

**APPENDIX I TO SULLIVAN CREEK SETTLEMENT AGREEMENT**

**SULLIVAN CREEK CLEAN WATER ACT § 401 CERTIFICATION APPLICATION**

DATE

Attn: Mr. James Bellatty  
Washington Department of Ecology  
N. 4601 Monroe  
Spokane, WA 99205-1295

RE: Clean Water Act, Section 401 Water Quality Certification for Sullivan Creek Project

Dear Mr. Bellatty:

In accordance with Section 401 of the Clean Water Act, the Public Utility District No.1 of Pend Oreille County (PUD), owner and licensee of the Sullivan Creek Project (Project) (FERC No. 2225), hereby requests the Washington Department of Ecology (Ecology) to issue a Water Quality Certification in connection with the issuance of a Federal Energy Regulatory Commission (FERC) order accepting the surrender of the FERC license for the Sullivan Creek Project and the issuance of a Special Use Authorization (SUA) by the USDA Forest Service to the PUD for the continued use and occupancy of National Forest System lands by certain of the Project facilities. The proposed federal agency actions will require the decommissioning and removal of the Mill Pond Dam, and the construction and installation of a cold water release facility at Sullivan Lake Dam, as described in this letter and the attachments to it.

The application for 401 Certification can be viewed at the Sullivan Creek Project link on the PUD website at: <http://www.popud.com/>

Public comments on the application should be addressed to the Department of Ecology's regional office at:

Washington Department of Ecology  
Attn: Mr. James Bellatty  
N. 4601 Monroe  
Spokane, WA 99205-1295

### Background

The PUD notified the FERC in September of 2003 of its intent not to seek a new license for the Project. Since that time, the PUD has conducted ongoing consultation with the interested natural resource agencies, including the Ecology, and the public, regarding the appropriate disposition of the Project facilities. A Settlement Agreement (SA) for the surrender of the license and application for SUA has been concluded, which sets out a number of measures to be implemented by the PUD in the license surrender and SUA process, and which establishes both an interim, and a new operating regime for the remaining Project facilities.

### Project Description

The Project is located in Pend Oreille County in the northeast corner of Washington State. Sullivan Creek is a tributary of the Pend Oreille River. The Project is located approximately four miles east of the Town of Metaline Falls. The principal Project works are Sullivan Lake, Sullivan Lake Dam, Mill Pond and Mill Pond Dam, which were licensed in 1958, as a storage project to provide benefits to downstream generation. Other facilities that were a part of an earlier project operated by Inland Portland Cement Company, prior to issuance of the license to the PUD, included the Sullivan Creek diversion dam and ditch, an abandoned flume/right-of-way, canal, tunnel, and the decommissioned Sullivan Creek Powerhouse structure. These facilities were never used by the PUD and the Project has never generated power while under the existing FERC license.

### Hydrology

The hydrology of the Project is affected by two main tributaries that combine to form Sullivan Creek. They are Harvey Creek upstream of Sullivan Lake and Sullivan Creek downstream of Sullivan Lake and above Mill Pond. Harvey Creek is the primary creek that flows into Sullivan Lake. Outlet Creek is formed by the outflow from Sullivan Lake and joins Sullivan Creek approximately one half mile downstream of the Sullivan Lake Dam. Sullivan Creek and Harvey Creek originate at the peaks of Salmo and Monumental Mountains at elevation 6,400 and 5,711 ft, respectively. Sullivan Creek drains the area east and northeast of Sullivan Lake and has a total drainage basin area of 70.0 square miles. Harvey Creek drains the area to the south and southeast of Sullivan Lake and has a total drainage area of 52 square miles. The average annual precipitation over the basin areas is about 40 inches, varying from 30 inches in the valleys to about 50 inches on the ridges.

### Water Quality Studies for License Surrender

During the consultation for the Project license surrender, the PUD conducted the following studies pertaining to water quality and quantity.

1. Sullivan Lake level flow modeling
2. Water temperature data analysis and modeling, - temperature data provided by the Washington Department of Fish and Wildlife (WDFW)
3. Sullivan Lake Productivity Study
4. Mill Pond Bathymetry and Sediment Evaluation

*Flow and Temperature Modeling* - The Sullivan Lake level flow modeling was used to demonstrate the impact on lake levels of various discharge flows. Together with temperature data provided by the WDFW, a temperature and flow model was developed, which was able to accurately predict temperatures downstream of Sullivan Lake Dam that would be produced by releasing various discharge flows between July 1 and October 1. These results were used to achieve agreement on a set of operating requirements for the Project that will improve the temperature, and fish habitat, in Sullivan Creek downstream of the dam.

