Low Impact Hydropower Institute

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LOW IMPACT HYDROPOWER QUESTIONNAIRE

North Umpqua Hydroelectric Project (FERC No. 1927)

E. LOW IMPACT HYDROPOWER QUESTIONNAIRE

Background Information	
1) Name of the *Facility.*	North Umpqua Hydroelectric Project (FERC No. 1927)
2) Applicant's name, contact information and relationship to the Facility. If the Applicant is not the Facility owner/operator, also provide the name and contact information for the Facility owner and operator.	Randy Landolt, Managing Director, Hydro Resources PacifiCorp Energy 825 NE Multnomah, Suite 1500 Portland, OR 97232 Tel: 503.813.6650 FAX: 503.813.6659 Email: randy.landolt@pacificorp.com
3) Location of Facility by river and state.	North Umpqua River and two of its tributaries: Fish Creek and Clearwater River, Oregon.
4) Installed capacity.	Total: 185.5 MW Lemolo No. 1: 29,000 kW Lemolo No. 2: 33,000 kW

	Clearwater No. 1: 15,000 kW Clearwater No. 2: 26,000 kW Toketee: 42,500 kW Fish Creek: 11,000 kW Slide Creek: 18,000 kW Soda Springs: 11,000 kW
5) Average annual generation.	Based on the past 30 years (including 2008), the average annual generation of the project is 876.6 GWh. The average annual generation of each development is as follows: Lemolo No. 1: 143.7 GWh Lemolo No. 2: 170.8 GWh Clearwater No. 1: 55.2 GWh Clearwater No. 2: 59.5 GWh Toketee: 231.8 GWh Fish Creek: 55.8 GWh Slide Creek: 65.4 GWh Soda Springs: 94.2 GWh
6) Regulatory status.	The project was relicensed for a 35-year term by FERC Orders dated November 18, 2003. A Settlement Agreement dated June 13, 2001 was adopted by the license. The Settlement Agreement was collaboratively developed with regulatory agencies that have jurisdiction over the natural resources in the watershed.
7) Reservoir volume and surface area measured at the high water mark in an average water year.	Lemolo No. 1 • Volume (total storage capacity) =11,752 acre-feet • Surface area = 419 acres Lemolo No. 2 • Volume (total storage capacity) = 230.6 acre-feet • Surface area = 24.2 acres Clearwater No. 1 • Volume (total storage capacity) = 30.2 acre-feet (reservoir) + 120.8 acre-feet (forebay only)

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Surface area: 11.8-acre reservoir + 16.3-acre forebay

Clearwater No. 2

Volume (total storage capacity) = 70.7 acre-feet
Surface area: 8.6 acre

Toketee

Volume (total storage capacity) = 1,051 acre-feet
Surface area: 96.9 acres

Fish Creek

Volume (total storage capacity) = 110.3 acre-feet
Surface area = 9.3 acres

Slide Creek

Volume (total storage capacity) = 43 acre-feet
Surface area = 2 acres

Soda Springs

Volume (total storage capacity) = 411.6 acre-feet
Surface area = 31.5 acres

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<td>8) Area occupied by non-reservoir facilities (e.g., dam, penstocks, powerhouse).</td>
<td>Approximately 125 acres are occupied by non-reservoir facilities (including canals, penstocks, dam vicinity, housing areas, building grounds, parking lots etc.). This acreage is associated with the following facilities:
<table>
<tr><th>Facilities</th><th>Acres</th></tr>
<tr><td>Lemolo No. 1</td><td>4.3</td></tr>
<tr><td>Lemolo No. 2</td><td>0.9</td></tr>
<tr><td>Clearwater No. 1</td><td>2.4</td></tr>
<tr><td>Clearwater No. 2</td><td>7.0</td></tr>
<tr><td>Toketee</td><td>18.4</td></tr>
<tr><td>Slide Creek</td><td>1.3</td></tr>
<tr><td>Soda Springs</td><td>1.7</td></tr>
<tr><td>Fish Creek</td><td>1.9</td></tr>
<tr><td>canals</td><td>82.5</td></tr>
<tr><td>penstocks</td><td>5.0</td></tr>
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<tr><td>9) Number of acres inundated by the Facility.</td><td>The project reservoirs inundate approximately 625 acres (open water).

