

Clean Water Act § 401 Certification Conditions
For the
Pelton Round Butte Hydroelectric Project
(FERC No. 2030)
Deschutes River Basin
Jefferson County, Oregon

Upon Federal Energy Regulatory Commission (FERC) issuance of a new license for the Pelton Round Butte Hydroelectric Project, Portland General Electric Company and the Confederated Tribes of the Warm Springs Reservation of Oregon (Joint Applicants) shall comply with the following § 401 conditions:

A. Water Quality Management and Monitoring Plan

Within 90 days of issuance of the §401 certification, the Joint Applicants, in consultation with ODEQ, shall revise the Water Quality Management and Monitoring Plan attached to these certification conditions as Exhibit A and submit the revised plan to ODEQ for approval. The plan as approved by ODEQ is hereafter referred to in these certification conditions as the “WQMMP”. Upon ODEQ approval, the WQMMP becomes a part of the §401 certification for the Project for purposes of any federal license or permit thereafter issued.

B. Selective Water Withdrawal Facility Construction and Operation

By no later than five years from the date of receiving a new FERC license for the Project, the Joint Applicants shall construct, test, and commence operation of the Selective Water Withdrawal (SWW) facility described in the Joint Applicants’ §401 application.

C. Temperature

1. The SWW facility shall be operated in accordance with the Temperature Management Plan (TMP) contained in the WQMMP. The TMP shall identify those measures that the Joint Applicants will undertake to reduce the Project’s contribution to exceedances of water quality standard criteria for temperature.
2. Upon issuance of a new FERC license for the Project, the Joint Applicants shall implement the Water Quality Monitoring Plan (WQMP) contained in the WQMMP. The WQMP shall specify the temperature monitoring reasonably needed to determine (a) whether the temperature criteria continue to be exceeded in waters 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.
3. Upon the U.S. Environmental Protection Agency’s final approval or adoption of a Total Maximum Daily Load (TMDL) for temperature in the portion of the Deschutes River affected by the Project, ODEQ may reevaluate the Joint Applicants’ TMP in light of information acquired since the certification of the Project. If additional temperature reduction measures are feasible and necessary to meet a Load Allocation (LA) for the Project under the TMDL (either as a component

of the initial TMDL or any subsequent modification of the TMDL), ODEQ may require submittal of a revised TMP that ensures attainment of the LA, subject to the limits set forth in Chapter 1.0 of the attached Exhibit A and incorporated into the WQMMP. If the TMDL does not include a specific LA for the Project, references to the "LA for the Project" shall refer to the LA that encompasses Project-related thermal contributions to waters affected by the Project.

4. At the end of the period determined by ODEQ to be necessary to implement the TMDL for temperature in waters affected by the Project, ODEQ may:
 - (a) Determine whether the LA for the Project has been achieved.
 - (b) If the LA for the Project has been achieved, the Joint Applicants shall continue to implement the TMP unless, at the Joint Applicants' request, ODEQ approves a modification or termination of the TMP.
 - (c) If the LA for the Project has not been achieved, ODEQ may reevaluate the 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 require submittal of a revised TMP that ensures attainment of the LA, subject to the limits set forth in Chapter 1.0 of Exhibit A and incorporated into the WQMMP. Any modification of the TMP that would require the Project to reduce water temperatures beyond what would be required by the LA for the Project shall be effective only upon modification of the LA to reflect the reduced load allocation.
 - (d) If (i) additional measures to reduce the Project's contribution to exceedances of the temperature criteria are necessary to achieve the LA but the measures are not feasible, and (ii) the water quality standard has not been achieved for waters affected by the Project, ODEQ shall verify whether all feasible measures have been undertaken by all required parties within the Deschutes River Basin to achieve the TMDL for waters affected by the Project. If all feasible measures have not been undertaken, ODEQ, in conjunction with designated management agencies, shall take steps to ensure that all feasible measures are undertaken. 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. If the designated beneficial uses are not adversely affected by the failure to achieve the TMDL, the Joint Applicants shall continue to implement the TMP unless, at the Joint Applicants' request, ODEQ approves modification or termination of the TMP. If the designated beneficial uses are adversely affected by the failure to achieve the TMDL, ODEQ may modify the TMP to require additional temperature measures, subject to the limits set forth in Chapter 1.0 of Exhibit A and incorporated into the WQMMP. Any modification of the TMP that would require the Project to reduce water temperatures beyond what would be required by the LA for the Project shall be effective only upon modification of the TMDL to reflect the reduced load allocation.
5. Any Project-related instream temperature increase of 0.25°F. or less above the relevant criterion shall not be deemed to contribute to an exceedance of the temperature criterion or to a violation of the temperature water quality standard.
6. ODEQ may make or require reasonable modifications to the WQMP that it considers to be reasonable and feasible if:
 - (a) The WQMP proves inadequate to provide the data needed to make the determinations described in certification condition 2, above; or,
 - (b) Modifications to the TMP require or indicate a need for modification to the WQMP.

