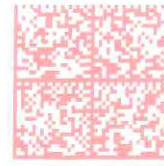


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Docket No.: P-12686

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UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Baker County, Oregon

Project No. 12686-006

ORDER MODIFYING AND APPROVING WATER QUALITY MONITORING AND
MANAGEMENT PLAN PURSUANT TO ARTICLE 402

(Issued December 6, 2017)

1. On November 22, 2017¹, Baker County, Oregon, licensee for the Mason Dam Hydroelectric Project No. 12686, filed its Water Quality Monitoring and Management Plan, pursuant to Article 402 of the project license.² The project will be located at the U.S. Department of the Interior, Bureau of Reclamation's (Reclamation) Mason Dam on the Powder River, near Baker City, in Baker County, Oregon. The project occupies federal land administered by the U.S. Forest Service and Reclamation.

License Requirement

2. Article 402 requires the licensee to file a Water Quality Monitoring and Management Plan (Plan) with the Commission for approval, as required by condition 2 of the Oregon Department of Environmental Quality's (Oregon DEQ) Water Quality Certification (WQC), as included in Appendix A of the project license. Condition 2 requires the Plan to include: applicable dissolved oxygen (DO) and total dissolved gas (TDG) criteria; monitoring methodology; a reporting schedule; air admission procedures; and procedures for suspending operation during DO or TDG violations in accordance with Condition 2b.

3. The licensee is required to measure DO at the downstream gage location (Reclamation gage PHL (Phillips Lake)) continuously during project operations. Data must be downloaded on a weekly basis. During project operation, the licensee must also measure TDG in the project tailrace and at the Reclamation gage PHL for a minimum of 72 hours under minimum flow and maximum flow conditions. Concurrent with DO and

¹ The licensee originally filed its plan on August 31, 2017, however it was superseded by its November 22, 2017 filing.

² Order Issuing Original License (152 FERC ¶ 62,155), issued September 8, 2015.

TDG measurements, the licensee must also record flow and water temperature at the Reclamation gage PHL, as well as record power generation from the project. The Plan must also include provisions to address water quality monitoring equipment malfunctions.³ The licensee is required to report all DO, TDG, flow, water temperature and power generation data to the Oregon DEQ within 90 days of the end of each hydropower operating season, or December 30, whichever comes first.

4. If it is determined that project operations are contributing to downstream violations of the applicable DO standard, TDG standard or the antidegradation standard, the licensee must follow specific procedures as outlined in the Plan, including project shutdown, as necessary. If these actions do not allow water quality standards to be achieved, the licensee must consult with the Oregon DEQ to evaluate whether any modifications to the project or project operation can mitigate impacts to water quality.

5. The plan is required to be developed after consultation with the Oregon DEQ, Oregon Department of Fish and Wildlife (Oregon DFW), U.S. Fish and Wildlife Service (FWS), and U.S. Forest Service.

Licensee's Plan

6. The purpose of the licensee's Water Quality Monitoring and Management Plan is to ensure that the following state water quality standards for DO are met during hydroelectric operational periods as found in Oregon Administrative Rule OAR-340-041-0016, based on beneficial use and fish use designations. The DO standard for the project waters are as follows:

"Cold Water Class"

- 30-day mean minimum of 8.0 milligrams per liter (mg/L) or 90 percent saturation
- 7-day mean minimum of 6.5 mg/L
- 6.0 mg/L absolute minimum

"Salmonid Spawning Class" from January 1 to May 15

- 7-day mean minimum of 11 mg/L or 95 percent saturation (whichever is less)

³ See WQC condition 2.c. for further details.

7. The TDG criteria states that the concentrations of TDG relative to atmospheric pressure at the point of sample collection may not exceed 110 percent of saturation, except when stream flow exceeds the ten-year, seven-day average flood. The licensee states that they do not have baseline levels of TDG under current operations, however they will measure TDG during or immediately prior to construction of the project, and before the project becomes operational.