*Productivity Study* - The productivity study including taking water samples at 5m intervals at the deepest points in the northern, middle, and southern portions of Sullivan Lake and in Outlet Creek below Sullivan Lake Dam. Field measurements included monthly samples of:

- Water column profiles for temperature, dissolved oxygen (DO), conductivity, and pH at 5m intervals at the deepest point in Sullivan Lake.
- Secchi disk transparency at the deepest point in Sullivan Lake.
- Water samples taken at 5m intervals at the deepest points in the northern, middle, and southern portions of Sullivan Lake for water quality and productivity analyses.
- Primary production assessed by measuring chlorophyll *a*, with water samples collected at the deepest points in the northern, middle, and southern portions of Sullivan Lake.
- Secondary production assessed by monitoring zooplankton, with zooplankton samples collected at the deepest points in the northern, middle, and southern portions of Sullivan Lake.
- Temperature, DO, conductivity, and pH in Outlet Creek below the dam.
- Water samples collected from Outlet Creek below the dam.
- Primary and secondary productivity assessed in Outlet Creek.

*Water Quality* - Sullivan Lake was stratified for the entire study period, but was approaching isothermal conditions by the last sampling period in mid-November. Temperature does not appear to limit fish production in Sullivan Lake, because average temperatures fall between the preferred temperatures for salmonids (10°C to 20°C). In some cases, water temperatures at the surface may exceed optimum temperatures for salmonids, but temperatures in the metalimnion and hypolimnion do not. Water temperatures in Outlet Creek were similar to those at approximately 5 m of depth in Sullivan Lake.

*Dissolved Oxygen* - DO does not appear to limit fish production in Sullivan Lake. Concentrations averaged 9.0 mg/l in the epilimnion, which is within the optimum range for normal physiological functions in salmonids (Bjorn and Reiser 1991).

*pH* - The pH of Sullivan Lake averaged 8.3 in the epilimnion, 8.0 in the metalimnion, and 7.7 in the hypolimnion, therefore, pH does not appear to limit fish distribution.

*Turbidity* - The maximum turbidity recorded was 1.6 NTU in the epilimnion, 3.1 NTU in the metalimnion, and 2.9 NTU in the hypolimnion. Turbidity in Outlet Creek was similar to that in Sullivan Lake.

*Conductivity* - Conductivity in Sullivan Lake averaged 0.092 mS/cm in the epilimnion, 0.093 mS/cm in the metalimnion, and 0.097 in the hypolimnion.

*Nutrients* - Sullivan Lake falls within the federal criteria for classification as oligotrophic, averaging 0.007 mg/l. Total phosphorus limits phytoplankton production in Sullivan Lake. Total phosphorus levels measured in Outlet Creek were similar to those in Sullivan Lake. However, total phosphorus did appear to trend downward in the fall in both Sullivan Lake and Outlet Creek.

The nitrite nitrogen level in Sullivan Lake never increased above detection limits (0.01 mg/l). Therefore, nitrite toxicity does not present a problem for fish in Sullivan Lake. Extremely low levels of nitrite may contribute to limiting phytoplankton production in Sullivan Lake, although the lake is currently limited by phosphorus. Nitrite nitrogen in Outlet Creek was also consistently below the detection limits of 0.01 mg/l.

Nitrate nitrogen in Sullivan Lake was often less than 0.01 mg/l, but at times rose as high as 0.03 mg/l. Nitrate nitrogen in Outlet Creek was somewhat higher than in Sullivan Lake, averaging 0.04 mg/l. Nitrate nitrogen levels were relatively consistent over the study period in both Sullivan Lake and Outlet Creek.

Sullivan Lake had low levels of ammonia, often below detection limits of 0.01 mg/l, and always less than 0.1 mg/l. Ammonia levels in Outlet Creek were similar to those in the lake. Ammonia levels in both Sullivan Lake and Outlet Creek had diminished to below detectable limits by September and remained there into the fall.