<table><tr><th>Facilities</th><th>Acres</th></tr><tr><td>Clearwater No. 1 forebay</td><td>16.3</td></tr><tr><td>Clearwater No. 2 forebay</td><td>8.6</td></tr><tr><td>Clearwater No. 2 diversion</td><td>1.2</td></tr><tr><td>Fish Creek diversion and screen</td><td>3.0</td></tr><tr><td>Fish Creek forebay</td><td>9.3</td></tr><tr><td>Lemolo No. 2 diversion</td><td>1.4</td></tr><tr><td>Lemolo No. 2 forebay</td><td>24.2</td></tr><tr><td>Lemolo Lake</td><td>419</td></tr><tr><td>Slide Creek forebay</td><td>2.0</td></tr><tr><td>Soda Springs Reservoir</td><td>31.5</td></tr><tr><td>Stump Lake</td><td>11.8</td></tr><tr><td>Toketee Lake</td><td>96.9</td></tr></table></td></tr>
<tr><td>10) Number of acres contained in a 200-foot zone extending around entire impoundment.</td><td>Approximately a combined 612 acres are contained within a 200 ft buffer of water and marsh around the impoundments.</td></tr>
<tr><td>11) Please attach a list of contacts in the relevant Resource Agencies and in non-governmental organizations that have been involved in Recommending conditions for your Facility.</td><td>Please refer to Attachment 1.</td></tr>
<tr><td>12) Please attach a description of the Facility, its mode of operation (i.e., peaking/run of river) and a map of the Facility.</td><td>Please refer to Attachment 2.</td></tr>
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Questions For "New" Facilities Only: If the Facility you are applying for is "new" i.e., an existing dam that added or increased power generation capacity after August of 1998 please answer the following questions to determine eligibility for the program	N/A
13) When was the dam associated with the Facility completed?	N/A
14) When did the added or increased generation first generate electricity? If the added or increased generation is not yet operational, please answer question 18 as well.	N/A
15) Did the added or increased power generation capacity require or include any new dam or other diversion structure?	N/A
16) Did the added or increased capacity include or require a change in water flow through the facility that worsened conditions for fish, wildlife, or water quality, (for example, did operations change from run-of-river to peaking)?	N/A
17 (a) Was the existing dam recommended for removal or decommissioning by resource agencies, or recommended for removal or decommissioning by a broad representation of interested persons and organizations in the local and/or regional community prior to the added or increased capacity? (b) If you answered "yes" to question 17(a), the Facility is not eligible for certification, unless you can show that the added or increased capacity	N/A

resulted in specific measures to improve fish, wildlife, or water quality protection at the existing dam. If such measures were a result, please explain.	
18 (a) If the increased or added generation is not yet operational, has the increased or added generation received regulatory authorization (e.g., approval by the Federal Energy Regulatory Commission)? If not, the facility is not eligible for consideration; and (b) Are there any pending appeals or litigation regarding that authorization? If so, the facility is not eligible for consideration.	N/A

A. Flows	PASS	FAIL	Applicant Answer
1) Is the Facility in Compliance with *Resource Agency Recommendations* issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?	YES = Pass, Go to B N/A = Go to A2	No = Fail	**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 Settlement Agreement adopted by the 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 3 to this application. The Settlement Agreement with current amendments is available on PacifiCorp's website (http://www.pacificorp.com/es/hydro/hl/nur.html; from the North Umpqua project homepage, select the "Implementation" link, then select the "Settlement" tab to access the documents). A summary of the requirements for flow conditions contained in these documents follows.

Flow releases

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 Attachment 4 to this application presents an Order from FERC dated June 4, 2008 approving the revised Flow Monitoring Plan.

The 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. 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 3). The following tables present the minimum flow requirements that are currently applicable (Table 1) and those that will be applicable in 2012 (Table 2).

Table 1.

