

**Clean Water Act § 401 Certification Conditions**  
**For the**  
**Applegate Dam Hydroelectric Project**  
**(FERC No. 11910)**  
**Rogue River Basin**  
**Jackson County, Oregon**  
**August 23, 2007**

Upon Federal Energy Regulatory Commission (FERC) issuance of a license for the Applegate Dam Hydroelectric Project (Project), Symbiotics, LLC (Symbiotics) shall comply with the following § 401 Certification conditions:

1. Run-of-Release Operations: Throughout the life of the FERC license, during both the Project's construction and operation phases, Symbiotics shall operate its hydroelectric facilities in a "run-of-release" mode, whereby Symbiotics will neither cause deviation from requirements dictated by the U.S. Army Corps of Engineers for magnitude, frequency, and ramping rates of streamflow, nor adversely impact the Corps' management of water quality being discharged from Applegate Dam.
2. Adaptive Dissolved Oxygen Management Plan: Within 12 months of FERC license issuance, Symbiotics shall submit for Oregon Department of Environmental Quality (ODEQ) approval a proposed Adaptive Dissolved Oxygen Management Plan. Upon ODEQ approval, Symbiotics shall implement the plan. The plan shall specify Symbiotics':
  - A. Data collection and reporting methods and procedures;
  - B. Procedures for reviewing data to identify any Project-related contributions to dissolved oxygen violations of the dissolved oxygen and antidegradation standards;
  - C. Corrective measures that will be implemented to prevent additional dissolved oxygen violations;
  - D. Plan and schedule for implementation of corrective measures;
  - E. Procedures for notifying ODEQ of any violations, subsequent shutdowns, and recommencement of operations following implementation of corrective measures.
3. Project Shutdown due to Dissolved Oxygen Violations: If either ODEQ or Symbiotics determine that Project operations are contributing to downstream dissolved oxygen violations of the dissolved oxygen standard or the antidegradation standard, Symbiotics shall immediately discontinue Project operations. Recommencement of operations shall not take place until corrective measures have been successfully implemented.
4. Monitoring Equipment Malfunction Prevention and Response Plan: No later than three months prior to the commencement of Project construction activities, Symbiotics shall submit for ODEQ approval a Monitoring Equipment Malfunction Prevention and Response Plan to address water quality monitoring equipment malfunctions during both construction and operation phases of the Project. Upon ODEQ approval, Symbiotics shall implement the plan. The plan shall specify the following:

- A. Procedures and measures that will be implemented to prevent monitoring equipment malfunctions;
  - B. Procedures for identifying the occurrence and nature of any monitoring equipment malfunctions that may occur;
  - C. Plan, schedule, and corrective measures that will be implemented to address monitoring equipment malfunctions;
  - D. Procedures for notifying ODEQ of the occurrence and nature of monitoring equipment malfunctions, corrective measures implemented, and recommencement of operation.
  - E. Procedures and timelines for Project shutdown as may be necessitated by Condition 5, below.
5. Project Shutdown due to Monitoring Equipment Malfunctions: In the event that a water quality monitoring equipment malfunction occurs, Symbiotics shall shutdown operations if so directed by ODEQ or described in the approved Monitoring and Equipment Malfunction Plan due to ODEQ concern for likely Project-related contribution to water quality standards violation for a parameter that can no longer be monitored due to the equipment malfunction.
6. Symbiotics shall maintain and implement the Hazardous Substances and Spill Prevention and Cleanup Plan (June 2007) or future ODEQ-approved revisions thereof. In the event of a spill or release or threatened spill or release to the Applegate River, Symbiotics shall immediately implement the plan and notify the Oregon Emergency Response System (OERS) at 1-800-452-0311.
7. Prior to constructing or operating the Project, Symbiotics shall obtain all necessary NPDES and state permits and authorizations.
8. Operations - Water Quality Monitoring and Reporting

To adequately assess water quality and ensure compliance with Oregon water quality standards, Symbiotics shall implement an Adaptive Water Quality Monitoring and Reporting Plan (AWQMRP). ODEQ may require modifications to the AWQMRP as it deems appropriate to assess or confirm water quality standard compliance. Symbiotics may request modifications to the AWQMRP, subject to ODEQ written approval. All monitoring shall be performed in accordance with an ODEQ-approved Quality Assurance Plan.