7. With the approval of ODEQ, the Joint Applicants may cease implementing the TMP and WQMP or may implement a modified TMP and WQMP. ODEQ may approve termination or modification if ODEQ determines that it will not impair the achievement of any LA for the Project for temperature and will not contribute to the exceedance of the relevant temperature criterion in waters affected by the Project.
8. The Joint Applicants shall implement modifications requested by ODEQ in accordance with these certification conditions and the WQMMP.

D. Dissolved Oxygen

1. The SWW facility shall be operated in accordance with the Dissolved Oxygen Management Plan (DOMP) contained in the WQMMP. The DOMP shall identify those measures that the Joint Applicants will undertake to reduce the Project's contribution to violations of water quality standard criteria for dissolved oxygen.
2. Upon issuance of a new FERC license for the Project, the Joint Applicants shall implement the Water Quality Monitoring Plan (WQMP) contained in the WQMMP. The WQMP shall specify the dissolved oxygen monitoring reasonably needed to determine (a) whether the dissolved oxygen criteria continue to be violated in waters affected by the Project, (b) the success of the DOMP in reducing the Project's contribution to any continued violations of the criteria, and (c) any additional measures that may be needed to reduce the Project's contribution to violations of the criteria.
3. Upon the U.S. Environmental Protection Agency's final approval or adoption of a Total Maximum Daily Load (TMDL) for dissolved oxygen in the portion of the Deschutes River affected by the Project, ODEQ may reevaluate the DOMP in light of information acquired since the certification of the Project. If additional dissolved oxygen improvement measures are feasible and necessary to meet a Load Allocation (LA) for the Project under the TMDL (either as a component of the initial TMDL or any subsequent modification of the TMDL), ODEQ may require submittal of a revised DOMP that ensures attainment of the LA, subject to the limits set forth in Chapter 1.0 of Exhibit A and incorporated into the WQMMP. If the TMDL does not include a specific LA for the Project, references to the "LA for the Project" shall refer to the LA that encompasses Project-related impacts on dissolved oxygen concentrations in waters affected by the Project.
4. At the end of the period determined by ODEQ to be necessary to implement the TMDL for dissolved oxygen in waters affected by the Project, ODEQ may:
 - (a) Determine whether the LA for the Project has been achieved.
 - (b) If the LA for the Project has been achieved, the Joint Applicants shall continue to implement the DOMP unless, at the Joint Applicants' request, ODEQ approves a modification or termination of the DOMP.
 - (c) If the LA for the Project has not been achieved, ODEQ may reevaluate the DOMP to determine whether additional measures to reduce the Project's contribution to exceedances of the dissolved oxygen criteria are necessary and feasible. If additional measures are necessary and feasible, ODEQ may require submittal of a revised DOMP that ensures attainment of the LA, subject to the limits set forth in Chapter 1.0 of Exhibit A and incorporated into the WQMMP. Any modification of the DOMP that would require the Project to increase dissolved oxygen concentrations beyond what would be required by the LA for the Project shall be effective only upon modification of the LA to reflect the reduced load allocation.