In Sullivan Lake, TDS concentrations averaged 67 mg/l in the epilimnion, 74 mg/l in the metalimnion, and 75 mg/l in the hypolimnion. These concentrations indicate a system that is relatively clear of inorganic salts. TDS levels in Outlet Creek were similar to those in Sullivan Lake, averaging 74 mg/l. Levels were relatively consistent over the study period in both Sullivan Lake and Outlet Creek.

Sulfate in Sullivan Lake increased from an average of 3.55 mg/l in the epilimnion to 4.07 mg/l in the hypolimnion. This data indicates an oxygenated micro-zone at the bottom of the lake, which is characteristic of oligotrophic lakes.

Zooplankton samples from the epilimnion and from the bottom to the surface indicated that they are utilizing areas below the epilimnion, although they tend to be more concentrated nearer the surface.

The Mill Pond Bathymetry study provided information to assist in developing the dam removal and restoration plans for Mill Pond Dam. The study estimated the amount of sediment that will need to be removed or stabilized. Sediment samples were also obtained and tested for contaminants. Very few dioxin and furan congeners were detected above the method reporting limit, consequently the toxicity equivalency quotient (TEQ) calculated for each sample was very low and did not exceed screening level concentrations. The same surface sediment samples were also analyzed for 17 PBDE congeners. None of the samples analyzed for PBDEs were detected above the method reporting limit.

Results of the studies are described in the License Surrender Application in Section E.3.2 and the study reports are found in the appendices to Exhibit E of the application.

#### Plans for Disposition of Project Facilities

The disposition of Project facilities in connection with the proposed surrender of the Project license will involve the decommissioning of Mill Pond Dam and the installation of a cold water release facility at Sullivan Lake Dam and Reservoir. The unregulated Mill Pond Dam will be removed and the impounded area behind the dam will be restored to a naturally functioning stream segment of Sullivan Creek. The Mill Pond Decommissioning Plan is included in Appendix A-2 of the attached copy of the PUD's application to FERC for license surrender. The dam removal and stream restoration tasks will be accomplished by Seattle City Light (SCL) as a cooperating agency, under an interlocal agreement with the PUD within five years after FERC's issuance of an order accepting surrender of the Sullivan Creek license and the relicensing of the Boundary Hydroelectric Project (FERC No. 2144).

Results of the temperature modeling, productivity and entrainment studies, and preliminary design studies, indicated that a cold water release facility would be effective in lowering temperatures in Outlet and Sullivan creeks during the summer and fall, with no unacceptable impacts to productivity or fish populations in Sullivan Lake or Outlet Creek. Therefore, under the SA, the PUD proposes to install a cold water intake facility, 48 inches in diameter, which will be routed through one of the low-level gates on the Sullivan Lake Dam. The pipe will extend out into the reservoir approximately 800 to 1000 ft, following the lake profile to reach the 120 ft minimum depth requirement. The intake end of the pipe will be fitted with fish screens that meet NOAA design criteria of 0.2 feet per second (fps) approach velocity. These screens will satisfy the WDFW requirements for a fish exclusionary device. A fabricated steel control gate will be installed on the downstream end of the pipeline. The gate will be used to control the flow released from the dam during the cold water release periods. The gate will be fitted with a pneumatic operator with the air provided from a small air compressor located in the mechanical equipment enclosure. Construction and installation of the cold water discharge facility will be accomplished by the PUD within three years after the issuance of an order by FERC accepting the PUD's application for surrender of the license.

Following surrender of the FERC license and removal of Mill Pond, the PUD will continue to operate and maintain the Sullivan Lake Dam and Reservoir pursuant to a Special Use Authorization to be issued by the Forest Service. If the FERC license surrender order does not require the PUD to install the cold water facility, the SA provides that the PUD will be required to install such facility under the proposed conditions of the SUA to be issued by the Forest Service.

#### Plans for Project Operation

Interim operating requirements for Sullivan Lake Dam are described in Section 5 of Appendix A of the Sullivan SA. They are intended to be implemented after FERC issues an order accepting the surrender of the PUD's license and until the cold water discharge pipe is constructed.