Current Minimum 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	50	50	275	all*
Feb	50	50	40	40	60	50	50	275	all*
Mar	50	50	40	40	60	50	50	275	all*
Apr	60	60	60	60	60	50	50	275	all*

May	70	70	60	60	60	50*	80*	275	all*
Jun	80	70	60	60	80	80*	80*	275	all*
Jul	80	80	40	40	80	80*	80*	275	all*
Aug	80	80	40	40	80	80*	80*	275	all*
Sep	80	80	40	40	80	80*	80*	275	all*
Oct	80	80	40	40	80	80	80	275	all*
Nov	50	50	40	40	60	50	50	275	all*
Dec	50	50	40	40	60	50	50	275	all*

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

Table 2.

2012 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, 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 below 1600 cfs. When flows are above 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 6 inches per day. To prevent impacts in sensitive riverine habitats, PacifiCorp will reroute the peaking flows from Lemolo 2 powerhouse out of the Lemolo 2 full-flow reach and thereby eliminate ramping in the full-flow reach. Per Section 6.1 of the Settlement Agreement, this improvement will be implemented in 2011. Flow monitoring 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. For example, in the 2007 water year, there were naturally low flows in Fish Creek that prevailed after the facility ceased diverting water from the bypass. In that same year, there were three

			instances during a three-day period, where flow in the Slide Creek bypass was inadvertently reduced due to disconnection of communications with a real-time USGS gage during construction of a new instream flow release structure. Flow monitoring data is provided to OWRD, ODEQ, and USDA-FS annually in accordance with the Flow Monitoring Plan. Deviations from flow limits have been discussed with the agencies and none have been considered to be material violations of the flow requirements. 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. 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; from the North Umpqua project homepage, select the "Implementation" link, then select the "Reports" tab to access the annual reports).
2) If there is no flow condition recommended by any Resource Agency for the Facility, or if the recommendation was issued prior to January 1, 1987, is the Facility in Compliance with a flow release schedule, both below the tailrace and in all bypassed reaches, that at a minimum meets Aquatic Base Flow standards or "good" habitat flow standards	YES = Pass, Go to B NO = Go to A3		N/A

calculated using the Montana-Tennant method?			
3) If the Facility is unable to meet the flow standards in A.2., has the Applicant demonstrated, and obtained a letter from the relevant Resource Agency confirming that demonstration, that the flow conditions at the Facility are appropriately protective of fish, wildlife, and water quality?	YES = Pass, go to B	NO = Fail	N/A

B. Water Quality	PASS	FAIL	Applicant Answer
1) Is the Facility either: a) 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? Or b) In Compliance with the quantitative water quality standards established by the state that support designated uses pursuant to	YES = Go to B2	No = Fail	**Yes** (a) - The North Umpqua project is in compliance with the conditions in the Section 401 WQC issued by 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 3 to this application with the Section 401 WQC. Required monitoring reports have been filed with the ODEQ and operational modifications are underway in accordance with the Section 401 WQC implementation schedule. A letter from the ODEQ dated August 27, 2009,

the federal Clean Water Act in the Facility area and in the downstream reach?			confirms PacifiCorp's compliance with the Section 401 WQC (see Attachment 6 to this application). Progress on major water quality improvement initiatives is also documented in PacifiCorp's annual reports which are available on PacifiCorp's website (http://www.pacificorp.com/es/hydro/hl/nur.html; from the North Umpqua project homepage, select the "Implementation" link, then select the "Reports" tab to access the annual reports).
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?	YES = Go to B3 NO = Pass		**Yes-** North Umpqua River reaches that have the potential to be affected by the Project are currently 303(d)-listed for exceedances of two criteria: temperature and pH. In addition, Fish Creek reaches that have the potential to be affected by the Project are currently 303(d)-listed for exceedances of temperature and dissolved oxygen. ODEQ, however, has determined that the current 303(d) listing for dissolved oxygen is no longer justified and plans to delete it from the next 303(d) list (see *Umpqua Basin Total Maximum Daily Load (TMDL)* p. 4-11, Oct. 2006). Temperature and pH listings are addressed in a letter from the ODEQ included as Attachment 6 to this application. Notably, the entire length of Fish Creek is 303(d)-listed for temperature impairment (mouth to river mile 18.6). Fish Creek Diversion, however, is located in the downstream third of this creek at approximately river mile 6.
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?	YES = Pass	NO = Fail	ODEQ has adopted, and EPA has approved, a TMDL for temperature in the North Umpqua Basin. The facilities are in compliance with the TMDL's temperature load allocations and with the 401 WQC conditions that address the 303(d)-listed parameters, as discussed in ODEQ's letter (Attachment 6). <u>North Umpqua and Fish Creek Temperature Listing</u> The ODEQ has modeled the effect that the Section 401 WQC's required minimum flows have on North Umpqua River temperatures downstream of the Project, where temperature criteria exceedances had led to 303(d) listings. In a pre-TMDL letter dated June 6, 2005 (Attachment 3), the ODEQ noted the