- (d) If (i) additional measures to reduce the Project’s contribution to violations of the dissolved oxygen criteria are necessary to achieve the LA but the measures are not feasible, and (ii) the water quality standard for dissolved oxygen has not been achieved for waters affected by the Project, ODEQ shall verify whether all feasible measures have been undertaken within the Deschutes River Basin to achieve the LA for waters affected by the Project. If all feasible measures have not been undertaken by all required parties, ODEQ, in conjunction with designated management agencies, shall take steps to ensure that all feasible measures are undertaken. 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. If the designated beneficial uses are not adversely affected by the failure to achieve the TMDL, the Joint Applicants shall continue to implement the DOMP unless, at the Joint Applicants’ request, ODEQ approves modification or termination of the DOMP. If the designated beneficial uses are adversely affected by the failure to achieve the TMDL, ODEQ may modify the DOMP to require additional dissolved oxygen measures, subject to the limits set forth in Chapter 1.0 of Exhibit A and incorporated into the WQMMP. Any modification of the DOMP that would require the Project to increase dissolved oxygen concentrations beyond what would be required by the LA for the Project shall be effective only upon modification of the TMDL to reflect the reduced load allocation.
5. ODEQ may make or require reasonable modifications to the WQMP that it considers to be reasonable and feasible if:
 - (a) The WQMP proves inadequate to provide the data needed to make the determinations described in certification condition 2, above; or,
 - (b) Modifications to the DOMP require or indicate a need for modification to the WQMP.
 6. With the approval of ODEQ, the Joint Applicants may cease implementing the DOMP and WQMP or may implement a modified DOMP and WQMP. ODEQ may approve termination or modification if ODEQ determines that it will not impair the achievement of any LA for the Project for dissolved oxygen and will not contribute to violation of dissolved oxygen criteria in waters affected by the Project.
 7. The Joint Applicants shall implement modifications requested by ODEQ in accordance with these certification conditions and the WQMMP.

E. Hydrogen Ion Concentration (pH)

1. The SWW facility shall be operated in accordance with the pH Management Plan (PHMP) contained in the WQMMP. In accordance with Oregon Administrative Rule (OAR) 340-041-0565(2)(d), the PHMP shall identify those measures (including “all practicable measures” in impoundments) that the Joint Applicants will undertake to reduce the Project’s contribution to exceedances of the water quality criterion for pH.
2. Upon issuance of a new FERC license for the Project, the Joint Applicants shall implement the Water Quality Monitoring Plan (WQMP) contained in the WQMMP. The WQMP shall specify the pH monitoring reasonably needed to determine (a) whether the pH criterion continue to be exceeded in waters affected by the Project, (b) the success of the PHMP in reducing the Project’s contribution to any continued exceedances of the criterion, and (c) any additional measures that may be needed to reduce the Project’s contribution to exceedances of the criterion.
3. Upon the U.S. Environmental Protection Agency’s final approval or adoption of a Total Maximum Daily Load (TMDL) for pH in waters affected by the Project, ODEQ may reevaluate the PHMP in light of information acquired since the certification of the Project. If additional pH measures are

feasible and necessary to meet a Load Allocation (LA) for the Project under the TMDL (either as a component of the initial TMDL or any subsequent modification of the TMDL), ODEQ may require submittal of a revised PHMP that ensures attainment of the LA, subject to the limits set forth in Chapter 1.0 of Exhibit A and incorporated into the WQMMP. If the TMDL does not include a specific LA for the Project, references to the "LA for the Project" shall refer to the LA that encompasses Project-related pH contributions to waters affected by the Project.

