



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

4601 N Monroe Street • Spokane, Washington 99205-1295 • (509)329-3400

November 18, 2011

Ms. Barbara Greene  
Boundary Relicensing Project Manager  
Seattle City Light  
P.O. Box 34023  
Seattle, WA 98124-4023

Dear Ms. Greene:

RE: Boundary Hydroelectric Project Certification-Order No. 8872 (FERC No. 2144)

The request for the certification under Section 401 of the Clean Water Act (33 USC § 1341) for the relicensing of the Boundary Hydroelectric Project (FERC No. 2144) in Pend Oreille County, Washington has been reviewed. On behalf of the State of Washington, the Department of Ecology (Ecology) certifies that reasonable assurance exists that the Boundary Project, subject to and limited by the conditions stated by the enclosed Order No. 8872, will comply with applicable provisions of 33USC §§ 1311, 1312, 1313, 1316, 1317 and other appropriate requirements of State law.

This certification shall be deemed withdrawn if the Federal Energy Regulatory Commission does not issue a license for Boundary Hydroelectric Project within five (5) years of the date of this issuance. This certification may be modified or withdrawn by Ecology prior to the issuance of the license based upon new information or changes to the March 29, 2010 Settlement Agreement, water quality standards or appropriate requirements of state law. If the certification is withdrawn, the applicant will then be required to reapply for certification under Section 401 of the Clean Water Act.

This certification is subject to the conditions contained in the enclosed Order. Please contact Marcie Mangold (Certification Manager) at (509) 329-3450, by email at [dman461@ecy.wa.gov](mailto:dman461@ecy.wa.gov) or at the mailing address above if you have any questions. The enclosed Order may be appealed by following the procedures described in the Order.

Sincerely,

  
James M. Bellatty  
Water Quality Section Manager  
Eastern Regional Office

JMB:DMM:slt

CERTIFIED MAIL (7010 0290 0003 5678 9243)

Enclosure

cc: Kimberly D. Bose, FERC Secretary  
FERC Service List for Boundary Hydroelectric Project (FERC No. 2144)  
Joan Marchioro, State of Washington Office of Attorney General  
Marcie Mangold, Department of Ecology  
Chad Brown, Department of Ecology





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# **401 Certification-Order**

## **Boundary Hydroelectric Project Certification Order No. 8872 FERC License No. 2144**

November 18, 2011



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401 Certification-Order  
Boundary Hydroelectric Project  
Certification  
Order No. 8872  
FERC License No. 2545

By

Marcie Mangold  
Water Quality Program  
Eastern Regional Office/Ecology  
4601 N. Monroe Street  
Spokane, WA 99205

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## Acronyms

401	Section 401 of the Clean Water Act
7Q10	Seven-day, consecutive low flow with a ten year return frequency
BMP	Best Management Practice
CFR	Code of Federal Regulation
cfs	Cubic feet per second
CWA	Clean Water Act
DO	Dissolved Oxygen
EMD	Emergency Management Division
ERO	Eastern Regional Office of the Department of Ecology
ESHB	Engrossed Substitute House Bill
FAWG	Fish and Aquatic Work Group
FERC	Federal Energy Regulatory Commission
FWPCA	Federal Water Pollution Control Act
hp	Horse power
HPA	Hydraulic Project Approval
ICS	Incident Command System
ILP	Integrated Licensing Process
IWWPP	In Water Work Protection Plan
kcf	Thousand cubic feet per second
MW	Mega watt
NAVD 88	North American Vertical Datum of 1988, vertical control datum establish for vertical control surveying in the United States of America
NPDES	National Pollution Discharge Elimination System
NRC	National Response Center
NTU	Nephelometric Turbidity Unit
PCB	Polychlorinated Biphenyls
PLP	Preliminary Licensing Proposal
PM&E	Protection, Mitigation and Enhancement
QAPP	Quality Assurance Project Plan
RCW	Revised Code of Washington
RM	River Mile
SCL	Seattle City Light
SDCC	Spill Deterrent Control & Countermeasure Plan
SPCC	Spill Prevention Control & Countermeasure Plan
SWPPP	Stormwater Pollution Prevention Plan
TDG	Total Dissolved Gas
TDG Subgroup	Total Dissolved Gas Subgroup, a subgroup of the WQWG
TMDL	Total Maximum Daily Load
USC	United States Court
USGS	United States Geological Survey
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WDOE	Washington State Department of Ecology
WQAP	Water Quality Attainment Plan
WQPP	Water Quality Protection Plan
WQWG	Water Quality Work Group

**DEPARTMENT OF ECOLOGY**

<b>IN THE MATTER OF GRANTING A</b>	)	<b>CERTIFICATION</b>
<b>WATER QUALITY CERTIFICATION TO:</b>	)	<b>ORDER NO. 8872</b>
Seattle City Light	)	Licensing of Boundary Hydroelectric
in accordance with 33 U.S.C. § 1341	)	Project (FERC No. 2144),
FWPCA § 401, RCW 90.48.120, RCW 90.48.260	)	Pend Oreille County, Washington
and WAC 173-201A	)	

**TO: Barbara Greene**  
**Boundary Relicensing Program Manager**  
**Seattle City Light**  
**PO Box 34023**  
**Seattle, WA 98124-4023**

On September 3, 2010, the Department of Ecology (Ecology) received an application for a Clean Water Act (CWA) Section 401 certification, 33 U.S.C. § 1341, from Seattle City Light (SCL), for the Boundary Dam hydropower project, Federal Energy Regulatory Commission (FERC) License No. 2144. As the one year deadline provided by Section 401 approached SCL withdrew that application at Ecology’s request, and reapplied on July 25, 2011. SCL filed its Preliminary Licensing Proposal (PLP) with FERC on April 30, 2009, and filed its License Application (LA) on September 20, 2009. In March, 2010, SCL entered into the Boundary Hydroelectric Project Relicensing Settlement Agreement (Settlement Agreement, SCL 2010a), that represents five years of consultation and negotiations with state and federal resource agencies, Native American tribes, local governments, non-governmental organizations, and members of the public under the Commission’s Integrated Licensing Process (ILP) and a two-year, coordinated mediation process involving many of the same parties. The Settlement Agreement contains proposed License Articles that included provisions for fish passage, fish and wildlife habitat enhancement and protection, water quality, fish supplementation, recreation, cultural properties, and other matters. SCL filed the Settlement Agreement with FERC on March 29, 2010 along with Addenda to the LA that incorporate the provisions of the Settlement Agreement. FERC published a Draft Environmental Impact Statement (EIS) on the Boundary Project in April 2011, and published the Final EIS in September 2011 (FERC 2011). SCL adopted the FERC EIS for purposes of compliance with the State Environmental Policy Act (SEPA) (SCL 2011). The proposed License Articles and the LA as amended by the LA Addenda and evaluated in the FERC Final EIS are reflected in this 401 Certification.