			positive results anticipated from this flow adjustment: *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.* PacifiCorp began providing the minimum instream flows specified in the Settlement Agreement and in the 401 WQC in December 2005 (see Attachment 6). Based on subsequent TMDL temperature modeling and the implementation of the required flows, the facilities meet their temperature TMDL load allocations, which are expressed as the minimum flows set forth in the 401 WQC. In addition, temperature monitoring per the STMP confirms that temperature criteria within the Project, including Fish Creek, are being met. Stream temperature monitoring in the Project bypass reaches has been ongoing since 2006, following the increased minimum flows instituted in 2005. Temperature data have documented that changes to in-stream flows are benefiting water temperatures. The only exceedance of temperature criteria within the project was due to natural warming, not the Project. This sole exceedance occurred at the downstream end of the Fish Creek bypass reach in 2007, after PacifiCorp had ceased diverting water from the creek (see Attachment 5, 2007 STMP Report). PacifiCorp, therefore, did not cause or contribute to the exceedence. <u>Fish Creek Dissolved Oxygen Listing</u> As noted above, ODEQ has determined in the Umpqua Basin TMDL that the 303(d) listing for dissolved oxygen (DO) is no longer justified. Monitoring of

			DO in accordance with the Section 401 WQC has also demonstrated compliance with the DO standard in Fish Creek (see Attachment 7, Dissolved Oxygen Monitoring Report). Based on review of these data, the ODEQ has recently verbally reconfirmed that the Project is not contributing to either temperature or DO exceedances in Fish Creek (Stine 2009, pers. com.). <u>North Umpqua River pH listing</u> PacifiCorp is complying with measures listed in the Section 401 WQC and Settlement Agreement that address potential Project contributions to pH exceedences in the North Umpqua River in the vicinity of the Lemolo No. 2 Powerhouse (see Attachment 6). The construction of the Lemolo No. 2 tailrace re-routing project in accordance with Settlement Agreement Sections 5.4 and 6.1, is expected to eliminate the pH exceedence in the North Umpqua River downstream of Lemolo No. 2 Powerhouse. The Section 401 WQC states: *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.* PacifiCorp is progressing with development of this modification and construction is scheduled for 2011. PacifiCorp is finalizing the design in consultation with agency representatives on the Resource Coordination Committee Technical Working Group (see meeting notes on PacifiCorp's website http://www.pacificorp.com/es/hydro/hl/nur.html; from the North Umpqua project homepage, select the "Implementation" link, select the "RCC" tab, then click on the "RCC Meetings" subheading to access the meeting summaries). In addition to the Lemolo No. 2 tailrace re-routing project construction, PacifiCorp excavated accumulated sediment and macrophytes from

			the Lemolo No. 2 Forebay in summer 2009. This action is expected to directly reduce pH levels in the forebay, Lemolo 2 tailrace, and North Umpqua River. 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; from the North Umpqua project homepage, select the "Implementation" link, then select the "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 continues to demonstrate that the facilities are not contributing to exceedences for dissolved oxygen. The temperature TMDL allocations to the Project are the minimum flows required by the 401 WQC, which the Project complies with. To address potential facility contributions to pH exceedences on the North Umpqua River downstream of Lemolo No. 2 Powerhouse, PacifiCorp is proceeding with development and monitoring of facility modifications in accordance with the Section 401 WQC. As designed, these measures provide assurance that the project will no longer contribute to water quality exceedances.