4. At the end of the period determined by ODEQ to be necessary to implement the TMDL for pH in waters affected by the Project, ODEQ may:
 - (a) Determine whether the LA for the Project has been achieved.
 - (b) If the LA for the Project has been achieved, the Joint Applicants shall continue to implement the PHMP unless, at the Joint Applicants' request, ODEQ approves a modification or termination of the PHMP.
 - (c) If the LA for the Project has not been achieved, ODEQ may reevaluate the PHMP to determine whether additional measures to reduce the Project's contribution to exceedances of the pH criterion are necessary and feasible. If additional measures are necessary and feasible, ODEQ may require submittal of a revised PHMP that ensures attainment of the LA, subject to the limits set forth in Chapter 1.0 of Exhibit A and incorporated into the WQMMP. Any modification of the PHMP that would require the Project to reduce pH beyond what would be required by the LA for the Project shall be effective only upon modification of the LA to reflect the reduced load allocation.
 - (d) If (i) additional measures to reduce the Project's contribution to exceedances of the pH criterion are necessary to achieve the LA but the measures are not feasible, and (ii) the pH water quality standard has not been achieved for waters affected by the Project, ODEQ shall verify whether all feasible measures have been undertaken by all required parties within the Deschutes River Basin to achieve the TMDL for waters affected by the Project. If all feasible measures have not been undertaken, ODEQ, in conjunction with designated management agencies, shall take steps to ensure that all feasible measures are undertaken. 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. If the designated beneficial uses are not adversely affected by the failure to achieve the TMDL, the Joint Applicants shall continue to implement the PHMP unless, at the Joint Applicants' request, ODEQ approves modification or termination of the PHMP. If the designated beneficial uses are adversely affected by the failure to achieve the TMDL, ODEQ may modify the PHMP to require additional pH measures, subject to the limits set forth in Chapter 1.0 of Exhibit A and incorporated into the WQMMP. Any modification of the PHMP that would require the Project to reduce pH beyond what would be required by the LA for the Project shall be effective only upon modification of the TMDL to reflect the reduced load allocation.
5. ODEQ may make or require reasonable modifications to the WQMP that it considers to be reasonable and feasible if:
 - (a) The WQMP proves inadequate to provide the data needed to make the determinations described in certification condition 2, above; or,
 - (b) Modifications to the PHMP require or indicate a need for modification to the WQMP.
6. With the approval of ODEQ, the Joint Applicants may cease implementing the PHMP and WQMP or may implement a modified PHMP and WQMP. ODEQ may approve termination or modification if ODEQ determines that it will not impair the achievement of any LA for the Project

for pH and will not contribute to the exceedance of the relevant pH criterion in waters affected by the Project.

7. The Joint Applicants shall implement modifications requested by ODEQ in accordance with these certification conditions and the WQMMP.

F. Nuisance Phytoplankton Growth and Aesthetic Conditions

1. The SWW facility shall be operated in accordance with the Nuisance Phytoplankton Growth Management Plan (NPGMP) contained in the WQMMP. The NPGMP shall identify those measures that the Joint Applicants will undertake to reduce the Project's contribution to exceedances of the nuisance phytoplankton growth standard criteria in the event nuisance conditions develop.
2. Upon issuance of a new FERC license for the Project, the Joint Applicants shall implement the Water Quality Monitoring Plan (WQMP) contained in the WQMMP. The WQMP shall specify the nuisance phytoplankton growth monitoring reasonably needed to determine (a) whether the nuisance phytoplankton trigger criterion is exceeded in the Project reservoirs, (b) the success of the NPGMP in reducing the Project's contribution to excessive phytoplankton levels that might lead to nuisance conditions within the Project reservoirs, and (c) any additional measures that may be needed to reduce the Project's contribution to nuisance phytoplankton conditions.
3. Upon the U.S. Environmental Protection Agency's final approval or adoption of a Total Maximum Daily Load (TMDL) for nuisance phytoplankton growth in the portion of the Deschutes River affected by the Project, ODEQ may reevaluate the NPGMP in light of information acquired since the certification of the Project. If additional nuisance phytoplankton growth reduction measures are technically and economically practicable and necessary to meet a Load Allocation (LA) for the Project under the TMDL (either as a component of the initial TMDL or any subsequent modification of the TMDL), ODEQ may require submittal of a revised NPGMP that ensures attainment of the LA, subject to the limits set forth in Chapter 1.0 of Exhibit A and incorporated into the WQMMP. If the TMDL does not include a specific LA for the Project, references to the "LA for the Project" shall refer to the LA that encompasses Project-related impacts to nuisance phytoplankton growth within the Project reservoirs.
4. At the end of the period determined by ODEQ to be necessary to implement the TMDL for nuisance phytoplankton growth in the portion of the Deschutes River affected by the Project, ODEQ may:
 - (a) Determine whether the LA for the Project has been achieved.
 - (b) If the LA for the Project has been achieved, the Joint Applicants shall continue to implement the NPGMP unless, at the Joint Applicants' request, ODEQ approves a modification or termination of the NPGMP.
 - (c) If the LA for the Project has not been achieved, ODEQ may reevaluate the NPGMP to determine whether additional measures to reduce the Project's contribution to exceedances of the nuisance phytoplankton growth criteria are technically and economically practicable and necessary. If additional measures are technically and economically practicable and necessary, ODEQ may require submittal of a revised NPGMP that ensures attainment of the LA, subject to the limits set forth in Chapter 1.0 of Exhibit A and incorporated into the WQMMP. Any modification of the NPGMP that would require the Project to reduce nuisance phytoplankton growth beyond what would be required by the LA for the Project shall be effective only upon modification of the LA to reflect the reduced load allocation.