8. The licensee would monitoring DO, and DO percent saturation at the PHL gage. The licensee would also monitor TDG in the project tailrace and at the PHL gaging station, for a minimum of 72-hours under minimum flow and maximum flow conditions. The licensee would also record water temperature, flow and power generation.

9. The licensee's Plan includes a description of its DO monitoring device that will be connected to an external data logger configured to sample DO at 1-hour intervals. The data logger would be downloaded on a weekly basis and evaluated. Alternatively, the DO meter would have a removable storage device that can be used to retrieve data as well, should an error occur with the data logger.

10. The DO sensor would be placed at the PHL gage just downstream of the stilling basin in the Powder River.⁴ To measure TDG, the licensee would use one sensor placed in the project tailrace and another with the DO sensor at the PHL gaging site. The licensee would also measure TDG at 1-hour intervals. The licensee states that it would have the option to remove the DO sensor during any period when the plant is not operating, and the TDG sensor after the minimum of 72-hours under minimum and maximum flow conditions. Temperature is measured at the PHL gaging station every 15 minutes and will be used in data compilation. The licensee's Plan also includes procedures for preventing, identifying and correcting equipment malfunctions.

11. Data would be downloaded weekly to a spreadsheet that will calculate a running 30-day mean minimum, a running 7-day mean minimum, and absolute minimum, and percent saturation. These running mean values would be used to determine compliance with the cold water and salmonid spawning standards respectively.

12. If the project fails to meet the DO standards, the powerhouse operator would immediately take the following correction actions:

- (1) Aspirate air into the draft tubes through the air inlet pipe and diffuser fitted to the turbine draft tube. Allow 1 week for aspiration to take effect and check against the standards. If DO is still below the spawning standard, then go to phase 2.

⁴ The licensee's Plan includes a figure depicting the location of the sensor.

- (2) Inject air using a blower into the draft tubes through the air inlet pipe and diffuser fitted to the draft tube of the turbine. Allow 1 week for forced aspiration to take effect and check against the standards. If DO is still below the spawning standard, then go to phase 3.
 - (3) Open bypass valve to reduce the amount of flow passing through the turbine and increase the amount of flow passing through the high pressure slide gates. After 24 hours, measure DO. Continue adjusting high pressure slide gates settings until either the spawning DO standard is met or until all water is being released through the high pressure slide gate and no water is being released through the turbine.
 - (4) In the event that project operations require bypass flows on a regular basis (multiple times throughout the irrigation season), as described in phase 3, the licensee may add rock weirs from the end of the spilling basin to Reclamation's PHL gaging station, to naturally increase the DO of the water released by the turbine. These weirs would only be constructed if post-project monitoring reveals that DO concentrations drop below water quality standards. Weirs would be constructed one at a time until their numbers are sufficient to achieve the standard at the monitoring station.
13. The licensee would record any trigger event and DO corrective action, and would include them in the yearly report. The licensee would notify the Oregon DEQ of all events and equipment malfunctions within 24-hours. The licensee would notify Oregon DEQ of Phase 1 and Phase 2 events, and the other agencies will be notified of a Phase 3 event.
14. The licensee proposes to provide an annual DO and TDG monitoring report to all the agencies by December 30 of each year. The report would include a graph of the 7-day mean minimum DO and 30-day mean minimum DO for the year, flow data, water temperature data and power generation data, a copy of sensor calibration logs, and any event logs that describe measures taken to increase DO concentrations.

Agency Consultation

15. The licensee provided its Plan to the Oregon DEQ, Oregon DFW, Forest Service and FWS on July 21, 2017. On August 3, 2017, the Oregon DEQ provided comments, generally asking for further details relating to monitoring equipment and measurements, and the DO compliance criteria, which the licensee incorporated into the Plan. On August 3, 2017 the Oregon DFW provided comments regarding equipment maintenance and calibration, which the licensee addressed. Oregon DFW also provided comments regarding the development of the weirs, which the licensee addressed in the Plan by stating that they will consult with the Oregon DFW to ensure fish passage criteria are met, and that they will obtain the needed permits for the rock weirs. On November 21,

2017 the Oregon DEQ approved the licensee's Plan. The FWS and Forest Service did not provide comments.

