3.1(c) and (d); 4.3.2(b); 6.2.1; 8.2.2; 8.3.3; 14.5; and 19.4.1
b. Provide NMFS with post-construction monitoring reports of erosion control measures required by terms and conditions set forth in Section 9.4.2, above, and include: (i) a narrative describing the nature of best management practices implemented to reduce erosion for habitat enhancement actions, and (ii) a narrative describing any failures experienced with erosion control measures and efforts made to correct them.	NA

[a]NA = not specifically identified in the Settlement Agreement.

ATTACHMENT 8

F. Cultural Resource Protection

F.1 Yes. The North Umpqua hydroelectric project is in Compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the Federal Energy Regulatory Commission (FERC) license.

Article 414 of the project license requires PacifiCorp to implement the "Programmatic Agreement Among the Federal Energy Regulatory Commission and the Oregon Historic Preservation Officer for Managing Historic Properties that May be Affected by a License Issuing to PacifiCorp for the Operation of the North Umpqua Hydroelectric Project in Douglas County, Oregon (FERC No. 1927)," executed on January 3, 2003, including but not limited to the Cultural Resources Management Plan (CRMP) for the project. In the event that the Programmatic Agreement is terminated, the project license requires PacifiCorp to implement the provisions of its approved CRMP.

PacifiCorp submitted a renamed Historic Properties (Cultural Resources) Management Plan (HPMP) to USFS, US Bureau of Land Management, and the State Historic Preservation Office for review and comment in December 2003, thereby meeting the Settlement Agreement commitment. All comments were addressed and the final plan was submitted to FERC in 2005. The HPMP review and approval procedures were followed in the interim while PacifiCorp revised the plan. PacifiCorp continues to implement the ongoing monitoring and reporting requirements of the Programmatic Agreement and the HPMP. Most recently, in a letter dated December 17, 2013, PacifiCorp filed the 2013 Historic Properties Annual Report and 2013 Rolling 5-Year Historic Properties Action Plan (see Attachment 8a – cover letter with agency approvals).

ATTACHMENT 8a

PACIFICORP ENERGY
A DIVISION OF PACIFICORP

825 NE Multnomah, Suite 1500
Portland, Oregon 97232

Electronically filed December 17, 2013

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

Subject: North Umpqua Hydroelectric Project, FERC No. P-1927
License Article 414
2013 Historic Properties Annual Report
2013 Rolling 5-Year Historic Properties Action Plan

Dear Ms. Bose:

Article 414 of the North Umpqua Project's License required implementation of the programmatic agreement executed on January 3, 2003 between the Federal Energy Regulatory Commission (FERC) and the Oregon Historic Preservation Office (SHPO) for management of historic properties that might be affected by the license. Complying with the Article, North Umpqua's Historic Properties Management Plan (HPMP) was finalized in September 2006. The HPMP directs us to create a forward-scheduling action plan of at least three years.

Our action plan, which encompasses a five-year period, schedules the activities for the next three years and includes those achieved in the previous and current years. As specified in the HPMP, the plan is submitted, each fall, to the Umpqua National Forest (USDA-FS), the Bureau of Land Management (BLM), and the SHPO, in summary of the previous years' activities, for approval of the next year's activities, and for information concerning proposed activities for the ensuing two years. The plan also requires an annual report of meetings, and of the activities and events that were completed during the previous year.

By this letter, as directed in Section 4.9.4 of the HPMP, PacifiCorp Energy is submitting its 2013 Historic Properties Annual Report, along with a copy of the 2013 Rolling 5-Year Historic Properties Action Plan. The 2013 plan encompasses the years 2012 through 2016. A copy of the plan updated with 2013 scheduled activities was submitted for review to USDA-FS, BLM, and SHPO, in the fall of 2012. The required approval of USDA-FS, BLM, and SHPO for the 2013 activities is attested by the signed cover page of the enclosed plan.

This letter and its attachments have been filed electronically along with our Confidential Information Notice. The security classification of each component in this packet is shown in the enclosure list of both the letter and Notice.

