# 2017 Annual Operational Compliance Report

**Wallowa Falls Hydroelectric Project**

**(FERC No. P-308)**

**Grande Ronde River Basin**

**Wallowa County, Oregon**

December 2017 - FINAL


***Prepared by:***

PacifiCorp

825 NE Multnomah Street

Portland, OR 97232

# Table of Contents

# 1.0 Introduction

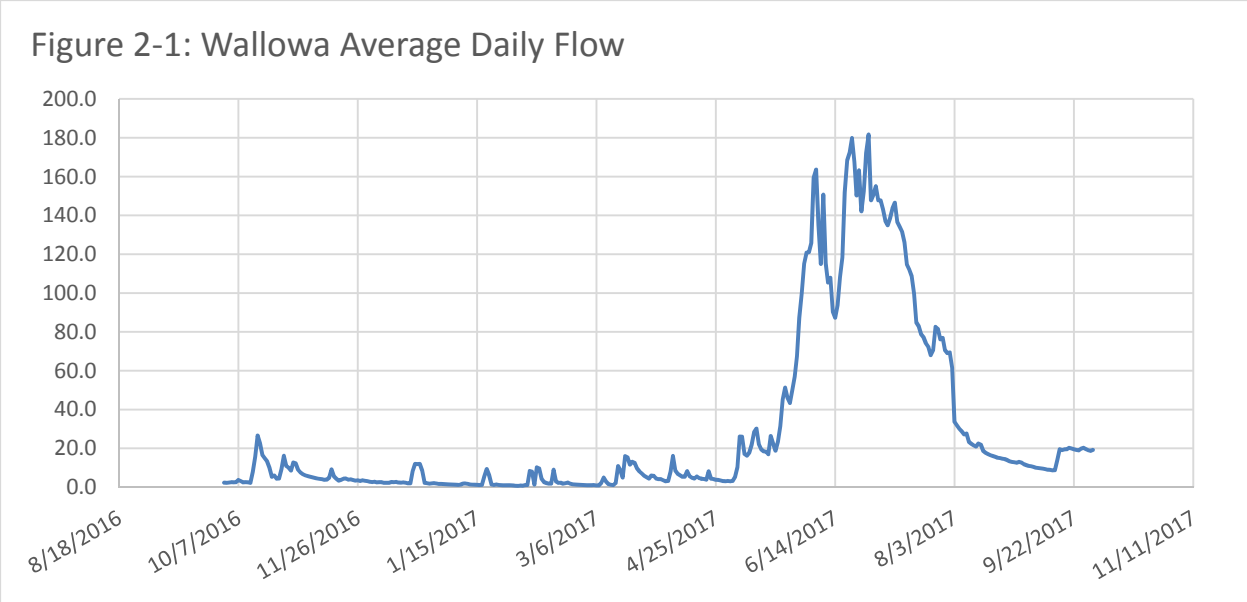
The Federal Energy Regulatory Commission (Commission) issued a new operating license for the Wallowa Falls Hydroelectric Project (Project) January 5, 2017. The Operation Compliance Monitoring Plan (OCMP) was developed to satisfy Article 408 and Condition 1e) of Appendix A: Oregon Department of Environmental Quality (ODEQ) Water Quality Certification, of the license. The OCMP was approved by the October 11, 2017 Commission Order Modifying and Approving Operational Compliance Monitoring Plan Pursuant to License Article 408. This Annual Report satisfies the reporting requirements of Section 3.1.2 of the OCMP (PacifiCorp 2017a) and license Article 408.

In addition to the report elements provided in Section 3.1.2 of the OCMP, PacifiCorp has elected to include the Wallowa Falls Bull Trout Redd Monitoring Report required by Article 412 of the license and the 2017 Noxious Weed Control Plan Annual Report required by Section 3.5 of the Noxious Weed Control Plan (PacifiCorp 2017c) in this Report, as Appendices C and D, respectively.