A. Monitoring Requirements:

<b>Operations Phase Monitoring</b>				
<b>Parameter</b>	<b>Station Location<sup>1</sup></b>	<b>Frequency</b>	<b>Duration</b>	<b>Method</b>
Temperature, °C	OS-1, OS-2 and OS-3; USGS Gage	Hourly	Five Years <sup>3</sup>	Hydrolab or other remote sensing and from USGS <sup>2</sup>
Streamflow, cfs	USGS Gage	Daily Average	Five Years <sup>3</sup>	From USGS <sup>2</sup>
Dissolved Oxygen, mg/l and % Saturation	OS-1, OS-2 and OS-3	Hourly	Five Years <sup>3</sup>	Hydrolab or other remote sensing
TDG, % Saturation	OS-1, OS-2 and OS-3	Hourly	Five Years <sup>3</sup>	Hydrolab or other remote sensing

<sup>1</sup> Monitoring Station Locations:

OS-1: Reservoir upstream of construction at the water depth(s) from which reservoir releases will originate. This station will likely either be suspended from the Corps' intake tower or from a nearby, floating buoy in the reservoir. A flow-weighted average shall be calculated and reported to represent the combined intake flow when the reservoir release is blended.

OS-2: Powerhouse outfall; Project discharge would be monitored by this station which would be located in the powerhouse tailrace. This station will reflect water quality of the turbine effluent immediately prior to river entry.

OS-3: Applegate River 30 meters downstream of primary stilling basin, likely mounted to the stream bank retaining wall on the powerhouse side of the river. If this site is infeasible, it would be situated further downstream, but within 0.1 miles of the Project construction area.

USGS Gage: Gaging Station No. 14362000, 0.6 miles downstream of Applegate Dam.

<sup>2</sup> For the USGS gage, Symbiotics shall track temperature and streamflow that is monitored by the USGS and reported on the Internet.

<sup>3</sup> ODEQ anticipates that five years monitoring duration will be adequate for this parameter to confirm that Project operations are not impacting this or a related water quality parameter. ODEQ reserves its authority, however, to require continued or resumed monitoring and reporting of this parameter during the license if it either becomes apparent or suspected by ODEQ that this or a related parameter is being impacted by the Project.

B. Reporting Requirements:

- i. Operations Dissolved Oxygen Assessment Reports shall be submitted within 30 days following each calendar quarter during the first full year of Project operation, and within 60 days following each calendar year for the following four years. These reports shall include an analysis of the required dissolved oxygen monitoring data including tabular and graphical representation of daily minimum dissolved oxygen concentrations, and identification of the change in daily dissolved oxygen minimums between the two monitoring stations. The reports shall also include tabular and graphical representation of the daily average dissolved oxygen differentials, a comparison of measured dissolved oxygen concentration change between stations OS-1 and OS-3 with that measured or predicted for non-turbine discharge. Determination of non-turbine discharge concentration change should be based upon a technically defensible model, pre-operation measured data, measured data generated during temporary turbine shutdown, or a combination of these methods. The tabular and graphical representations of observed dissolved oxygen differentials shall include plotting against temperature and discharge flow if these parameters significantly influence the magnitude of the differentials. Reported discharge should be specified as from either the outlet structure or turbines. The reports shall include assessment of compliance with both the dissolved oxygen and antidegradation policy considering the identified differentials and considering seasonally applicable dissolved oxygen criteria.
- ii. Operations Water Quality Monitoring Reports shall be submitted within 60 days following each calendar year for the first five years of operation. Each report shall include an analysis of the required monitoring data including tabular and graphical representation of daily average temperatures, daily maximum temperatures, and daily average streamflow for each for each station monitored. Each report shall identify and quantify any instances in which the hydroelectric Project adversely impacted the Corps' efforts to meet temperature and flow targets measured at USGS Gaging Station No. 14362000. If any such instances occurred during the time being reported, Symbiotics shall identify in the report the cause and proposed measures to avoid recurrence.

9. Conditions Specific to Construction Phase (until commencement of turbine operation)

- A. Symbiotics shall employ an Environmental Coordinator to provide daily oversight of all phases of construction and to ensure fulfillment of all environmental obligations during construction.