5. ODEQ may make or require reasonable modifications to the WQMP that it considers to be reasonable and feasible if:
 - (a) The WQMP proves inadequate to provide the data needed to make the determinations described in certification condition 2, above; or,
 - (b) Modifications to the NPGMP require or indicate a need for modification to the WQMP.
6. With the approval of ODEQ, the Joint Applicants may cease implementing the NPGMP and WQMP or may implement a modified NPGMP and WQMP. ODEQ may approve termination or modification if ODEQ determines that it will not impair the achievement of any LA for the Project for nuisance phytoplankton growth and will not contribute to the exceedance of the relevant nuisance phytoplankton growth criteria in the Project reservoirs.
7. The Joint Applicants shall implement modifications requested by ODEQ in accordance with these certification conditions and the WQMMP.

G. Biological Criteria, Deleterious Conditions, and Protection of Designated Beneficial Uses of Salmonid Spawning, Salmonid Rearing, Resident Fish, Aquatic Life, and Wildlife, and other water quality-related state laws for the protection of fish, aquatic life and wildlife:

1. SWW Facility: The Joint Applicants shall operate the Selective Water Withdrawal (SWW) facility in accordance with conditions C, D, and E of this certification.
2. Monitoring: Upon issuance of a new FERC license for the Project, the Joint Applicants shall conduct all monitoring, record keeping, and reporting of all parameters in accordance with the WQMP contained in the WQMMP. The WQMP shall specify monitoring sufficient to determine compliance with § 401 certification requirements for water quality, Project operations, streamflow, ramping rates, and reservoir levels.
3. Spill Management: The Joint Applicants shall maintain and implement current Spill Prevention, Control, and Countermeasure (SPCC) plans for oil and hazardous materials prepared in accordance with the Clean Water Act requirements of 40 CFR 112. These plans shall address all locations at the Project where Project operations may potentially result in a spill of these materials to the reservoirs or the lower Deschutes River. In the event of a spill or release or threatened spill or release to Project reservoirs or the lower Deschutes River, the Joint Applicants shall immediately implement the site's SPCC plans and notify the Oregon Emergency Response System (OERS) at 1-800-452-0311.
4. Ramping Rates in the lower Deschutes River: The Joint Applicants shall operate the project with the following criteria for ramping rates: 0.1 foot/hour and 0.4 foot/day from October 16 to May 14, and 0.05 foot/hour and 0.2 foot/day from May 15 to October 15, except during certain extraordinary conditions. These extraordinary conditions are: (1) flood events; (2) any event that triggers the Project Emergency Action Plan; (3) rapid changes in Project inflows, when the rate of inflow change exceeds the proposed stage change limits; and (4) equipment failures or emergencies at the Reregulating Development. To monitor compliance with this requirement, the Joint Applicants shall record the time and control signal value for all state change instructions at the Reregulating Development and shall report any control signal changes that are greater than the ramping limitations identified above.
5. Reservoir Levels: The Joint Applicants shall operate Lake Billy Chinook to maintain a stable pool level between 1,944 ft. mean sea level (MSL) and 1,945 ft. MSL during the period June 15 to September 15 of each year. If it is forecasted that Lake Billy Chinook will not fill by June 15 of any year, then the Joint Applicants shall immediately notify the state Hydroelectric Application Review Team (HART) and advise of the expected refill date. If the reservoir has not been filled to