Discussion and Conclusion

16. The licensee's Plan outlines a water quality monitoring procedure for monitoring DO and TDG below the Mason Dam, and for gathering data to compare to the applicable Oregon DO and TDG standards. The licensee would download DO data on a weekly basis and calculate a running 30-day mean minimum, a running 7-day mean minimum, an absolute minimum, and percent saturation. These running mean values would be used to determine compliance with the cold water and salmonid spawning standards respectively. If the project fails to meet the DO standards, the licensee would implement its air admission procedures or bypass flows, as outlined in the Plan, to ensure that state DO and TDG standards are met. If the licensee implements bypass flow on a regular basis and project monitoring reveals that DO concentrations drop below water quality standards, the licensee may install rock weirs to naturally increase DO of the water released below Mason Dam. The licensee's Plan includes general specifications of the rock weirs, but if the weirs are needed the licensee would conduct additional engineering and agency consultation in the future to determine the specifications needed to achieve acceptable aeration.

17. The licensee is reminded that if it is determined, in consultation with the Oregon DEQ, that rock weirs are needed, the licensee must file a license amendment application with the Commission, and receive Commission approval, prior to commencing construction of the weirs.

18. The licensee is proposing to provide an annual DO and TDG monitoring report to the agencies by December 30 of each year. The report would include a graph of the 7-day mean minimum DO and 30-day mean minimum DO for the year, flow data, water temperature data and power generation data, a copy of sensor calibration logs, and any event logs that describe measures taken to increase DO concentrations. So that the Commission and the agencies can assess if there are any adverse effects in the event of a deviation from the water quality standard, the licensee should also make biological observations of the fishery resources downstream of the tailrace to look for any stress on fish. The licensee's actions and observations should be included in the annual report.

19. In order to keep the Commission apprised of the licensee's actions under its Plan, the report should also be filed with the Commission. In order to allow the agencies 30-days to review and comment on the report, prior to filing it with the Commission, the licensee should file the report with the Commission by March 1 of the following year. The licensee's filing should include documentation of consultation with the agencies, and the licensee's response to agency's comments or recommendations.

20. The Commission should reserve its right to require modifications to the licensee's Plan based on available information, agency comments and/or the results of the monitoring conducted under the Plan.

21. The Plan is sufficient to determine DO and TDG concentrations downstream of the project, and includes procedures to address DO concentrations below the state water quality standards. The licensee's Plan includes all the required information as stated in its WQC Condition 2, and is approved by the Oregon DEQ, and therefore should be approved.

The Director orders:

(A) Baker County, Oregon's Water Quality Monitoring and Management Plan, filed November 22, 2017, pursuant to Article 402 of the project license for the Mason Dam Hydroelectric Project No. 12686, as modified in paragraphs (B) and (C), is approved.

(B) The licenses must file with the Commission annually, by March 1 of the year following monitoring, a water quality monitoring report. The report must include a graph of the 7-day mean minimum DO and 30-day mean minimum DO for the year, flow data, water temperature data, power generation data, a copy of sensor calibration logs, and any event logs that describe measures taken to increase DO concentrations. In the event of a deviation of the water quality standard, the report must also include a description of any observed adverse environmental effects associated with the deviation, and a description of the actions the licensee took to observe the fishery resources downstream of the tailrace. The licensee's annual report filed with the Commission must include documentation of consultation with the Oregon Department of Environmental Quality, Oregon Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and U.S. Forest Service. The licensee must allow a minimum of 30 days for agencies to comment before filing the report with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons based on site-specific information.

(C) The Commission reserves its right to require modifications to the licensee's Water Quality Monitoring and Management Plan based on available information, agency comments and/or the results of the monitoring conducted under the plan.

(D) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the Federal Power Act, 16 U.S.C. § 825i (2012), and the Commission's regulations at 18 C.F.R. § 385.713 (2017). The filing of a request for rehearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

Thomas J. LoVullo
Chief, Aquatic Resources Branch
Division of Hydropower Administration
and Compliance