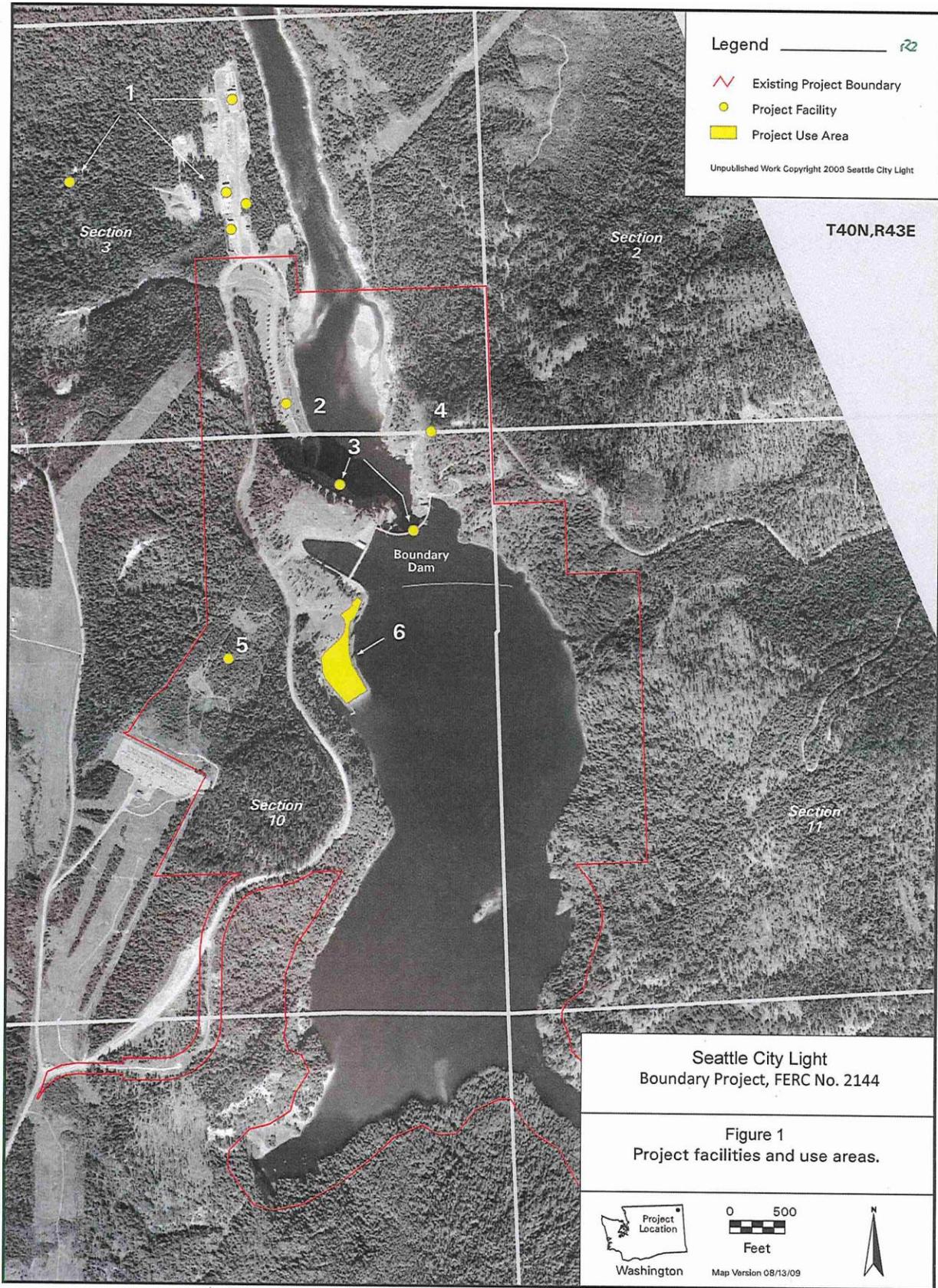
**1 NATURE OF THE PROJECT**

The Boundary Project (FERC No. 2144) (Project), owned and operated by SCL, is located on the Pend Oreille River, in Pend Oreille County, Washington. The Project was constructed in the mid 1960s and operates under a license administered by the FERC. The present license for the Project expires on September 30, 2011. For the relicensing of the Project, SCL used the FERC ILP to provide the framework for its consultation with agencies, tribes, and other relicensing participants during the period leading up to the filing of the License Application.

## **1.1 Location**

The Project is located on the Pend Oreille River in northeastern Washington and is one of eleven hydroelectric and storage projects within the Clark Fork-Pend Oreille River basin. The dam is located 1 mile south of the U.S.-Canada border, 16 miles west of the Idaho border, 107 miles north of Spokane, and 10 miles north of Metaline Falls, in Pend Oreille County. The dam is at Project river mile (RM) 17.0 on the Pend Oreille River. The upstream end of the Project reservoir (Boundary Reservoir) is located immediately downstream of the Box Canyon Dam. Land ownership in the Project vicinity is shown in Figure 1. Specific facility characteristics and layout are listed in Table 1.

**Figure 1: Seattle City Light - Project Facilities and Use Areas**



**Table 1: Project Facilities and Use Areas**

Site #	Project Facility/Use Area
1	Operations and maintenance support area. Includes: Shipping and Receiving building; Paint Shop/warehouse; spring water source and storage (stores water for cooling generator); maintenance shop; storage yards/staging areas (e.g., storage of aggregate); other miscellaneous functions.
2	Tailrace Recreation Area – SCL-maintained day use and picnic area leading to the Machine Hall Visitors’ Gallery.
3	Dam and power plant complex.
4	Vista House – Viewpoint building, parking area, trail and viewing platform used by visitors to view the dam. Housing for SCL communications equipment inside building.
5	Transmission line right-of-away (ROW) (includes station service and associated underground utilities).
6	Forebay Recreation Area – SCL-maintained campground, boat ramp/float, picnic sites, and restrooms.