# 2.0 Project Operations – Water Management

### 2.1.1 Minimum Flows

Minimum instream flows, as required by license Appendix A, Condition 1(a) and Appendix B, Condition 9(2) will be implemented by PacifiCorp beginning on or before July 5, 2018. For the duration of the 2017 water year (October 1, 2016 to September 30, 2017), the Project operated under the current year-round minimum flow requirement of 0.5 cubic feet per second (cfs). As measured at the gage located in the bypassed reach of the East Fork Wallowa River, immediately downstream of the Wallowa Falls diversion dam, there was greater than or equal to 0.5 cfs in the bypassed reach on all days between October 1, 2016 and September 30, 2017. Figure 2-1 shows the average daily flow during the 2017 water year.




As required under Appendix A, 1(b) and Appendix B, Condition 9(3) of the Commission license, a compliance staff gage, with continuous real-time recording and communication capabilities was installed at the approved location in the bypassed reach of the East Fork Wallowa River between July 31 and August 4, 2017[1]. PacifiCorp contracted the United States Department of the Interior, U.S. Geological Survey (USGS) to install the required stream gage and conduct the required hydrologic surveillance program (USGS Gage 13325000, East Fork Wallowa River) for the Project. The gage is currently reporting a real-time recording of river stage and corresponding flow in cfs measured in 15 minute intervals. Real-time provisional data is available on the USGS gage website at: https://waterdata.usgs.gov/or/nwis/uv?cb_00060=on&cb_00065=on&format=gif_default&site_no=13325000

### 2.1.2 Ramping

On or before July 5, 2018 all generation adjustments will comply with the ramp rate targets required under license Appendix A, Condition 1(c). There were no ramp rate restrictions in place for the 2017 water or calendar years.

After July 5, 2018, all generation adjustments will comply with the ramp rate targets required under license Appendix A. Condition 1(c) and outlined in Section 2.1.2 of the OCMP. Special

[1] The Gage and associated communications system are located on the East Fork of the Wallowa River on a parcel of property owned by PacifiCorp and designated by Wallowa County, Oregon, as tax lot number 03S4500009900.

and emergency Project operations (e.g. the plant or unit tripping offline, facility maintenance, etc.) will not be considered non-compliance with the run of river mode of operations.

Ramp rate targets will be met through predetermined kilowatt (kW) generation changes that are correlated to river stage change in the bypassed reach. The rate of generation change will be no less than 300 kW per hour. To determine the correlation between generation changes and the corresponding river stage change in the bypassed reach, PacifiCorp completed a site specific ramping study, as required by license Article 406 and Appendix A, Condition 1(c), August 8, 2017.

As a result of the site specific study, PacifiCorp will develop a ramp rate Standard Operating Procedure (Down-Ramping Plan) that will be filed with the Commission by April 5, 2018 and will be provided in Appendix B of the OCMP[2]. Ramp rates will be reported in kW/h for compliance purposes.

## 3.0 Forebay Flushing

PacifiCorp first attempted to flush the Project forebay the week of June 25, 2017. Prior to this planned flush, PacifiCorp held a forebay flushing coordination conference call with agency stakeholders June 12, 2017. As described in PacifiCorp's July 20, 2017 letter to the Commission, initial flushing of the Project forebay was unsuccessful. On June 29, 2017 PacifiCorp held another conference call with agency stakeholders to notify them that forebay flushing was unsuccessful and requested permission to flush, using alternative methodology, outside of the month of June. The agencies agreed that flushing could occur prior to July 31, 2017 using the alternative schedule and work plan provided by PacifiCorp. Forebay flushing was successfully completed July 24 through 28, 2017.

A Forebay Flushing Report was filed with the Commission and the Oregon Department of Environmental Quality September 1, 2017 and is included as Appendix A to this report.

[2] Commission Order Granting Extension of Time to File Down-Ramping Plan Pursuant to Article 406, dated June 27, 2017, granted an extension of time to April 5, 2018 to comply with Article 406 and submit the Down-Ramping Plan.

## 4.0 Fish Salvage Events

Article 411 of the license calls for a Fish Salvage Plan to be developed within six months of license issuance, PacifiCorp developed the Fish Salvage Plan (PacifiCorp 2017b) in consultation with the agencies and filed it with the Commission April 14, 2017. The plan is implemented during all tailrace dewatering events, as well as immediately after installation of the temporary tailrace barrier, until the permanent tailrace barrier, required by license Article 409 and Appendix A, Condition 2(a), is installed and operational. The 2017 Fish Salvage and Temporary Tailrace Barrier Report is included as Appendix B to this report.