normal operating pool level by June 15 of any year, this provision shall not prevent filling if water is available for storage while maintaining the minimum flow. Except during certain extraordinary circumstances described below, the Joint Applicants shall restrict the drawdown of Lake Billy Chinook to a maximum of 20 ft (elevation 1,925 ft MSL) with a target of 10 feet drawdown during normal winter operations; Lake Simtustus to a maximum drawdown limit of elevation of 1,576 ft MSL between June 1 and August 31, and elevation 1,573 ft MSL between September 1 and May 31; and the Reregulating Reservoir to 1,414 ft MSL year-round. Extraordinary circumstances allowing deviation from maximum allowable drawdowns are: (a) flood events in which drawdown is needed for safe passage of flood flows to minimize damage to life and property; (b) unforeseen occurrences in which drawdown is required to complete emergency repairs on Project facilities; (c) periodic scheduled maintenance activities that require drawdown to complete normal repairs on Project facilities (including spillway gates, the intake structure, or other dam structures); and (d) regional power system emergencies. In instances where the Joint Applicants exceed maximum drawdowns, the Joint Applicants shall provide immediate written justification to FERC and notification to HART describing cause and need for the deviation, extent of deviation, and expected timeline for bringing the reservoir(s) back to minimum allowable pool levels. If the pool level of Lake Billy Chinook is projected to be below the summer operating level (minimum elevation 1,944.0 ft MSL) between June 15 and September 15, the Joint Applicants may reduce the flow release to ensure the reservoir reaches the minimum pool elevation of 1944.0 ft MSL. When inflows to the Project under this condition are less than target flows plus 150 cfs, then the flow release at the USGS Madras Gage No. 14092500 shall be defined as the daily inflow less 150 cfs. The referenced target flows are defined in the next condition.

6. Minimum Streamflows: The Joint Applicants shall maintain minimum flows on a weekly basis equal to specified target flows or inflows, whichever is less. The target flows, as measured at the USGS Madras Gage No. 14092500, are as follows: January 4,500 cfs, February 4,500 cfs, March 4,500 cfs, April 4,000 cfs, May 4,000 cfs, June 4,000 cfs, July 4,000 cfs, August 3,500 cfs, September 3,800 cfs, October 3,800 cfs, November 3,800 cfs and December 4,500 cfs. During the period September 16 through November 15, the Joint Applicants shall supplement inflows as necessary to ensure a minimum flow release to the lower river of at least 3,000 cfs, subject to a maximum required supplementation of 200 cfs and cap on required drawdown of Lake Billy Chinook to achieve such supplementation equal to four feet.
7. Run-of-River Operations: The Joint Applicants shall hold river flows below the Reregulating Development to within ± 10 percent of the measured Project inflow under most conditions. Conditions or events where this criteria may not be followed include days with measured inflow in excess of 6,000 cfs when at least one of the following conditions exists: (1) any event that triggers the Project Emergency Action Plan; (2) power emergencies, as defined in the WSCC Minimum Operating Reliability Criteria (March 8, 1999); (3) equipment failures or emergencies at one of the Project dams or powerplants; or (4) reservoir drawdowns are needed for safe passage of anticipated flood flows to minimize damage to life and property. At times when flows are in excess of 6,000 cfs and one or more of the above exception conditions apply, the Joint Applicants shall minimize the variation beyond the $\pm 10\%$ criterion as can be done safely.
8. Stream Gaging: By no later than one year from the date of receiving a new FERC license for the Project, the Joint Applicants shall fund improvements at the existing USGS gaging stations on the Crooked (Gage No. 14087400), Deschutes (Gage No. 14076500) and Metolius (Gage No. 14091500) rivers upstream of the Project. These improvements shall include radio, telephone, or other telemetry systems to provide recording and transmission of hourly stream temperature and streamflow data to the Pelton control room.
9. Fish Passage: The Joint Applicants shall construct, maintain and operate, or shall arrange for the construction, maintenance and operation of such facilities and equipment for fish migration, propagation or conservation consistent with the proposed Fish Passage Plan and amendments thereto. In the event any modifications in the fish facilities are deemed necessary, the Joint Applicants shall cooperate with Oregon Department of Fish and Wildlife (ODFW) in the design of

such modifications or operation of the facilities.