## 1.2 Dam Characteristics

Boundary Dam, situated in a narrow canyon and founded on interbedded limestone and dolomite of the Metaline Limestone formation, is a variable-radius concrete arch dam with a total height of 360 feet above the lowest part of the foundation and a structural height of 340 feet. The dam varies in thickness from 8 feet at its crest to 32 feet at its base, has a crest length of 508 feet, and has a total length, including the spillways, of 740 feet. The dam impounds the Pend Oreille River to a normal high water surface elevation 1,994 feet North American Vertical Datum (NAVD 88), as measured in the forebay.

The Project power plant comprises an underground machine hall, six turbine-generator units, draft tubes, and transformer bays. The machine hall was excavated within the massive rock forming the left abutment of the dam. The machine hall is 76 feet wide, 172 feet high and 477 feet long housing six (6) generating units. The Project is operated in a load-following mode that shapes available water to deliver power during peak-load hours with a total plant capability of approximately 1,040 MW from its six turbines (SCL 2009, Exhibits A and B).

Project generating Units 51 and 53 each have a turbine rated at 204,506 hp (153,379.50 kilowatts [kW]) connected to a generator rated at 158,400 kW. Units 52 and 54 each have a turbine rated at 204,506 hp (153,379.50 kW) connected to a generator rated at 161,500 kW. Units 55 and 56 each have a turbine rated at 259,823 hp (194,867.25 kW) connected to a generator rated at 200,000 kW. The Project’s total authorized installed capacity is 1,003,253 kW based on total turbine ratings with a total generator capacity of 1,039.8 megawatts (MW) (1,040 MW) based on an assumed peak efficiency of 95 percent. By 2008, SCL conducted actual performance tests that produced a peak efficiency of approximately 90 percent resulting in a revised total installed capacity of 981,518 kW based on turbine ratings and total generator capacity of 1,039.8 MW (1,040 MW). Future maintenance and changes such as turbine upgrades and generator rewinds will be as approved by FERC (SCL 2010b, Exhibit B Addendum).

## 1.3 Impoundment and Reservoir Storage

Completed in 1967, Boundary Dam forms the 17.5-mile-long reservoir that has a surface area of approximately 1,794 acres, a shoreline length of roughly 47 miles, and maximum depth in the forebay of approximately 270 feet (SCL 2009, Exhibit A).

Table 2 summarizes Boundary Reservoir data. The Reservoir’s gross storage capacity is approximately 87,913 acre-feet (elevation 1,744 NAVD 88 to elevation 1,994 NAVD 88), and its usable storage capacity is approximately 40,843 acre-feet (elevation 1,954 feet NAVD 88 to elevation 1,994 feet NAVD 88) (SCL 2009, Exhibit A). Maximum residence time is less than four days, but more typically the residence time is less than two days (Pickett 2004).

**Table 2: Boundary Reservoir Data (SCL 2009)**

Reservoir dimensions	Length 17.5 miles Depth 270 ft (maximum)
Normal maximum water surface area	1,794 acres
Normal maximum water surface elevation	1,994 ft. (NAVD 88) (at the forebay)
Gross storage capacity	87,913 acre feet
Usable storage capacity	40,843 acre feet

## 2 AUTHORITIES

In exercising authority under Section 401 of the Clean Water Act (33 U.S.C. § 1341) and Revised Code of Washington (RCW) RCW 90.48.120 and 90.48.260, Ecology has investigated this proposal for:

Conformance with all applicable water quality based, technology based, toxic or pretreatment effluent limitations as provided under the Federal Water Pollution Control Act Sections 301, 302, 303, 306 and 307 and 33 U.S.C. §§ 1311, 1312, 1313, 1316, and 1317.

Conformance with the state water quality standards as provided for in Chapter 173-201A WAC and by Chapter 90.48 RCW, and with other appropriate requirements of state law; and, conformance with all known, available and reasonable methods to prevent and control pollution of state waters as required by RCW 90.48.010.

## 3 CONDITIONS

In view of the foregoing and in accordance with Section 401 of the Clean Water Act (33 U.S.C. 1341), RCW 90.48.260 and WAC Chapter 173-201A, Ecology finds reasonable assurance that implementation of the compliance schedule and adaptive management strategy contained in the proposed license will result in the attainment and compliance with state and federal water quality standards and other appropriate requirements of state law provided the following conditions are met. Accordingly, through this Order issued and enforceable under RCW 90.48, Ecology grants Section 401 water quality Certification to SCL for the Boundary Dam Hydroelectric Project (FERC No. 2144) subject to the following conditions. This Order will hereafter be referred to as the “Certification”.

### 3.1 General Requirements

- (a) The Project shall comply with all water quality standards (currently codified in WAC 173-201A), ground water standards (currently codified in WAC 173-200), and sediment quality standards (currently codified in WAC 173-204) and other appropriate requirements of state law that are related to compliance with such standards, as all such standards are applied in this Certification.