## 5.0 Bull Trout Monitoring and Protection Measures

Article 412 of the license mandates that annually, by March 31, PacifiCorp file a report with the Commission that documents the prior year's bull trout redd monitoring results as required by Appendix C, condition 4(a), of the license, as well as, any bull trout monitoring and protection measures completed during the previous year. At a minimum, the report must include:

1) The results of the fish handling and injury monitoring from removal for in-water construction required by Appendix C, condition 2(g) and (h);
2) The results of the bull trout construction monitoring required by Appendix C, condition 3(a)xi); and
3) The results of the bull trout redd monitoring required by Appendix C, condition 4(a).

In 2017 there were no fish handled for work-site isolation nor was there any upland or in-water construction on the Wallowa Falls Hydroelectric Project, therefore there is nothing to report for topics (1) and (2) above. Per license Article 412 and Appendix C, condition 4(a), the results of bull trout redd monitoring for calendar year 2017 are included as Appendix C to this report.

## 6.0 Noxious Weed Control

Article 415 and Appendix B, condition 6 of the Commission license requires that PacifiCorp file a noxious weed control plan with the Commission within six (6) months of license issuance, PacifiCorp developed the Noxious Weed Control Plan (NWCP [PacifiCorp 2017c]) in consultation with the agencies and filed it with the Commission June 5, 2017. As provided for in Section 3.5 of the NWCP, the 2017 Noxious Weed Control Plan Annual Report is included as Appendix D to this report.

# 5.0 References

Federal Energy Regulatory Commission (FERC). 2017. PacifiCorp Wallowa Falls Hydroelectric License (FERC) Project No. 308. Issued January 5, 2017.

PacifiCorp. 2017a. Operational Compliance Monitoring Plan. Wallowa Falls Hydroelectric Project FERC Project No. P-308. Portland, Oregon.

PacifiCorp. 2017b. Noxious Weed Control Plan. Wallowa Falls Hydroelectric Project FERC Project No. P-308. Portland, Oregon.

PacifiCorp. 2017c. Fish Salvage Plan. Wallowa Falls Hydroelectric Project FERC Project No. P-308. Portland, Oregon.

# Appendix A

# Wallowa Falls Forebay Flushing Report

PACIFICORP

**Pacific Power |**
**Rocky Mountain Power**
825 NE Multnomah, Suite 1500
Portland, OR 97232

Electronically filed September 1, 2017

| | |
|---|---|
| Ms. Kimberly D. Bose, Secretary<br>Federal Energy Regulatory Commission<br>888 First Street, NE<br>Washington, DC 20426 | Mr. John Dadoly<br>Oregon Department of Environmental Quality<br>700 SE Emigrant Ave - Suite 330<br>Pendleton, OR 97801 |

**Subject: Wallowa Falls Hydroelectric Project, FERC No. P-308**
**Forebay Flushing Report, September 2017**

Dear Addressee:

The Federal Energy Regulatory Commission (Commission) issued a new operating license for the Wallowa Falls Hydroelectric Project (Project) January 5, 2017. Annual flushing of the Project forebay is permitted under Appendix A, Condition 5 of the license. On August 2, 2017 the Commission issued an Order Modifying and Approving the Turbidity Monitoring Plan for Forebay Flushing under Appendix B, Condition 10 of the Project license. This letter report satisfies the annual reporting requirement for forebay flushing.

PacifiCorp first attempted to flush the Project forebay the week of June 25, 2017. Prior to this planned flush, PacifiCorp held a forebay flushing coordination conference call with agency stakeholders June 12, 2017. As described in PacifiCorp's July 20, 2017 letter to the Commission, initial flushing of the Project forebay was unsuccessful. On June 29, 2017 PacifiCorp held another conference call with agency stakeholders to notify them that forebay flushing was unsuccessful and requested permission to flush, using alternative methodology, outside of the month of June. The agencies agreed that flushing could occur prior to July 31, 2017 using the alternative schedule and work plan provided by PacifiCorp.