10. Large Wood: All large wood (greater than 20 cm by 3 m) entering Lake Billy Chinook shall be removed by the Joint Applicants and placed into the lower Deschutes River below the Reregulating Dam. Following a flow event that results in the transport of significant amounts of large wood into Lake Billy Chinook, the Joint Applicants shall consult with ODFW and the Confederated Tribes of the Warm Springs Reservation of Oregon (CTWS) Natural Resources Department to obtain specific guidance pertaining to the placement and monitoring of that large wood in the lower Deschutes River below the Project's Reregulating Dam. The Joint Applicants shall obtain all necessary regulatory licenses, permits, or approvals from tribal, federal, state and local authorities prior to large wood placement.
11. Sediment Transport/Spawning Gravel: The Joint Applicants shall perform the following studies with regard to sediment transport and spawning gravel:
- Verify the sediment transport model developed by Fassnacht (1998) by placing radio-tagged and/or colored rocks on selected bars in the Deschutes River below the Reregulating Dam. Determine at which flow levels these rocks are mobilized by checking their positions after each flow event greater than 7,000 cfs. The Joint Applicants may submit to ODEQ for approval a proposal for an alternate flow value for commencement of this monitoring pending the results of the AIR process. Buried columns of colored rocks will be utilized to determine the depth of scour at different flow levels.
 - Resurvey channel cross sections at five locations utilized by Fassnacht (1998). Resurvey these annually for 5 years to determine if there is any active channel change associated with years having high flow events. If no change is detected after 5 years, resurvey them every 10 years, or after events greater than 15,000 cfs.
 - If monitoring sediment transport and channel change shows significant transport or change at flows lower than predicted by Fassnacht (1998), initiate a program to measure actual bedload transport at different flow levels at the Warm Springs Bridge (US Highway 26).
 - If monitoring of channel change and measuring bedload shows significant transport at levels significantly below those predicted by the geomorphology study, revisit the sites used by McClure (1998) for particle size measurements and replicate these particle surveys.
 - Coordinate and lead a study of historical fish counts and spawning data directed toward determination of the cause of anadromous spawning reduction in the Lower Deschutes River from below the Reregulation Dam downstream to the mouth of Shitike Creek. In addition, the Joint Applicants shall conduct a study to determine the quality of gravel habitat for anadromous fish in this river reach. The results of this study shall be used by the Joint Applicants to determine if additional mitigation measures are necessary to improve habitat quality or quantity.
12. Upper Basin Habitat Enhancement and Restoration: The Joint Applicants shall work with private and governmental entities in the Deschutes River Basin to implement cost-effective habitat enhancement and restoration measures to improve the quality of water flowing into the Project. These upper basin measures shall include, but not be limited to, the creation of riparian refugia, as well as improvements such as livestock exclusion, placement of large woody debris, planting of grass, shrubs, trees, and the maintenance and creation of wetlands.

The Joint Applicants shall expend a minimum of \$1.475 million for these upper basin measures over the first 5 years of the new license in accordance with the following table.

Required Mitigation Measure	Minimum Required Expenditure
Improved Riparian Corridor Management	\$ 750,000

Community Habitat Education Activities	25,000
Establishment of Reserves and Refugia	700,000
Total	\$1,475,000

H. Total Dissolved Gas

1. The Joint Applicants shall monitor total dissolved gas at the Reregulating Dam tailrace in accordance with the WQMP contained in the WQMMP.
2. If monitoring of total dissolved gas at the Reregulating Dam tailrace at times of spill indicates noncompliance with the total dissolved gas standard, then the Joint Applicants shall immediately develop a plan and schedule for assessing the problem and developing a remedy. Such plan and schedule shall be submitted to ODEQ for approval within 60 days of identifying the excessive total dissolved gas concentrations via monitoring. Upon approval of the remedial plan by ODEQ, the Joint Applicants shall implement the plan in accordance with the approved schedule.

I. Turbidity

1. The Joint Applicants shall implement the erosion control measures for erosionally-sensitive shoreline areas of the Project reservoirs as proposed in the Final joint Application Amendment, Exhibit E-VII-13.
2. The Joint Applicants shall continue the Shoreline Planting Program at all three Project reservoirs to enhance on-site riparian habitat, as proposed in the Final Joint Application Amendment, Exhibit E-IV-41.
3. The Joint Applicants shall monitor turbidity in accordance with the WQMP contained in the WQMMP.