- (b) Pursuant to RCW 90.48.080, discharge of any solid or liquid waste to the waters of the state of Washington is prohibited.
- (c) In the event of changes or amendments to the state water quality, ground water, or sediment standards, or changes in or amendments to the state Water Pollution Control Act (RCW 90.48), or changes in or amendments to the Federal Clean Water Act, Ecology may by Administrative Order incorporate such provisions, standards, criteria or requirements into this Certification and any attendant agreements, orders or permits, to the fullest extent permitted by law.
- (d) SCL shall notify Ecology before undertaking any change to the Project or Project operations that might significantly and adversely affect the water quality (including impairment of designated uses) or compliance with any applicable water quality standard (including designated uses) or other appropriate requirement of state law. If, following such notification, Ecology determines that such a change would violate state water quality standards or other appropriate requirements of state law; Ecology reserves the right to condition or deny such Project change by Administrative Order.
- (e) This Certification does not exempt compliance with other statutes and codes administered by any other federal, state, and local agency.
- (f) The Washington State Department of Fish and Wildlife (WDFW) require a Hydraulic Project Approval (HPA) under ch. 75.55 RCW for work in waters of the State. SCL shall obtain an HPA from WDFW for any in water activity that may affect water quality or designated uses, prior to the beginning of those activities, and must comply with all conditions of the applicable WDFW HPA.
- (g) Ecology retains the right by Administrative Order to require additional monitoring, studies, or measures if it determines there is likelihood or probability that violations of water quality standards or other appropriate requirements of state law have or may occur, or insufficient information exists to make such a determination.
- (h) Ecology reserves the right to issue Administrative Orders, assess or seek penalties, and to initiate legal actions in any court or forum of competent jurisdiction for the purposes of enforcing the requirements of this Certification.
- (i) Ecology retains the right by Administrative Order to modify schedules and deadlines provided under this Certification or provisions it incorporates.
- (j) If a conflict or inconsistency arises between this Certification and the Settlement Agreement for the Boundary Project, or any part thereof, the terms of this Certification shall govern.
- (k) If five or more years elapse between the date this Certification is issued and issuance of the new FERC license for the Project, Ecology reserves the right to issue an Administrative Order declaring that this Certification shall be deemed to be expired and denied at such time, and instructing SCL to send Ecology an updated 401 application that reflects the current conditions, regulations and technologies. This provision shall not be construed to otherwise limit the reserved authority of Ecology to withdraw, amend, or correct the Certification before or after the issuance of a FERC license.
- (l) Ecology reserves the right to amend this Certification by further Administrative Order if it determines that the provisions hereof are no longer adequate to provide reasonable assurance of compliance with applicable water quality standards or other appropriate requirements of state law.

Such determination shall be based upon provisions in the new FERC license or new information or changes in: (i) the construction or operation of the Project; (ii) characteristics of the water; (iii) water quality criteria or standards; (iv) Total Maximum Daily Load (TMDL) requirements; (v) effluent limitations; or (vi) other applicable requirement of state law. Amendments of this Certification shall take effect immediately upon issuance, unless otherwise provided in the Administrative Order containing the amendment. Ecology shall transmit such amending orders to FERC as notice to FERC of the current Certification conditions.

- (m) Copies of this Certification and associated permits, licenses, approvals and other documents shall be kept on site and made readily available for reference by SCL, its contractors and consultants, and Ecology.
- (n) SCL shall allow Ecology access to inspect the Project and Project records required by this Certification for the purpose of monitoring compliance with the conditions of this Certification. Access will occur after reasonable notice, except in emergency circumstances.
- (o) SCL shall, upon request by Ecology, fully respond to all reasonable requests for materials to assist Ecology in making determinations under this Certification and any resulting rulemaking or other process.
- (p) The conditions of this Certification should not be construed to prevent or prohibit SCL from either voluntarily or in response to legal requirements imposed by a court, the FERC, or any other body with competent jurisdiction, taking actions which will provide a greater level of protection, mitigation, or enhancement of water quality or of existing or designated uses.
- (q) If an action required under or pursuant to this Certification requires as a matter of federal law that the FERC approve the action before it may be undertaken, SCL shall not be considered in violation of these requirements to the extent that FERC refuses to provide such approval, provided that SCL diligently seeks such approval and so notifies Ecology of FERC's refusal.
- (r) Any work that is out of compliance with the provisions of this Certification, or conditions that result in distressed, dying or dead fish, or any unpermitted discharge of oil, fuel, or chemicals directly or indirectly into state waters, is prohibited. In the event of such an occurrence, SCL shall immediately take the following actions:
  - 1. Cease work at the location of the violation to the extent such work is causing or contributing to the problem.
  - 2. Assess the cause of the water quality problem and take appropriate measures to correct the problem and/or prevent further environmental damage.
  - 3. Notify Ecology of the failure to comply. Spill events shall be reported immediately to Ecology's 24-Hour Spill Response Team at 509-329-3400. Other non-compliance events shall be reported to Ecology's permit manager, or to Ecology's ERO Certification Manager.
  - 4. Within two weeks of an event described in paragraph 3.1(r), SCL shall submit a detailed written report to Ecology that describes the nature of the event, corrective action taken and/or planned, steps to be taken to prevent a recurrence, results of any samples taken, and any other pertinent information.

Compliance with these requirements does not relieve SCL from responsibility to maintain continuous compliance with the terms and conditions of this Certification or the resulting liability from failure to comply.

- (s) Submittals required by this Certification are summarized in Appendix A. Unless indicated otherwise, submittals shall be sent to the Certification manager at the Department of Ecology, Eastern Regional Office, Water Quality Section, 4601 North Monroe, Spokane, Washington 99205-1295.
- (t) This Certification does not authorize any Project related work that may impact water quality (e.g. hatcheries, riparian habitat restoration projects, etc.) beyond those activities specifically identified in this Certification. To the extent that SCL or its agents seek to undertake such work, appropriate permits and/or Certifications shall be obtained prior to commencement of such work.  
  
SCL shall consult with Ecology to determine whether a specific activity requires additional permits, a new CWA Section 401 Certification, or other authorization under ch. 90.48 RCW.
- (u) All information prepared or collected as a requirement of this Certification (e.g. plans, reports, monitoring results, meeting minutes, and raw data) shall be made available to the public on SCL's website or other readily accessible means unless otherwise restricted by law (e.g., FERC Critical Energy Infrastructure Information). Where data or quantitative analysis is involved, it shall be provided in a format that allows others to efficiently validate and analyze data and results.
- (v) Where this Certification refers to "reasonable and feasible" actions and measures, Ecology retains the authority to ultimately determine if an action or measure qualifies as "reasonable and feasible".
- (w) Within this Certification, Ecology has required the use of an Adaptive Management process to meet a number of state water quality standards. As used in this Certification, Adaptive Management means an iterative and rigorous process used to improve decision-making and achieve objectives in the face of uncertainty. It is intended to improve the management of natural resources affected by the Project in order to achieve desired objectives as effectively and efficiently as possible.
- (x) Ecology acknowledges that SCL reserves the right to appeal to the Pollution Control Hearings Board pursuant to RCW 43.21B, or to any court or other forum of competent jurisdiction pursuant to applicable law, any Administrative Order or civil penalty issued by Ecology relating to this Certification.