Forebay flushing was successfully completed July 24 through 28, 2017. The final Turbidity Monitoring Plan for Forebay Flushing, dated June 2, 2017, requires that natural inflow to the Project must be greater than or equal to 15 cubic feet per second (cfs) for flushing to occur. On two separate readings, taken July 24 and July 26, 2017, the staff gage immediately below the Wallowa Falls Dam indicated that flows were approximately 44.77 cfs. Assuming that the diversion from Royal Purple Creek was flowing at full capacity (1 cfs), this would indicate natural inflow into the forebay was approximately 43.77 cfs during flushing.

The following narrative provides a summary of dredging and flushing operations and key milestones:

July 24, 2017 – Hydrolab MS5 mini sondes were deployed in the East Fork Wallowa River upstream of the inlet to the Project Forebay and downstream of the Project dam at the compliance gage site. Sondes recorded top of the hour nephelometric turbidity units (NTU) through July 31, 2017. Turbidity data is provided at Attachment 1 to this letter report.

July 24, 2017 – The PacifiCorp fish biologist conducted fish salvage of Project tailrace per the final Fish Salvage plan dated May 2, 2017. The temporary fish passage barrier was also installed at tailrace outlet at that time.

July 24, 2017 – Contractor mobilized equipment and work crew to the Project forebay and closed the penstock intake gate and verified that the low level outlet sluice gate remained closed. The work crew consisted of two divers, one dive tender and three laborers.

July 24, 2017 – Upon delivery of equipment to the forebay, the work crew assembled a six inch dredge hose by connecting 100 foot long sections into a continuous 200 foot long hose that was installed over the dam spillway crest. The assembled dredge hose was secured in multiple places using rope. Approximately 40 feet of the hose was installed upstream of the spillway and the remaining 160 feet was installed over the spillway and continued down the spillway into the bypassed reach of the East Fork Wallowa River (Attachment 2 – Photos 1 and 2).

The siphon dredge hose was primed and started and the crew was able to dredge half-moon shaped areas extending approximately 15 feet upstream of the penstock intake and the low level sluice gates. Divers continued suction dredging at the low level sluice gate area and cleared the gate which was buried in more than four feet of sediment.

July 25, 2017 – Dive crew made a short dive and performed more suction dredging. Diving and dredging work was temporarily suspended and the low level sluice gate was hoisted and opened to the full open position. Material was flushed out through the low level sluice outlet for the remainder of the eight hour shift. The crew worked continuously to move and reconfigure large rocks within the forebay to direct stream flow into different areas of the forebay to facilitate sediment cutting and transport through the low level sluice outlet (Attachment 2 – Photos 3 and 4).

The low level sluice gate was partially closed to reduce the discharge of any sediment, but maintain the minimum flow release at the end of each 8-hour workday.

July 26, 2017 – Although some material was exiting the forebay through gravity flushing, heavy granitic sand continued to be deposited and build up immediately upstream of the low level sluice gate. The low level sluice gate was again closed and a dive crew again suction dredged the area upstream of the penstock intake and low level outlet. The dive crew also used the suction dredge to dredge out several small channels, approximately three feet wide by 10 feet long, upstream of the larger dredged area (Attachment 2 – Photo 5). Dive work was suspended and the low level sluice gate was again hoisted to the full-open position. The combination of the dredged channels through the forebay and the crew continuing to move the current in the forebay using hand placement of large rocks to channel flows, made this period of flushing much more effective.

July 27, 2017 – July 28, 2017 - Continued same procedure of dive crew suction dredging out areas upstream of the intakes, and then opening the low level sluice gate periodically to concentrate material movement down towards that gate. This procedure proved to be the most effective way of moving the heavy granitic material downstream through the forebay and out the low level sluice outlet (Attachment 2 - Photos 6 and 7). All dredging work was completed July 28, 2017.

July 28, 2017 – Biologist walked the entire bypassed reach of the East Fork Wallowa River and visually monitored for stranded, distressed or dead fish. None were observed.