J. Toxic Substances; Discoloration, Scum, Oily Slick; Aesthetic Conditions; Deleterious Conditions

The Joint Applicants shall maintain and implement current Spill Prevention, Control, and Countermeasure (SPCC) plans for oil, hazardous materials, and non-hazardous materials prepared in accordance with the Clean Water Act requirements of 40 CFR 112. These plans shall address all locations at the Project where Project operations may potentially result in a spill of these materials to the reservoirs or the lower Deschutes River. In the event of a spill or release or threatened spill or release to Project reservoirs or the lower Deschutes River, the Joint Applicants shall immediately implement the site's SPCC plan and notify the Oregon Emergency Response System (OERS) at 1-800-452-0311.

K. Bacteria

The Joint Applicants shall monitor for *E. coli* bacteria in accordance with the WQMP contained in the WQMMP.

L. Cooling Water Discharge Permits

Upon issuance of a new FERC license for the Project, the Joint Applicants shall within 30 days request and file National Pollutant Discharge Elimination System (NPDES) permit applications with ODEQ for cooling water discharges at each of the three powerhouses. This condition will be considered null and void if the Joint Applicants, prior to FERC license issuance, have applied to ODEQ for these NPDES permits.

M. § 401 Certification Compliance Schedules

If any event occurs that is beyond the Joint Applicants' reasonable control and that causes or may cause a delay or deviation in compliance with schedules contained in this § 401 Certification, the Joint Applicants shall immediately notify ODEQ in writing of the cause of delay or deviation and its anticipated duration; the measures that have been or will be taken to prevent or minimize the delay or deviation; and the timetable by which the Joint Applicants propose to carry out such measures. It is the Joint Applicants' responsibility in the written notification to demonstrate to ODEQ's satisfaction that the delay or deviation has been or will be caused by circumstances beyond the control and despite due diligence of the Joint Applicants. If the Joint Applicants so demonstrates, ODEQ shall extend times of performance of related activities under this condition, as appropriate. Circumstances or events beyond the Joint Applicants' control include, but are not limited to, acts of nature, unforeseen strikes, work stoppages, fires, explosion, riot, sabotage, or war. ODEQ may also consider other circumstances or events as beyond the Joint Applicants' control. These other circumstances or events may include, but not be limited to, changes in state statutes; delays in the receipt of necessary approvals for construction design or permits; or delays that ODEQ agrees the Joint Applicants would not have been expected to anticipate. These other circumstances or events will only be considered if they are not due to the actions or inactions of the Joint Applicant. Increased cost of performance or consultant's failure to provide timely reports may not be considered circumstances beyond the Joint Applicants' control.

N. § 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.

O. Project Changes

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

P. Project Repair or Maintenance

The Joint Applicants 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 the Joint Applicants' request, approve specified repair and maintenance activities on a periodic or ongoing basis.

Q. Project Inspection

The Joint Applicants 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 § 401 certification conditions.

R. Posting of § 401 Certification

The Joint Applicants shall post a copy of these certification conditions in a prominent location at the Pelton Powerhouse Control Center.

S. Water Quality Standards Compliance

Notwithstanding the conditions of this certification, no wastes shall be discharged and no activities shall be conducted which will violate state water quality standards.

T. Project Specific Fees

In accordance with Oregon Revised Statutes (ORS) 543.080, the Joint Applicants shall pay a project-specific fee for ODEQ's costs of overseeing implementation of adaptive management provisions of this § 401 certification. The fee shall be \$25,000 (2002 dollars) annually, made payable to "State of Oregon, Department of Environmental Quality", and due on July 1 of each year after issuance of the new FERC license. This fee will not pay ODEQ's costs of participation, before or after issuance of the new FERC license, on the Fisheries Technical Subcommittee established by the Joint Applicants for the Project; such costs shall be paid by Joint Applicants by arrangement separate from this Certification condition. ODEQ shall credit against the fee amounts required under this Certification condition 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 of adaptive management. The fee shall expire 10 years after the first July 1 following issuance of this certification, unless terminated earlier by ODEQ because oversight of adaptive management is no longer necessary. One year before the tenth-anniversary expiration of the fee, or earlier if mutually agreed, ODEQ and the Joint Applicants shall review the need, if any, to modify, extend, or terminate the fee, in accordance with ORS 543.080. The Joint Applicants shall continue to pay any project-specific fee required after such review.