## **3.2 Aquatic Resources**

### **3.2.1 General Conditions**

SCL shall comply with all applicable water quality standards. Waters of the state are assigned designated uses under WAC 173-201A-200(1). Designated uses for this section of the Pend Oreille River and tributary streams include, but are not limited to, the uses described in Table 3 below.

For aquatic life uses, it is also required that all indigenous fish and non-fish aquatic species be protected in waters of the state in addition to the key species described below.

**Table 3: Designated Uses**

<b>Pend Oreille River Reach Description</b>	<b>Designated Uses</b>
Pend Oreille River from Canadian border (river mile 16.0) to Idaho border (river mile 87.7) <sup>1</sup>	<ul style="list-style-type: none"> <li>• Aquatic Life Uses – Salmonid spawning, rearing, and migration. The key identifying characteristics of the use is salmon or trout spawning and emergence that only occurs outside of summer season (September 16 – June 14). Other common characteristic aquatic life uses for waters in this category include rearing and migration by salmonids.</li> <li>• Recreation – Primary contact</li> <li>• Water Supply – Domestic, Industrial, Agricultural, and Stock Watering.</li> <li>• Misc. Uses – Wildlife Habitat, Harvesting, Commerce and Navigation, Boating and Aesthetics.</li> </ul>
Sullivan Creek	<ul style="list-style-type: none"> <li>• Aquatic Life Uses – Char spawning and rearing. The key identifying characteristics of this use are spawning or early juvenile rearing by native char (bull trout and Dolly Varden), or use by other aquatic species similarly dependent on such cold water. Other common characteristic aquatic life uses for waters in this category include summer foraging and migration of native char; and spawning, rearing, and migration by other salmonid species.</li> <li>• Recreation – Extraordinary primary contact.</li> <li>• Water Supply – Wildlife Habitat, Harvesting, Commerce and Navigation, Boating and Aesthetics.</li> </ul>
Slate Creek from mouth to headwaters (including tributaries)	<ul style="list-style-type: none"> <li>• Aquatic Life Uses – Char spawning and rearing. The key identifying characteristics of this use are spawning or early juvenile rearing by native char (bull trout and Dolly Varden), or use by other aquatic species similarly dependent on such cold water. Other common characteristic aquatic life uses for waters in this category include summer foraging and migration of native char; and spawning, rearing, and migration by other salmonid species.</li> <li>• Recreation – Extraordinary primary contact.</li> <li>• Water Supply – Wildlife Habitat, Harvesting, Commerce and Navigation, Boating and Aesthetics.</li> </ul>
<p><sup>1</sup>Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed <math>t=34/(T+9)</math>.</p>	

Numeric water quality criteria applicable to the designated uses in Table 3-1 are found in WAC 173-201A-200 and WAC 173-201A-602, Table 602. These include criteria for TDG, pH, dissolved oxygen (DO), fecal coliform, turbidity and temperature. Criteria for these parameters specific to the Pend Oreille River and its tributaries are identified in Table 4 below.

**Table 4: Water Quality Standards**

Parameter	Water Quality Standard
<b>Temperature</b>	<b>Pend Oreille River:</b> Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed $t=34/(T+9)$ .
	<b>Sullivan Creek (above Harvey Creek &amp; its tributaries) and Slate Creek and its tributaries (Char spawning/rearing):</b> 12°C Highest 7-DADMax
<b>Dissolved Oxygen</b>	<b>Pend Oreille River:</b> Lowest 1-day minimum of 8.0 mg/L
	<b>Sullivan Creek (above Harvey Creek &amp; its tributaries) and Slate Creek and its tributaries (Char spawning/rearing):</b> Lowest 1-day minimum of 9.5 mg/L
<b>Turbidity</b>	<b>Pend Oreille River:</b> Should not exceed either a 5 NTU increase over background when the background is 50 NTU or less; or a 10 percent increase in turbidity when the background is more than 50 NTU.
	<b>Sullivan Creek (above Harvey Creek &amp; its tributaries) and Slate Creek and its tributaries (Char spawning/rearing):</b> Same as above.
<b>Total Dissolved Gas</b>	<b>Pend Oreille River:</b> Total dissolved gas shall not exceed 110 percent of saturation at any point of sample collection.
	<b>Sullivan Creek (above Harvey Creek &amp; its tributaries) and Slate Creek and its tributaries (Char spawning/rearing):</b> Same as above.
<b>pH</b>	<b>Pend Oreille River:</b> pH shall be within the range of 6.5 to 8.5, with a human caused variation within the above range of less than 0.5 units.
	<b>Sullivan Creek (above Harvey Creek &amp; its tributaries) and Slate Creek and its tributaries (Char spawning/rearing):</b> pH shall be within the range of 6.5 to 8.5, with a human caused variation within the above range of less than 0.2 units.
<b>Bacteria Indicator</b>	<b>Pend Oreille River:</b> Fecal coliform organism levels must not exceed a geometric mean value of 100 colonies /100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 200 colonies /100 mL.
	<b>Sullivan Creek (above Harvey Creek and its tributaries) and Slate Creek and its Tributaries:</b> Fecal coliform organism levels must not exceed a geometric mean value of 50 colonies /100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies /100 mL.

Other numeric criteria or narrative standards may apply to the Pend Oreille River in addition to the criteria listed in Table 4.

### **3.3 Aquatic Invasive Species Control and Prevention**

SCL shall implement all elements of its 2010 Aquatic Invasive Species Control and Prevention Plan (Boundary AISCPP) developed for the Project. Specifically, SCL shall implement the following provisions of the Boundary AISCPP (Appendix B).