July 31, 2017 - Hydrolab MS5 mini sondes were removed from East Fork Wallowa River upstream and downstream locations.

This letter report and its attachments are being filed electronically. If you have any questions, please contact Briana Weatherly at 503-813-7039.

Sincerely,

Mark Sturtevant

Mark A. Sturtevant
Managing Director, Renewable Resources

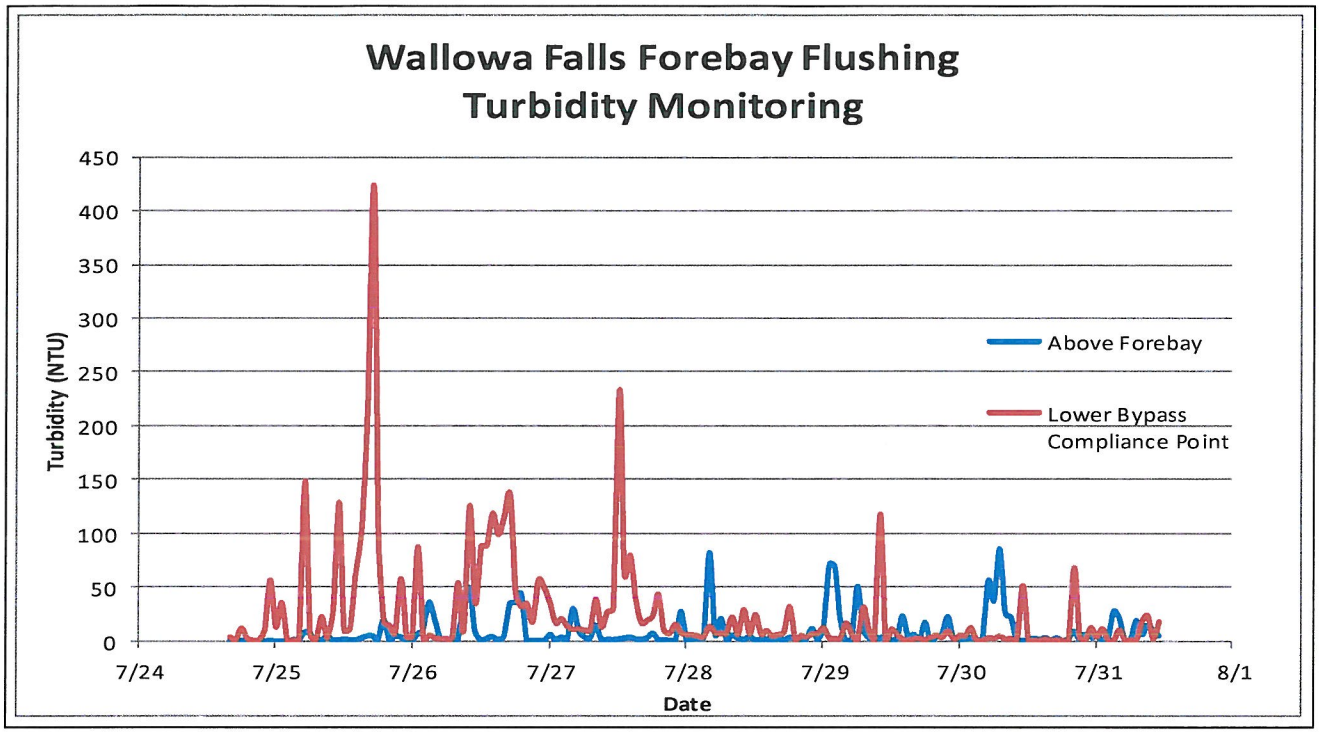
MAS:BW:km

| | |
|---|---|
| **Encl:** | Letter - Public |
| | Attachment 1 – Wallowa Falls 2017 Forebay Flushing Turbidity Data – Public |
| | Attachment 2 – Wallowa Falls 2017 Forebay Flushing Photos - Public |

| | | |
|---|---|---|
| **File:** | Kimberly D. Bose, Secretary<br>Via eLibrary at<br>www.ferc.gov | **eMail**: John Dadoly, ODEQ<br>DADOLY.John@deq.state.or.us |
| **cc:** | Gretchen Sausen, USFWS | **cc:** Dan Gonzalez, USFS |
| **cc:** | Curtis Booher, USFS | **cc:** Elizabeth Moats, ODFW |