Once the cold water pipe is operational, the new operating requirements will be used, which are described in Section 4 of Appendix A of the SA. These requirements will also apply after the surrender of the FERC license is effective and the remaining Project facilities continue to use and occupy NFS lands for the term of the SUA

Under the new operating requirements, Sullivan Lake will continue to be held at an elevation of 2588.66 ft MSL from June 1 through Labor Day weekend. Although lake level modeling indicates that in dry years the lake may not be completely full by June 1 and in wet years water may be spilled, the PUD will use its best efforts to reach and maintain that level. During the summer, the PUD will manage the discharges from the cold water pipe and the Sullivan Lake Dam gates:

- (1) to meet state water temperature standards (WAC 173-201A-200);
- (2) with the goal of preventing the daily average “below confluence water temperature” from exceeding 14 degrees C; and
- (3) with the goal of preventing the daily average “below confluence water temperature” from deviating from the daily average Sullivan Creek “above confluence water temperature” by more than 1 degree C, when daily average “above confluence water temperature” is less than 14 degrees C. (SA Appendix A, Section 4.2.b).

Drawdown of Sullivan Lake will be initiated the day following Labor Day each fall, and during drawdown the PUD will manage the discharges from the cold water pipe and the Sullivan Lake Dam gates:

- (1) to meet state water temperature standards (WAC 173-201A-200);
- (2) with the goal of preventing the daily average “below confluence water temperature” from exceeding 14 degrees C; and
- (3) with the goal of preventing the daily average “below confluence water temperature” from deviating from the daily average Sullivan Creek “above confluence water temperature” by more than 1 degree C, when daily average “above confluence water temperature” is less than 14 degrees C. (SA Appendix A, Section 4.2.c)

#### Sullivan Lake Dam Minimum Discharge Flows

Each year the PUD shall maintain minimum discharge flows in Outlet Creek, measured by the Outlet Creek USGS gauging station, as follows:

- a. June 1 through June 30, minimum discharge flows shall be 30 cfs.
- b. July 1 through the end of fall drawdown (when elevation reaches 2570.0 ft), minimum discharge flows shall be 20 cfs.
- c. From the date Sullivan Lake reaches elevation 2570.0 ft until the beginning of spring filling (per Appendix A, section A.4 of Sullivan SA), discharge flows shall equal inflows from Harvey Creek.

#### Water Supply Program

In addition to operating Sullivan Lake Dam to maintaining the summer lake level to support recreation, and releasing flows in the fall through the cold water pipe to moderate temperatures below the Sullivan Dam, the PUD may sell or lease up to 5,000 acre feet (AF) of the useable

storage in Sullivan Lake annually for use outside the Sullivan Creek drainage<sup>1</sup> between June 1 and August 31. The total of up to 5,000 AF includes water released under the new minimum discharge flow regime (described above) that is in excess of the old minimum flow of 10 cfs in Outlet Creek. PUD shall give priority consideration to the Columbia River Basin Water Supply Management Program (SA Appendix A, Section 11).

In order to conduct the work for the disposition of Project facilities, the PUD will be submitting applications for a number of permits, including Section 404 and Section 10 permits from the Army Corps of Engineers, as well as county shoreline permits and WDFW hydraulic project approvals.

With this letter, the PUD is submitting for your review and reference the Sullivan Creek Project Application for Surrender of License, which includes:

1. Sullivan Creek Settlement Agreement (Appendix A-1)
2. Mill Pond Decommissioning Plan (Appendix A-2)
3. U.S. Forest Service Special Use Authorization Application (Appendix A-3) for the continued use and occupancy of National Forest System lands by the Sullivan Lake Dam and Reservoir and related facilities.
4. Cold Water Release Facility Plan (Appendix B-3), and
5. All Study Reports for license surrender.

In addition, the PUD is submitting for your review and reference the PUD's application for Special Use Authorization, which is being filed with the Forest Service for the continued use and occupancy of National Forest System lands by the Sullivan Lake Dam and Reservoir and related facilities.

The supporting documents accompanying this application are being submitted on CD. Please contact me if you need additional copies. If any further information would be helpful to your evaluation of this Project for the purpose of issuing the Section 401 certification, please contact me at 509-447-9331.

Sincerely,

Mark Cauchy  
Director, Regulatory and Environmental Affairs

Encl.  
cc: Attached Service List

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<sup>1</sup> In order to realize the environmental, habitat, and conservation benefits of water released, *outside the Sullivan Drainage* means downstream (in the Pend Oreille River / Columbia River system) of the calculated range of thermal mixing of Sullivan Creek water into the Pend Oreille River or presumptively, river mile 26 on the Pend Oreille River.