- Macrophyte Suppression
  - 3.1 Verification Mapping
    - 3.2.1 Bottom Barrier Locations
    - 3.2.2 Boat Ramp Macrophyte Control Locations
    - 3.2.3 Additional Potential Macrophyte Control Locations
  - 3.3 Bottom Barrier Material and Deployment Methods
  - 3.4 Timing of Bottom Barrier Installation
  - 3.5 Permits
  - 3.6 Monitoring Macrophyte Response to Control Measures
  - 3.7 Other Potential Macrophyte Control Measures
- 4.1 Monitoring for Zebra and Quagga Mussels
  - 4.1.1 Substrate Sampling
  - 4.1.2 Tow Sampling
- 4.2 Monitoring for New Zealand Mudsnails
- 4.3 Other Invasive Aquatic Species
- 4.4 Rapid Response and Coordination
- 5 Interpretation and Education Program
- 6 Water Quality Workgroup
- 7 Adaptive Management
- 8 Implementation Schedule

### **3.4 Total Dissolved Gas**

#### **3.4.1 General Conditions**

The Project shall not cause any exceedance of the Total Dissolved Gas (TDG) water quality criteria as specified in WAC 173-201A-200 (1)(f) and WAC 173-201A-510(5). In March 2008, the Environmental Protection Agency (EPA) approved a TDG Total Maximum Daily Load (TMDL) for the Pend Oreille River (Ecology 2007). The TMDL stated that allocations would be met primarily through a TDG abatement or attainment plan. SCL shall implement its 2011 Total Dissolved Gas Attainment Plan (Boundary TDGAP) developed for the Project. Specifically, SCL shall implement the following provisions of the **Boundary TDGAP (Appendix B)**.

- 4.1.1.1 Development of CFD Model
- 4.1.1.2 Testing Structural Alternatives
- 4.1.1.3 Development of Numerical TDG Predictive Tool
- 4.1.2.1 Physical Model Testing
- 4.1.3 Engineering Studies
- 4.2.1 Field Studies and Monitoring
- 5 TDG Attainment Plan
  - 5.2.2 Annual Reports
  - 5.2.3 TDG Attainment Plan Compliance Schedule

### **3.4.2 7Q10 Exceedance Flow**

Compliance with the 110 percent TDG criterion does not apply when flows exceed the rate equivalent to the 7Q10 flows as defined in WAC 173-201A-200(1)(f)(i). The 7Q10 exceedance flow for the Pend Oreille River is 108.3 kcfs, above which the 110 percent TDG criterion does not apply.

### **3.5 Temperature**

The Project shall not cause any exceedance of the temperature water quality criteria as specified in WAC 173-201A-200 (1)(c), WAC 173-201A-602, Table 602 and WAC 173-201A-510(5). SCL shall implement its 2011 Temperature Attainment Plan (Boundary TAP) developed for the Project. Specifically, SCL shall implement the following provisions of the Boundary TAP (Appendix B).

- 4.1.2 Pend Oreille Watershed Aquatic Habitat Improvement Projects
- 4.2.1 Mainstem and Tributary Temperature Monitoring
- 4.2.2 QAPP
- 4.2.3 Tributary Aquatic Habitat Improvement Monitoring
- 4.3 Compliance Schedule
- 4.4 Annual Attainment Measure Implementation Reports

SCL has developed other tributary habitat improvements in their 2010 Fish and Aquatics Management Plan (FAMP) as measures to address Project water quality impacts on fish and aquatic resources. SCL shall implement the following provisions of its FAMP (Appendix B).

- 5.4.6 Culvert Replacements and LWD Placement in Tributaries to Boundary Reservoir
- 5.4.7 Riparian Planting, Culvert Replacement and Channel Reconstruction in Linton Creek RM 0.00 to RM 0.24
- 5.4.8 Riparian and Channel Improvements in Sweet Creek RM 0.0 to RM 0.6

### **3.6 Dissolved Oxygen**

The Project shall not cause any exceedance of the dissolved oxygen water quality criteria as specified in WAC 173-201A-200 (1)(d) and WAC 173-201A-510(5). SCL shall implement its 2010 Dissolved Oxygen Attainment Plan (Boundary DOAP) developed for the Project. Specifically, SCL shall implement the following provision of the Boundary DOAP (Appendix B).

- 3.1 Dissolved Oxygen Monitoring
- 3.2 Monitoring Design
- 3.3 Monitoring Methods
- 3.4 Evaluating Monitoring Results and Potential Secondary Actions
- 3.5.2 Schedule

### **3.7 Toxics**

SCL shall implement its 2010 Fish Tissue Sampling Plan developed for the Project. Specifically, SCL shall implement the following provisions of the Plan (Appendix B).

- 2.1 Sample Site Locations
- 2.2 Fish Collection and Processing
- 3 Laboratory Analysis
- 4 Reporting of Results
- 5 Implementation Schedule

### **3.8 Spills**

SCL shall comply with its most recent approved version of the Spill Prevention Control and Counter Measure (SPCC) Plan for the project and shall continue to provide Ecology, Eastern Region Office, Spills and Water Quality Programs, with copies of its most up-to-date versions.

#### **3.8.1 General Oil Spill Prevention & Control Conditions**

- (a) SCL shall not discharge oil, fuel or chemicals into waters of the State, or onto land with a potential for entry into waters of the State as prohibited by Chapter 90.56 RCW and Chapter 90.48 RCW.
- (b) SCL shall contain wash water with oils, grease or other hazardous materials resulting from wash down of equipment or working areas for proper disposal, and shall not discharge these contaminated waters into waters of the State.
- (c) Any visible floating oils released from Project operation, maintenance activities or construction shall be contained and removed from the water.
- (d) In the event of a discharge of oil, fuel or chemicals in waters of the State, or onto land with a potential for entry into waters of the State, SCL shall immediately begin and complete containment and clean-up efforts of the spilled material. Cleanup work shall take precedence over normal work and shall include proper disposal of any spilled material and used clean-up materials.
- (e) Spills into waters of the State and spills onto land with a potential for entry into waters of the State, or other significant water quality impacts, must be reported immediately (within one hour) to the Department of Ecology, Eastern Regional Office at 509-329-3400 (24-hour phone number).
- (f) SCL shall participate in the Incident Command System whenever a Unified Command is established in response to a spill incident that involves or potentially impacts one or more Projects.
- (g) SCL employees and its agents shall be familiar with and trained on use of oil spill cleanup materials. In the event of a spill, properly dispose of used/contaminated materials and oil, and as soon as possible restock new supplies. Include records of proper disposal in the oil consumption records and keep copies of disposal records of contaminated cleanup supplies on-site and available for inspection by Ecology.
- (h) SCL shall install, or have on-site to deploy, staircases, ladders, harnesses, etc., which will allow oil spill response personnel to safely reach areas that could, in the event of an oil spill, need to be accessed to deploy sorbent pads, boom material or other cleanup equipment.

