



Turbidity Monitoring Plan for Forebay Flushing

Wallowa Falls Hydroelectric Project

(FERC No. P-308)

Grande Ronde River Basin

Wallowa County, Oregon

June 2, 2017

Prepared by:

PacifiCorp

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1.0 Introduction

The Federal Energy Regulatory Commission (FERC) issued a new operating license for the Wallowa Falls Hydroelectric Project (Project) on January 5, 2017. Annual flushing of the Project forebay is permitted under Condition 5 of the Oregon Department of Environmental Quality, Water Quality Certification (March 13, 2016) issued for the FERC license. It is necessary to flush accumulated native sediment from the Project forebay to prevent damage to the hydroelectric generating unit and continue operation of the Project.

PacifiCorp will modify the historic practice of flushing entrained native sediment from the forebay during the summer low flow period to flushing sediment from the forebay during the peak-spring runoff in the month of June. Annual forebay flushing will result in the removal of accumulated sediment from forebay and the mobilization and transport of that sediment into the bypassed reach of the East Fork Wallowa River. Based on a volumetric survey of native sediment entrained in the forebay in August 2012, conducted by Haner, Ross and Sporseen, P.C, approximately 250 to 500 cubic yards of native material would be flushed annually. Forebay flushing is expected to occur over a short time period, lasting no more than 72 hours.

The purpose of this Turbidity Monitoring Plan for Forebay Flushing is to describe actions that PacifiCorp will undertake to flush the Project forebay and monitor short-term turbidity increases in the portion of the East Fork Wallowa River below the Wallowa Falls dam (bypassed reach) associated with the routine maintenance flushing of the forebay. The Turbidity Monitoring Plan for Forebay Flushing will be implemented during all Project forebay flushing events.

2.0 Project Area

The Project is located on the East Fork Wallowa River approximately 11 miles outside of the City of Joseph in Northeastern Oregon. The Project (Figure 2.0 -1) reservoir/forebay lies over 1,600 meters (m) above mean sea level (msl) and is approximately 0.2 surface acres (0.08 ha) in size and averages 5 feet (1.5 m) in depth. The Project operates as run of river, with no measurable storage present in the forebay, and habitat in this area is lacustrine. The substrate in the forebay consists of deposited silt, sand, and other glacial fines. Water diverted at the forebay travels through the flow line and penstock to the generating turbine in the Project powerhouse. Water exits the turbine and is discharged into an approximately 985-foot (300 m) long tailrace discharge channel that empties into the West Fork Wallowa River.