C. Fish Passage and Protection	PASS	FAIL	Applicant Answer
1) Is the Facility in Compliance with *Mandatory Fish Passage Prescriptions* for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986?	YES = Go to C5 N/A = Go to C2	NO = Fail	**Yes** – The North Umpqua project is in compliance with Mandatory Fish Passage Prescriptions and resource agency recommendations regarding anadromous fish. The Settlement Agreement reflects agency recommendations that were subsequently adopted in Section 18 prescriptions by USFWS and NOAA Fisheries. PacifiCorp has developed plans to construct facilities for upstream and downstream fish passage outlined in the Settlement Agreement in consultation

			with USDA-FS, USFWS, ODFW, and NMFS through the Resource Coordination Committee. Upstream and downstream fish passage facilities at the Soda Springs dam will be completed by 2012 (Section 4.1.1 and 4.1.2 in the Settlement Agreement). To bolster the successful 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 to this fund for the duration of the license (Section 19.2 in the Settlement Agreement). Creating fish passage at Soda Springs dam will provide 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 also completed implementing several of the prescribed fish passage and protection improvements. 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 power plant 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). PacifiCorp also completed construction of a fish screen at the Fish Creek intake in 2008 (Section 4.3.2 in the Settlement Agreement). 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 in PacifiCorp's annual reports (http://www.pacificorp.com/es/hydro/hl/nur.html; from the North Umpqua project homepage, select the "Implementation" link, then select the "Reports" tab to access the annual reports).
2) Are there historic records of anadromous and/or catadromous fish movement through the Facility area, but anadromous and/or catadromous fish do not presently move through the Facility area (*e.g.*, because passage is blocked at a downstream dam or the fish run is extinct)?	YES = Go to C2a NO = Go to C3		
a) If the fish are extinct or extirpated from the Facility area or downstream reach, has the Applicant demonstrated that the extinction or extirpation was not due in whole or part to the Facility?	YES = Go to C2b N/A = Go to C2b	NO = Fail	N/A
b) If a Resource Agency Recommended adoption of upstream and/or downstream fish passage measures at a specific future date, or when a triggering event occurs (such as completion of passage	YES = Go to C5 N/A = Go to C3	NO = Fail	N/A

through a downstream obstruction or the completion of a specified process), has the Facility owner/operator made a legally enforceable commitment to provide such passage?			
3) If, since December 31, 1986: a) Resource Agencies have had the opportunity to issue, and considered issuing, a Mandatory Fish Passage Prescription for upstream and/or downstream passage of anadromous or catadromous fish (including delayed installation as described in C2a above), and b) The Resource Agencies declined to issue a Mandatory Fish Passage Prescription, c) Was a reason for the Resource Agencies' declining to issue a Mandatory Fish Passage Prescription one of the	NO = Go to C5 N/A = Go to C4	YES = Fail	N/A

following: (1) the technological infeasibility of passage, (2) the absence of habitat upstream of the Facility due at least in part to inundation by the Facility impoundment, or (3) the anadromous or catadromous fish are no longer present in the Facility area and/or downstream reach due in whole or part to the presence of the Facility?			
4) If C3 was not applicable: a) Are upstream and downstream fish passage survival rates for anadromous and catadromous fish at the dam each documented at greater than 95% over 80% of the run using a generally accepted monitoring methodology? Or b) If the Facility is unable to meet the fish passage standards in 4.a., has the Applicant demonstrated, and	YES = Go to C5	NO = Fail	N/A

obtained a letter from the US Fish and Wildlife Service or National Marine Fisheries Service confirming that demonstration, that the upstream and downstream fish passage measures (if any) at the Facility are appropriately protective of the fishery resource?			
5) Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream and/or downstream passage of *Riverine* fish?	YES = Go to C6 N/A = Go to C6	NO = Fail	**Yes** – The North Umpqua 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 NOAA Fisheries. 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 Soda Springs dam.