- (i) Following all spills into waters of the State, or onto land with a potential for discharge to waters of the State, SCL shall provide a written report to Ecology's Eastern Regional Office within 15 days of the incident. The report shall include a description of the incident, response actions taken and any spill prevention measures taken or recommended to prevent similar spills.

### **3.8.2 Turbine Pits**

Every effort shall be made to keep oil and grease from discharging to the turbine pits.

- (a) Sorbent material deployed in the turbine pits shall be removed before the sorbent pads reach their capacity to absorb oil or grease and then shall be properly disposed or reconditioned.
- (b) Any oil that may leak into the turbine pits from the turbines' upper bearings will either be absorbed on sorbent pads or will enter the path of seal water channeled to the sump system designed specifically to capture residual oil.

### **3.8.3 Sumps**

- (a) SCL shall visually inspect sumps weekly or immediately if an oil leak is suspected, such as in the event of an oil sump high level alarm or other visual indications that oil could reach the sump. An oil skimmer in the sump manages removal of any day-to-day oil that may enter the sump. In the event the Powerhouse Operator receives a low-oil-level alarm from oil-filled equipment at the Project, this equipment will be visually checked immediately and may trigger emergency response procedures found in Sec. 3 (Emergency Recognition & Communication) of the Boundary Emergency Response Plan (BERP). SCL shall immediately repair oil leaks that are of sufficient volume to reach the sump and that cannot be contained by placing a container underneath the leak.
- (b) SCL shall provide water-proof lighting in the sump or spotlights adequate to observe oil sheens on the surface of the water in the sumps.
- (c) SCL shall initiate cleaning of the sump to remove all oil and oil residue from walls, piping and other structures in contact with sump water as necessary based on the results of weekly inspections and the volume of effluent in the sump. Oil cleanup and removal of effluent shall follow the procedure defined in Section 10 (Decontamination & Disposal) of the Boundary Emergency Response Plan (BERP).

### **3.8.4 Transformers**

- (a) SCL shall verify that the transformer containment system is functioning as designed and will contain oil spills.
- (b) SCL shall inspect the transformer containment areas during routine plant rounds.
- (c) SCL shall obtain prior approval from Ecology before breaching containment areas for reasons other than containment area maintenance.

- (d) SCL shall conform to industry standards, use BMPs or utilize other control measures for protecting water quality and preventing and containing oil spills when conducting in-place maintenance work on transformers, transporting transformers and transferring transformer oil.

### **3.8.5 Stormwater Pollution and Containment Area Management**

- (a) SCL shall use Best Management Practices (BMPs) or other control measures to prevent any oil-contaminated stormwater on the Project site from entering state waters.
- (b) Transformer and oil-filled operating equipment containment areas exposed to stormwater shall be monitored for the presence of oil. If oil is present, the oil shall be removed and properly disposed of prior to draining the containment area.
- (c) Discharge of non-contaminated stormwater from containment areas shall be recorded. Records of all stormwater removed or discharged from containment areas shall be kept on-site and available for inspection by Ecology.
- (d) Snowy or icy conditions require thorough and at least daily inspection of containment areas and containment drains. Remove any observed stormwater pooling in containment areas and dispose of such water appropriately.

### **3.8.6 Other**

- (a) SCL shall maintain site security at the Project to reduce chance of oil spills.
- (b) SCL shall coordinate spill response planning and response efforts with other oil-handling facilities and spill response agencies on the Pend Oreille River.
- (c) Compliance with these conditions does not relieve SCL from responsibility to maintain continuous compliance with terms and conditions of this Certification or resulting liability from any further failure to comply.

## **3.9 Construction Projects, Miscellaneous Discharges and Habitat Modifications**

The following applies to all over-water or near-water work related to the Project that may impact surface or ground water quality. This includes, but is not limited to, construction, operation, and maintenance of fish collection structures, generation turbines, penstocks, transportation facilities, portable toilets, boat ramps, transmission corridors, structures, and staging areas. This also includes emergencies for all activities related to Project operation.

### **3.9.1 Water Quality Protection Plans**

If water quality exceedances are predicted as being unavoidable during construction or maintenance of a project, a short term water quality modification must be applied for in writing to Ecology at least three (3) months prior to project initiation.

If any project has a long term impact on a regulated water quality parameter, characterization monitoring must be performed for the impacted parameter(s), and a monitoring plan must be outlined in the Water Quality Protection Plan (WQPP) discussed below. This may require additional management practices to minimize impacts of the license period.

A WQPP shall be prepared, and followed for all Project related work that is in or near water that has the potential to impact surface and/or ground water quality. The WQPP shall include control measures to prevent contaminants from entering surface water and groundwaters, and shall include, but not be limited to, the following elements:

- (a) A Stormwater Pollution Prevention Plan (SWPPP) shall specify the BMPs and other control measures to prevent contaminants entering the Project's surface water and groundwaters. The SWPPP shall address the pollution control measures for SCL's activities that could lead to the discharge of stormwater or other contaminated water from upland areas. The SWPPP must also specify the management of chemicals, hazardous materials and petroleum (spill prevention and containment procedures), including refueling procedures, the measures to take in the event of a spill, and reporting and training requirements.
- (b) An In Water Work Protection Plan (IWWPP), consistent with SWPPP, shall be prepared and shall specifically address the BMPs and other control measures for SCL's activities that require work within surface waters.

Turbidity and dissolved oxygen shall be monitored upstream of the location where in-water construction is taking place and at the point of compliance (as defined in WAC 173-201A-110) during construction. Samples shall be taken at a minimum of once each day during construction in or adjacent to any water bodies within the Project area that may be affected by the construction. The IWWPP shall include all water quality protection measures consistent with a HPA for the Project.