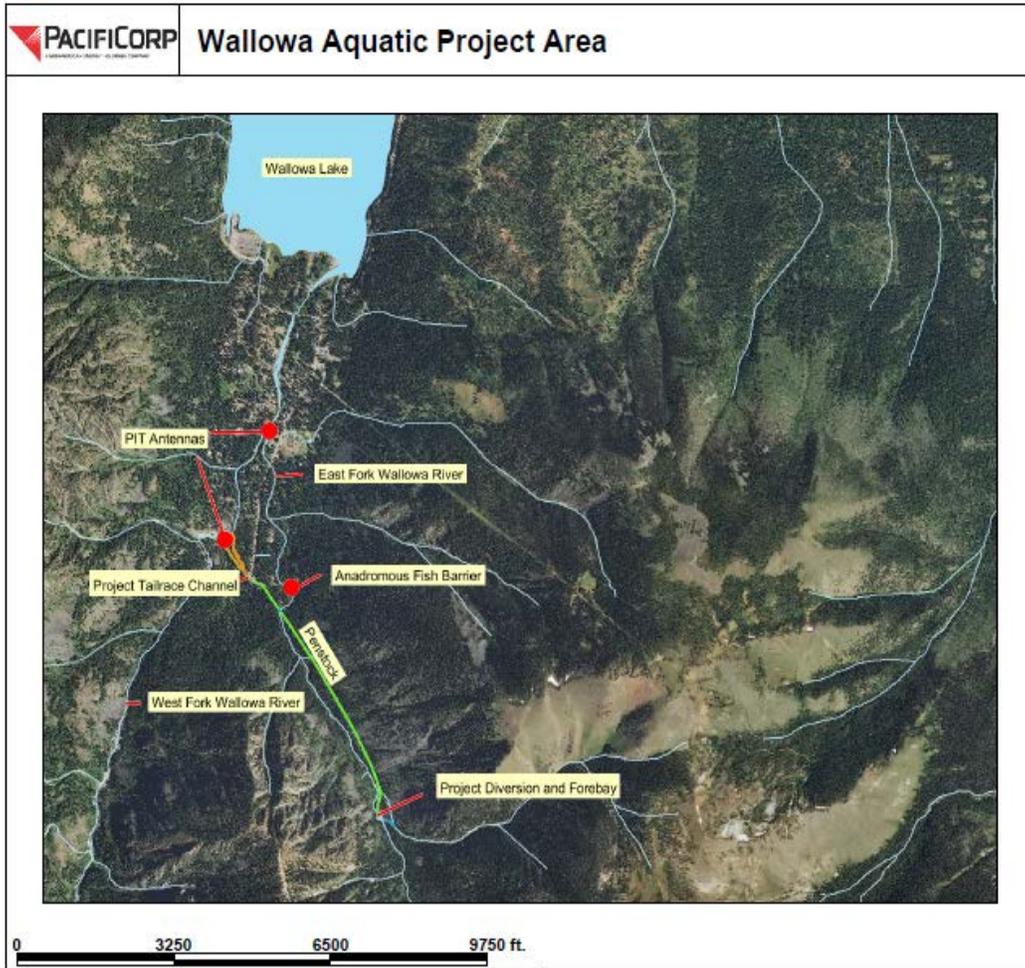


Figure 2.0 -1 Wallow Falls Hydroelectric Project

3.0 Flushing Methods

The forebay may be flushed on an annual basis¹ during the month of June. Flushing may occur only when natural inflows to the project are greater than or equal to 15 cubic feet per second (cfs). Each year that a flush is planned, a pre-flushing coordination conference call will be scheduled with the USDA Forest Service (USFS), Oregon Department of Environmental Quality (ODEQ), Oregon Department of Fish and Wildlife (ODFW), and the US Fish and Wildlife Service (USFWS). The Agencies will be notified a minimum of 10 days prior to any planned flushing date. Flushing will occur using the following methods:

¹ If flushing does not occur in June or other Oregon Department of Environmental Quality approved high flow period, it will be delayed until the following year to minimize impacts to fish habitat.

1. Close the penstock intake gate
2. Open the lower level outlet gate at the dam and allow all natural inflow to pass either through the low level outlet pipe or over the dam spillway
3. Use hydraulic hoses to assist with suspension of sediment in the water column to facilitate mobilization downstream into the bypassed reach of the East Fork Wallowa River
4. Close penstock intake gate. Use a small suction dredge in forbay to suck up sediment and discharge over dam crest into the bypassed reach of the East Fork Wallowa River.

4.0 Turbidity Monitoring

It is expected that there will be short-term increases in turbidity during forebay flushing events; monitoring of turbidity levels prior to, during, and following the flushing event will provide information on the magnitude and duration of increased turbidity levels in comparison to normal background levels. Given the short duration of the flush event, the high flow conditions, and the steep gradient of the stream turbidity is expected to return to background levels quickly after completion of the flush.

Turbidity will be monitored continuously, using datasondes that record hourly values. Prior to deployment all datasondes will be calibrated to manufacture standards and quality checked to read within given unit error ranges. Datasondes will be deployed at two monitoring points as follows:

- Representative Background Point (M1): A datasonde will be deployed in a relatively undisturbed area in the East Fork Wallowa River at least 100 feet upstream of the Project forebay. This datasonde will be deployed at least 24 hours prior to forebay flushing to record background turbidity levels in the East Fork Wallowa River. The datasonde will remain deployed for five days to ensure that background turbidity is recorded prior to, during and after the forebay flushing event.
- Downstream Monitoring Point (M2): A datasonde will be deployed in the lower bypassed reach of the East Fork Wallowa River at the compliance stream gaging site. This datasonde will be deployed prior to the onset of forebay flushing and will remain continuously deployed for five days to ensure that turbidity effects during and after the forebay flushing event are recorded.
- If on day five, turbidity levels are still visually elevated in the bypassed reach of the East Fork Wallowa River, datasondes will be left in place for an additional 24 hours to record turbidity levels returning to background levels.