6) Is the Facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?	YES = Pass, go to D N/A = Pass, go to D	No = Fail	**Yes-** The North Umpqua 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 will be completed in 2011 (Section 4.1.1 in the Settlement Agreement). The trashrack at the Toketee intake will also be modified (designs are in progress) to minimize downstream movement of trout longer than five inches (Section 4.3.3 in the Settlement Agreement). Management of Lemolo Lake reservoir has been modified under the New License to reduce entrainment of fish and improve the sport fishery (Settlement Agreement 9.3).

D. Watershed Protection	PASS	FAIL	Applicant Answer
1) Is there a buffer zone dedicated for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low-impact recreation) extending 200 feet from the high water mark in an average water year around 50 - 100% of the impoundment, and for all of the undeveloped shoreline	YES = Pass, go to E and receive 3 extra years of certification	NO = go to D2	**No.**
2) Has the facility owner/operator established an approved watershed enhancement fund that: 1) could achieve within the project's watershed the ecological and recreational	YES = Pass, go to E and receive 3 extra years of	NO = go to D3	**Yes-** PacifiCorp has established funds to implement watershed protection and enhancement measures that were agreed to by the parties to the 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

equivalent of land protection in D.1.,and 2) has the agreement of appropriate stakeholders and state and federal resource agencies?	certifi-cation		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 is also contributing an additional $430,000 annually to the fund for seven years (Section 19.1 in the Settlement Agreement). In addition, PacifiCorp is contributing $162,000 annually to ODFW 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 (Resource Coordination Plan).
3) Has the facility owner/operator established through a settlement agreement with appropriate stakeholders and that has state and federal resource agencies agreement an appropriate shoreland buffer or equivalent	YES = Pass, go to E	NO = go to D4	N/A

watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation)			
4) Is the facility in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.	YES = Pass, go to E	NO = Fail	N/A

E. Threatened and Endangered Species Protection	PASS	FAIL	Applicant Answer
1) Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach?	YES = Go to E2 NO = Pass, go to F		**Yes-** In 2002, the following species were potentially present in the Facility 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 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 Facility area include California wolverine (*Gulo gulo*

			luteus), peregrine falcon *(Falco peregrinus anatum),* and Umpqua mariposa lily *(Calochortus umpquaensis*). As FERC's designated non-federal representative for the purpose of conducting informal Section 7 consultation with the USFWS and the NOAA Fisheries under the ESA, PacifiCorp filed a Draft Biological Assessment and Essential Fish Habitat Assessment with the Commission 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, NOAA Fisheries 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 NOAA Fisheries 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.
2) If a recovery plan has been	YES =	NO =	**Yes** – The North Umpqua project is in compliance with the relevant

adopted for the threatened or endangered species pursuant to Section 4(f) of the Endangered Species Act or similar state provision, is the Facility in Compliance with all recommendations in the plan relevant to the Facility?	Go to E3 N/A = Go to E3	Fail	recommendations in the recovery plans that have been adopted for threatened and endangered species present in the project area or the downstream reach. NOAA Fisheries 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.oregon.gov/OPSW/cohoproject/PDFs/November2007_pdfs/Coho_Plan.pdf); • the *Recovery Plan for the Northern Spotted Owl*, adopted by the USFWS in May 2008 (http://ecos.fws.gov/docs/recovery_plan/NSO%20Final%20Rec%20Plan%20051408.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). A Recovery Outline for the Contiguous United States Distinct Population Segment of Canada Lynx (Lynx canadensis) and a Draft Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington that addresses Kincaid's lupine have also been prepared by the USFWS, but they have not been finalized and adopted.