One complete copy of this filing has been transmitted to the Portland Regional Office. Copies have also been transmitted to those cited below. If you have any questions concerning these documents, please contact Russ Howison at 503-813-6626.

Sincerely,

Mark A Sturtevant
Managing Director, Hydro Resources

MAS: RH:BB

Encl:	Confidential Information Notice – Public
	Letter – Public
	2013 Historic Properties Annual Report – Privileged
	2013 Rolling 5-Year Historic Properties Action Plan – Privileged

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The security classifications of this letter and its enclosures are identified in the Enclosure Chart.
If any portion is considered privileged or critical energy infrastructure information, DO NOT RELEASE IT.

ROLLING 5-YEAR HISTORIC PROPERTIES ACTION PLAN
CALENDAR YEAR 2013

North Umpqua Hydroelectric Project
FERC Project No. 1927

Note: this RAP replaces Table 4.12-1 of the approved HPMP.

AUTHORIZATIONS

Final Approved:	PacifiCorp Energy	1-22-13 (date)		(signature)
	USDA – FS	1-16-13 (date)		(signature)
	USDI – BLM	1-17-13 (date)		(signature)
	OR SHPO	2-19-13 (date)		(signature)

ATTACHMENTS

A. Meeting Notes and Action Items – From Meeting of December 5, 2012
B. PacifiCorp Energy CY2013 Planned Ground Disturbing Actions with Potential to Affect Cultural Resources (*updated annually*)
C. Annual Data Recovery Schedule and Significance of Prehistoric Archaeological Sites in the Area of Potential Effect (*updated annually*)
D. Summary of PacifiCorp Energy CY 2012 Ground Disturbing Actions with Potential to Affect Cultural Resources (Permitted through the Notice to Proceed Process)
E. Five Year HPMP Review Report

ATTACHMENT 9

G. Recreation

G.1 Yes. The North Umpqua hydroelectric project is in compliance with the recreational measures in the Federal Energy Regulatory Commission (FERC) license.

The project license references Section 17 of the Settlement Agreement, which requires PacifiCorp to implement a recreation resources management plan contained in its license application, with modifications, and to commence funding recreation operations, maintenance, and capital improvements as provided in the implementation schedule. Per the terms of the Settlement Agreement, PacifiCorp must allow public access to project reservoirs, stream channels, and adjacent lands for recreational purposes, to the extent consistent with public safety and FERC requirements. PacifiCorp is also responsible for paying the US Forest Service (USFS) for law enforcement related to land- and water-based recreation activities within the project boundaries.

PacifiCorp committed in the Settlement Agreement to provide capital improvements at existing recreation facilities and future expansion, as well as funds for deferred backlog of capital improvements and public information programs, as listed on, and in accordance with, specified schedules attached to the Agreement. Section 17 of the Settlement Agreement also requires PacifiCorp to provide $150,000 for meeting compliance requirements of the Umpqua National Forest Plan within the project boundaries. In addition, PacifiCorp must maintain Lemolo Lake at or near full pool elevation throughout the peak recreation season. Compliance with these measures is documented on PacifiCorp's website (http://www.pacificorp.com/es/hydro/hl/nur.html; select the "Resource Coordination Committee" link, then select the "Annual Reports" tab to access the annual reports.)

In addition, the project license calls for PacifiCorp to resume operation of the existing gage at Boulder Creek, to post real-time flow data on the internet for this gage and all other project gages for the benefit of recreational boaters, and to provide notice to the public of scheduled maintenance releases at the project developments. PacifiCorp is in compliance with these measures and the online North Umpqua Water Gaging Network may be accessed from PacifiCorp's website (http://www.pacificorp.com/es/hydro/hl/nur.html#; select the "Water Gaging" tab, and click on the "Water Gaging Network" link to access the data).

Some new recreation capital improvements provided by PacifiCorp pursuant to the Recreation Resources Management Plan and SA Section 17.8 include rebuilding the boat ramp at the Poole Creek Campground at Lemolo Reservoir in 2010 to ensure boat access from the opening day of fishing season through mid-October and constructing an Americans with Disabilities Act-accessible fishing pier at Toketee Lake in 2011.