5.0 Reporting

For every forebay flushing event, PacifiCorp will prepare a brief Forebay Flushing Report that summarizes the dates that forebay flushing occurred, duration of the event, flushing methods used and turbidity monitoring results. This report will be submitted to the FERC and the ODEQ within 60 days of a forebay flushing event. Per Condition 10 of the United State Department of Agriculture, Forest Service Final Section 4(e) Conditions, included as Appendix B of the FERC license, the Forebay Flushing Report for the previous year will also be included in draft Annual Report for the Annual Resource Coordination meeting with the USDA Forest Service.

6.0 References

USFS. (2016). *Final License Conditions Necessary for the Protection and Utilization of the Wallowa-Whitman National Forest in Connection with the Application for License for Project No. 308, Wallowa Falls Hydroelectric Project*. February 2016.

ODEQ. (2016). *Clean Water Act, § 401 Certification Conditions for the Wallowa Falls Hydroelectric Project, (FERC No. P-308) Grande Ronde River Basin, Wallowa County, Oregon*. Bend, OR. March 2016.

Appendix A: Agency Comments



Oregon

Kate Brown, Governor

Department of Environmental Quality

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May 23, 2017

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

RE: Project No. P-308 Wallowa Falls Hydroelectric Project
Oregon Department of Environmental Quality (DEQ) Comments on Turbidity Monitoring Plan for
Forebay Flushing

Dear Secretary Bose:

The Oregon Department of Environmental Quality has reviewed the April 27, 2017 draft Turbidity Monitoring Plan for Forebay Flushing at the Wallowa Falls project and has the following comments:

1. Turbidity monitoring should be continued beyond the end of the forebay flushing with the intent of monitoring until background conditions are reached. The plan as written states that datasondes will be deployed prior to flushing and continue for 5 days. The plan should be clarified to specify that in addition to monitoring prior to flushing at the upstream site, monitoring would continue for 5 days after the start of flushing. This would ensure that the monitoring period captures the flushing event (up to 72 hours) and two additional days.
2. The monitoring plan has a minor inconsistency with the turbidity monitoring requirements in the §401 Water Quality Certification. Section 4, 2nd bullet of the draft turbidity monitoring plan should state that the downstream datasonde will be deployed for 5 days. It currently says 4 days.

Thank you for your attention to this matter. If you have any questions regarding this letter, please contact me at (541) 278-4616.

Sincerely,

John P. Dadoly
Basin Coordinator
Oregon DEQ, Pendleton

Cc: Marilyn Fonseca, DEQ, HQ





Briana Weatherly
Manager, Environmental Compliance
PacifiCorp
825 NE Multnomah Street
Portland, OR 97232

File Code: 2530
Date: May 25, 2017

Dear Ms. Weatherly,

The US Forest Service (USFS) received the Wallowa Falls Hydroelectric Project Turbidity Monitoring Plan for Forebay Flushing ("Plan") via email on April 27, 2017. We appreciate the opportunity to review and provide comments to ensure that the Plan is consistent with the Wallowa Falls Hydroelectric Project License requirements.

In consultation with Oregon Department of Fish and Wildlife and Oregon Department of Environmental Quality, we agree that the goal of the Turbidity Monitoring Plan is to ensure that turbidity returns to background levels after the forebay flushing to reduce long term effects.

We also understand that the Plan does not have to be overly specific. However, to make sure we share a common understanding please clarify the following:

4.0 Turbidity Monitoring

The plan currently states that the datasonde will be deployed prior to flushing and continue for 5 days. Please clarify that the 5 days of monitoring is counted from the start of the forebay flushing, which would allow up to 3 days of monitoring during the flushing activity and 2 days of monitoring post-flushing, to confirm that background levels are reached.

Also, we recommend a correction in section 4, 2nd bullet (downstream monitoring) states, "... datasonde will be deployed for **four** days". To be consistent with 401 Water Quality Certification, specifically, Section 5.9.4.2, the datasonde should be deployed for "five" days, which includes both upstream and downstream monitoring.

Please contact Daniel Gonzalez if you have questions at (541) 519-5036.

Sincerely,


KRIS STEIN

District Ranger, Hells Canyon NRA/Eagle Cap Ranger District
cc: Daniel Gonzalez