3) If the Facility has received authority to incidentally *Take* a listed species through: (i) Having a relevant agency complete consultation pursuant to ESA Section 7 resulting in a biological opinion, a habitat recovery plan, and/or (if needed) an incidental Take statement; (ii) Obtaining an incidental Take permit pursuant to ESA Section 10; or (iii) For species listed by a state and not by the federal government, obtaining authority pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authority?	YES = Go to E4 N/A = Go to E5	NO = Fail	**Yes-** The North Umpqua project is in compliance with the terms and conditions of the incidental take statements issued by NOAA Fisheries 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 2008 *Annual Threatened and Endangered Species and Bald Eagle Monitoring Report* to USFWS and FERC on February 26, 2009. Attachment 8 to this application presents a FERC Order dated June 18, 2009 approving this report. NOAA Fisheries 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, NOAA Fisheries 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 9 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 "Implementation" link, then select the "Reports" tab to access the annual reports).
4) If a biological opinion applicable to the Facility for the threatened or endangered species has been issued, can the Applicant demonstrate that: a) The biological opinion was accompanied by a FERC license or exemption or a habitat conservation plan? Or b) The biological opinion was issued pursuant to or consistent with a recovery plan for the endangered or threatened species? Or c) There is no recovery plan for the threatened or endangered species under active development by the relevant Resource Agency? Or d) The recovery plan under active development will have no material effect on the Facility's operations?	YES = Pass, go to F	NO = Fail	**Yes** (4a) – The North Umpqua project license that was issued on November 18, 2003 references the terms and conditions of both the NOAA Fisheries Biological Opinion and USFWS Biological Opinion. The incidental take statements in the Biological Opinions are consistent with the conditions of the Settlement Agreement, designed to minimize incidental take over the course of the project's 35-year license.

5) If E.2. and E.3. are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?	YES = Pass, go to F	NO = Fail	N/A

F. Cultural Resource Protection	PASS	FAIL	Applicant Answer
1) If FERC-regulated, is the Facility in Compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license or exemption?	YES = Pass, go to G N/A go to F2	NO = Fail	**Yes-** Article 414 of the North Umpqua 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 February 20, 2009, FERC approved PacifiCorp's *Annual Report on Historic Properties Management Plan* (see Attachment 10).

2) If not FERC-regulated, does the Facility owner/operator have in place (and is in Compliance with) a plan for the protection, mitigation or enhancement of impacts to Cultural Resources approved by the relevant state or federal agency or *Native American Tribe*, or a letter from a senior officer of the relevant agency or Tribe that no plan is needed because Cultural Resources are not negatively affected by the Facility	YES = Pass, go to G	NO = Fail	N/A

G. Recreation	PASS	FAIL	
1) If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license or exemption?	YES = Go to G3	No = Fail	**Yes-** The North Umpqua project is in compliance with the recreational measures in the 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 Commission requirements. PacifiCorp is also responsible for paying the 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 in PacifiCorp's annual reports (http://www.pacificorp.com/es/hydro/hl/nur.html; from the North Umpqua project homepage, select the "Implementation" link, then select the "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; from the North Umpqua project homepage, select the "Implementation" link, then select the "Water Gaging" tab, and click on the "Water Gaging Network" link to access the data).
2) If not FERC-regulated, does the Facility provide recreational access, accommodation (including recreational flow releases) and	Yes = Go to G3	No = Fail	N/A

facilities, as Recommended by Resource Agencies or other agencies responsible for recreation?			
3) Does the Facility allow access to the reservoir and downstream reaches without fees or charges?	YES = Pass, go to H	No = Fail	**Yes-** PacifiCorp provides free access to the reservoirs and downstream reaches of the river.

H. Facilities Recommended for Removal	PASS	FAIL	Applicant Answer
1) Is there a Resource Agency Recommendation for removal of the dam associated with the Facility?	NO = Pass, Facility is Low Impact	YES = Fail	**No-** The most recent resource agency recommendations do not include removal of any of the dams associated with the North Umpqua project. The Settlement Agreement contains the adopted recommendations for the continued operation of the project and the FERC project license affirms the status of the Settlement Agreement: *The federal and state agencies that are signatories agree that the protection, mitigation, and enhancement measures contained in the Agreement will be adequate to protect resources under their jurisdiction that are affected by project operations, and the agencies have modified their mandatory and recommended conditions to achieve consistency with the Agreement.*