- B. Prior to any ground disturbing activities, Symbiotics shall apply for, obtain, and then fully implement an NPDES stormwater construction permit administered by ODEQ.
- C. Symbiotics shall implement all aspects of the August 2006 Soil Erosion Control Plan or revisions thereof approved by ODEQ through the NPDES stormwater construction permitting process.
- D. Symbiotics shall implement BMPs #3 and #6 found in *Best Management Practices for Storm Water Discharges Associated with Construction Activities: Guidance for Eliminating or Reducing Pollutants in Storm Water Discharges*. Oregon Department of Environmental Quality. DEQ Northwest Region Document. February 2006.
- E. Construction Bypass Period: The approximate one-month period that flow will need to be bypassed around the dam to allow installation of a steel liner in the existing penstock tunnel and connection of the turbine draft tubes to the primary stilling basin wall shall be performed between July 1 and August 31 in accordance with ODFW guideline for timing of in-water work. In order to bypass flows around the dam during this Construction Bypass Period, Symbiotics shall:
  - i. Implement an automated siphon-pump system that will draw water from any forebay depth as is necessary to meet downstream temperature, flow, and DO targets to the extent that would otherwise be possible using the existing Corps temperature and flow regulating facilities.
  - ii. Submit, once final engineering is completed, a detailed pumping plan to ODEQ, ODFW, and other appropriate resource agencies for a 60-day review and comment period. The pumping plan shall include the below identified components unless otherwise approved in writing by ODEQ:
    - a. Provide two or more pumps with combined pumping capacity to meet the given year's seasonal instream flow targets. These primary pumps shall be powered by a dependable power source.
    - b. If at any time siphoning is not feasible and the primary pumps must be utilized to pass flows past the dam, a capable redundant pump system must be on standby to fully back-up the primary pumps in the event the primary pumps fail or falter. These secondary pumps shall be automated to immediately initiate and maintain flow levels and shall be powered by a dependable power source independent from that of the primary pumps.
    - c. The siphon-pump system shall be equipped with a failsafe alarm system that will immediately alert the Environmental Coordinator and other appropriate personnel of any significant, unintended flow reduction. Such flow reduction shall be immediately corrected and reported to ODEQ and ODFW.
    - d. The elevation of the siphon-pump pipe terminus on the spillway apron shall be immediately adjusted up or down as needed to adaptively correct any TDG or DO standard noncompliance attributable to spillway discharge.

F. Constructions and Pre-Construction - Water Quality Monitoring and Reporting

To adequately assess water quality and ensure compliance with Oregon water quality standards, Symbiotics shall implement an Adaptive Water Quality Monitoring and Reporting Plan (AWQMRP). ODEQ may require modifications to the AWQMRP as it deems appropriate to assess or confirm water quality standard compliance. Symbiotics may request modifications to the AWQMRP, subject to ODEQ written approval. All monitoring shall be performed in accordance with an ODEQ-approved Quality Assurance Plan.

i. Monitoring Requirements:

<b>Pre-Construction Phase</b> (commencing no later than 60 days of license issuance)				
<b>Parameter</b>	<b>Station Location<sup>1</sup></b>	<b>Frequency</b>	<b>Duration</b>	<b>Method</b>
Temperature, °C	CS-1 and CS-3	Hourly	For one full season or until construction phase monitoring commences	Hydrolab or other remote sensing
Dissolved Oxygen, mg/l and % Saturation	CS-1 and CS-3	Hourly	For one full season or until construction phase monitoring commences	Hydrolab or other remote sensing
Streamflow, cfs	USGS Gage	Hourly	For one full season or until construction phase monitoring commences	From USGS <sup>2</sup>
<b>Construction Phase<sup>3</sup></b>				
<b>Parameter</b>	<b>Station Location<sup>1</sup></b>	<b>Frequency</b>	<b>Duration</b>	<b>Method</b>
Temperature, °C	CS-1, CS-2 and CS-3; USGS Gage	Hourly	Throughout Construction (only during flow bypass for CS-2)	Hydrolab or other remote sensing and from USGS <sup>2</sup>
Dissolved Oxygen, mg/l and % Saturation	CS-1, CS-2 and CS-3	Hourly	Throughout Construction (only during flow bypass for CS-2)	Hydrolab or other remote sensing
Streamflow, cfs	USGS Gage	Hourly; 15-minute during flow bypass	Throughout Construction	From USGS <sup>2</sup>
Turbidity, NTU	CS-1 and CS-3	Hourly	Throughout Construction	Hydrolab or other remote sensing
pH, Standard Units	CS-1 and CS-3	Hourly	Throughout Construction	Hydrolab or other remote sensing
TDG, % Saturation	CS-1, CS-2 and CS-3	Hourly	One week prior to and during flow bypass	Hydrolab or other remote sensing

<sup>1</sup> Monitoring Station Locations:

CS-1: Reservoir upstream of construction at the water depth(s) from which reservoir releases will originate. This station will likely either be suspended from the Corps' intake tower or from a nearby, floating buoy in the reservoir. A flow-weighted average shall be calculated and reported to represent the combined intake flow when the reservoir release is blended.

CS-2: Spillway Pool; when siphoning or pumping over spillway.

CS-3: Applegate River 30 meters downstream of primary stilling basin, likely mounted to the stream bank retaining wall on the powerhouse side of the river. If this site is infeasible, it would be situated further downstream, but within 0.1 miles of the Project construction area.

*USGS Gage:* Gaging Station No. 14362000, 0.6 miles downstream of Applegate Dam.

<sup>2</sup> For the USGS gage, Symbiotics shall track temperature and streamflow that is monitored by the USGS and reported on the Internet.