- (c) The WQPP shall include procedures for monitoring water quality, actions to implement should water quality exceedances occur, and procedures for reporting any water quality violations to Ecology. The WQPP shall include all water quality protection measures consistent with a HPA for the Project. The WQPP shall be submitted to Ecology for review and approval at least three months prior to Project initiation and a copy of the WQPP shall be in the possession of the on-site construction manager and available for review by Ecology staff whenever construction work is under way.
- (d) When a construction project meets the coverage requirements of the National Pollutant Discharge Elimination System (NPDES) permit and State Waste Discharge General Permit for Stormwater Discharges associated with construction activity, SCL shall, at Ecology's discretion, either apply for this permit and comply with the terms and conditions of the permit or apply for and comply with the terms of an individual NPDES permit.

### **3.9.2 Best Management Practices (BMPs)**

- (a) Work in or near the reservoir, water within the dam, the river, or any wetlands shall include all reasonable measures to minimize the impacts of construction activity on waters of the state.
- (b) Water quality constituents of particular concern are turbidity, suspended sediment, settleable solids, oil and grease, and pH. These measures include use of BMPs to control erosion and sedimentation, proper use of chemicals, oil and chemical spill prevention and control, and clean up of surplus construction supplies and other solid wastes.

- (c) During construction, all necessary measures shall be taken to minimize the disturbance of existing riparian, wetland, or upland vegetation.
- (d) All construction debris shall be properly disposed of on land so that the debris cannot enter a waterway or cause water quality degradation to state waters. Retention areas or swales shall be used to prevent discharging of water from construction placement areas.
- (e) SCL shall ensure that any fill materials that are placed for the proposed habitat improvements in any waters of the State do not contain toxic materials in toxic amounts.

### **3.10 Water Quality Monitoring**

#### **3.10.1 Quality Assurance Project Plan**

SCL shall prepare a water quality monitoring and quality assurance project plan (QAPP) for each parameter to be approved by Ecology as specified in each WQAP or other Plan. SCL shall coordinate with Ecology in establishing its monitoring locations prior to the development of the QAPP.

The QAPPs shall follow the Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies (July 2004 Ecology Publication Number 04-03-030) or its successor.

The QAPPs shall contain, at a minimum, a list of parameter(s) to be monitored, a map of sampling locations, and descriptions of the purpose of the monitoring, sampling frequency, sampling procedures and equipment, analytical methods, quality control procedures, data handling and data assessment procedures, and reporting protocols.

SCL shall review and update the QAPPs called for in the aquatic invasive species, total dissolved gas, temperature and dissolved oxygen plans annually based on a yearly review of data and data quality. Ecology may also require future revisions to the QAPP based on monitoring results, regulatory changes, changes in project operations and/or the requirements of TMDL.

Implementation of the monitoring program shall begin as soon as Ecology has provided SCL with written approval of the QAPP. Changes to the QAPP need written approval by Ecology before taking effect. Ecology may unilaterally require implementation of the QAPP.

### **3.11 Penalties and Appeals**

**You have the right to appeal this Order. To appeal this you must:**

1. File your appeal with the Pollution Control Hearings Board within 30 days of the “date of receipt” of this document. Filing means actual receipt by the Board during regular office hours.
2. Serve your appeal on the Department of Ecology within 30 days of the “date of receipt” of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). “Date of receipt” is defined at RCW 43.21B.001(2).

**Be sure to do the following:**

1. Include a copy of this document that you are appealing with your Notice of Appeal.
2. Serve and file your appeal in paper form; electronic copies are not accepted.

**A. To file your appeal with the Pollution Control Hearings Board**

Mail appeal to:

The Pollution Control Hearings Board  
PO Box 40903  
Olympia WA 98504-0903

**OR**

Deliver your appeal in person to:

The Pollution Control Hearings Board  
4224 – 6<sup>th</sup> Ave SE Rowe Six, Bldg 2  
Lacey WA 98503

**B. To serve your appeal on the Department of Ecology**

Mail appeal to:

The Department of Ecology  
Appeals & Application for Relief  
Coordinator  
PO Box 47608  
Olympia WA 98504-7608

**OR**

Deliver your appeal in person to:

The Department of Ecology  
Appeals & Application for Relief  
Coordinator  
300 Desmond Dr. SE  
Lacey WA 98503

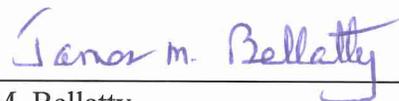
**C. And send a copy of your appeal to:**

James M. Bellatty  
ERO Water Quality Program  
4601 N. Monroe  
Spokane, WA 99205-1295

*For additional information visit the Environmental Hearings Office Website:  
<http://www.eho.wa.gov>. To find laws and agency rules visit the Washington State Legislature  
Website: <http://www.leg.wa.gov/CodeReviser>*

Your appeal alone will not stay the effectiveness of this Order. Stay requests must be submitted in accordance with RCW 43.21B.320. These procedures are consistent with Chapter 43.21B RCW.

DATED this 18 day of November, 2011 at Spokane, Washington



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James M. Bellatty  
Water Quality Section Manager  
Eastern Regional Office  
Department of Ecology

## 4 REFERENCES

Federal Energy Regulatory Commission, 2011. Final Environmental Impact Statement: Application for Hydropower License for the Boundary Hydroelectric Project, FERC Project No. 2144-038, Washington, and Application for Surrender of Hydropower License for the Sullivan Creek Project, FERC Project No. 2225-015, Washington, Publication Number FERC/FEIS – 0239F.

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Washington State Department of Ecology, 2011. Pend Oreille River Temperature Total Maximum Daily Load, Publication Number 10-10-065.

Washington State Department of Ecology. 2007. Pend Oreille River, Total Dissolved Gas Total Maximum Daily Load Water Quality Improvement Report, Publication Number 07-03-003.

Washington State Department of Ecology. 2006. Water Quality Standards for Surface Waters of the State of Washington Chapter 173-201A WAC, Publication Number 06-10-091.

Washington State Department of Ecology, 2004. Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies, Publication Number 04-03-030.

Seattle City Light, 2011. Adoption of Existing Environmental Document (SEPA Adoption Notice).

Seattle City Light, 2010a. Boundary Hydroelectric Project Relicensing Settlement Agreement FERC Project No. 2144 (including Proposed License Articles and Management Plans).

Seattle City Light, 2010b. License Application Addenda for the Boundary Hydroelectric Project FERC No. 2144.

Seattle City Light. 2009. License Application for the Boundary Hydroelectric Project FERC No. 2144. Volume 1 and 2.