<sup>3</sup> Additional construction phase monitoring requirements identified in Symbiotics' erosion and sediment control plan (or approved revisions thereof) and future stormwater NPDES permit, also apply.

ii. Reporting Requirements:

- a. Pre-Operation Dissolved Oxygen Assessment Reports shall be submitted to ODEQ within 30 days following each calendar quarter during pre-operation (pre-construction [post license issuance] and construction phases). Each report shall include an analysis of the required dissolved oxygen monitoring data including tabular and graphical representation of daily minimum dissolved oxygen concentrations, and identification of the change in daily dissolved oxygen minimums between the two monitoring stations. If the upstream to downstream changes in dissolved oxygen minimum concentration appear to correlate with temperature and/or discharge rate (flow), then provide an assessment of the change as a function of temperature and flow through the outlet structure. The information gathered for these reports will provide comparative basis for later determination of potential dissolved oxygen impacts related to turbine discharge.
- b. Construction Water Quality Monitoring Reports shall be submitted to ODEQ within 30 days following each calendar quarter during the construction phase. The reports shall include an analysis of the required monitoring data including tabular and graphical representation of daily average temperatures, daily maximum temperatures, daily maximum pH and daily average streamflow for each for each station monitored. The reports shall identify and quantify all instances in which the construction activities contributed to reduced water quality, the causation, and the corrective measures proposed or implemented.
- c. Construction Erosion and Sediment Control Reports shall be submitted to ODEQ within 30 days following each calendar quarter during the construction phase. These reports shall include a summary of all erosion and sediment control inspections, turbidity monitoring results, and identification of any corrective actions taken during the reporting period.
- d. Construction Bypass Period Reporting
  - I. During the Construction Bypass Period, Symbiotics shall immediately (within 24 hours) notify the ODEQ Medford Office to report of any instances when the siphon-pump system has failed or faltered, contributing to reduced downstream water quality. Such instances shall be followed up with a letter within 72 hours of the incident specifically describing the incident, its cause, and the mitigating or correcting measures implemented or scheduled to be implemented.
  - II. A TDG monitoring report shall be submitted within 30 days following completion of construction bypass discharge. The report shall include an analysis of the required monitoring data including tabular and graphical representation of hourly TDG percent saturation for each station monitored.

## 10. General Conditions

### A. § 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:

- i. 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;
- ii. TMDLs;
- iii. Changes in water quality standards;
- iv. Any failure of Certification conditions to protect water quality or designated beneficial uses as expected when the Certification was issued; or
- v. 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.

### B. Project Changes

Symbiotics shall notify ODEQ of any change in ownership, scope, or construction methods of the Project. Symbiotics shall obtain ODEQ review and approval before undertaking any change to the Project that might significantly affect water quality, including changes to Project structures, construction, operations, and flows.

### C. Other Federal Permits.

Upon applying for any federal permit for construction activities at the Project that might disturb river sediments, Symbiotics shall provide ODEQ written notice of such application and of any proposed changes to or new specifications for the construction activities since issuance of this Certification. ODEQ will notify Symbiotics and the federal agency either that (i) this Certification is sufficient for purposes of the federal permit, or (ii) in light of new information related to the water quality impacts of the construction activities, there is no longer reasonable assurance of compliance with state water quality standards. In the latter event, ODEQ will consider the new information, solicit and consider public and agency comment as required by law, and issue a § 401 Certification determination for purposes of the federal permit activities.

### D. Project Repair or Maintenance

Symbiotics shall obtain ODEQ review and approval before undertaking Project repair or maintenance activities that might significantly affect water quality. ODEQ may, at Symbiotics' request, approve specified repair and maintenance activities on a periodic or ongoing basis.

### E. Project Inspection

Symbiotics 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.

### F. Posting of § 401 Certification

Symbiotics shall post a copy of these certification conditions in a prominent location at the Applegate Dam Powerhouse.

#### G. 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.

#### H. Project Specific Fees

In accordance with ORS 543.080, Symbiotics shall pay a Project-specific fee for ODEQ's costs of overseeing implementation of the adaptive management conditions of this Certification. The fee shall be \$8,000 annually (2007 dollars adjusted according to the formula, below), made payable to "State of Oregon, Department of Environmental Quality", and due on July 1 of each year after issuance of the FERC License. Symbiotics shall pay an initial prorated payment within 60 days of license issuance for the period from the date of license issuance to the first July 1 that follows license issuance. ODEQ and Symbiotics shall review the need, if any, to modify, extend, or terminate the fee, in accordance with ORS 543.080. Symbiotics shall continue to pay any Project-specific fee required after such review.

$$AD = D \times (CPI-U)/(CPI-U\text{-August } 2007)$$

Where:

AD = Adjusted dollar amount payable to ODEQ.

D = Dollar amount prior to adjustment.

CPI-U = the most current published version of the Consumer Price Index-Urban. The CPI-U is published monthly by the Bureau of Labor Statistics of the federal Department of Labor. If that index ceases to be published, any reasonably equivalent index published by the Bureau of Economic Analysis may be substituted by written agreement between ODEQ and Symbiotics, LLC.