Attachment 1

**Attachment 1 - Wallowa Falls Hydroelectric Project**
**2017 Forebay Flushing Turbidity Data**



| | Turbidity (NTU) | |
|---|---|---|
| Date | Above Forebay | Lower Bypass Compliance Point |
| 7/24/2017 16:00 | 0.6 | 2.7 |
| 7/24/2017 17:00 | 0.6 | 0 |
| 7/24/2017 18:00 | 0.6 | 11 |
| 7/24/2017 19:00 | 0.7 | 1.8 |
| 7/24/2017 20:00 | 0.2 | 0 |
| 7/24/2017 21:00 | 0.1 | 0 |
| 7/24/2017 22:00 | 0.1 | 8.9 |
| 7/24/2017 23:00 | 0.2 | 55.9 |
| 7/25/2017 0:00 | 0 | 12.4 |
| 7/25/2017 1:00 | 0.1 | 34.8 |
| 7/25/2017 2:00 | 0.1 | 0 |
| 7/25/2017 3:00 | 1.4 | 0 |
| 7/25/2017 4:00 | 0.8 | 0 |
| 7/25/2017 5:00 | 8.4 | 147.9 |
| 7/25/2017 6:00 | 6.9 | 5 |
| 7/25/2017 7:00 | 0.7 | 0 |
| 7/25/2017 8:00 | 0.9 | 21.6 |
| 7/25/2017 9:00 | 4.5 | 2.5 |
| 7/25/2017 10:00 | 0.9 | 28.6 |
| 7/25/2017 11:00 | 1.2 | 128 |
| 7/25/2017 12:00 | 1.9 | 9 |
| 7/25/2017 13:00 | 1.3 | 10 |
| 7/25/2017 14:00 | 1.2 | 62.9 |
| 7/25/2017 15:00 | 2.7 | 102.6 |
| 7/25/2017 16:00 | 4.8 | 214.9 |
| 7/25/2017 17:00 | 5 | 422 |
| 7/25/2017 18:00 | 1.8 | 96.5 |
| 7/25/2017 19:00 | 20.3 | 17.7 |
| 7/25/2017 20:00 | 1.8 | 13.8 |
| 7/25/2017 21:00 | 4.6 | 6.7 |
| 7/25/2017 22:00 | 3.8 | 57.6 |
| 7/25/2017 23:00 | 0.8 | 3.7 |
| 7/26/2017 0:00 | 0.7 | 3.3 |
| 7/26/2017 1:00 | 6.5 | 87 |
| 7/26/2017 2:00 | 11.3 | 1.3 |
| 7/26/2017 3:00 | 36 | 4.6 |
| 7/26/2017 4:00 | 20 | 2.1 |
| 7/26/2017 5:00 | 1.7 | 1.3 |
| 7/26/2017 6:00 | 1.1 | 1.2 |
| 7/26/2017 7:00 | 2.2 | 2.1 |
| 7/26/2017 8:00 | 0.9 | 53.4 |
| 7/26/2017 9:00 | 37.1 | 8.9 |
| 7/26/2017 10:00 | 49 | 125 |
| 7/26/2017 11:00 | 8.6 | 34.5 |
| 7/26/2017 12:00 | 1.2 | 87 |
| 7/26/2017 13:00 | 2.5 | 87.9 |
| 7/26/2017 14:00 | 4.2 | 117.8 |

| | Turbidity (NTU) | |
|---|---|---|
| Date | Above Forebay | Lower Bypass Compliance Point |
| 7/26/2017 15:00 | 1.5 | 98.1 |
| 7/26/2017 16:00 | 4.2 | 114.7 |
| 7/26/2017 17:00 | 34.3 | 135.1 |
| 7/26/2017 18:00 | 36 | 43.5 |
| 7/26/2017 19:00 | 43.9 | 31.3 |
| 7/26/2017 20:00 | 1 | 33.8 |
| 7/26/2017 21:00 | 0.7 | 17.1 |
| 7/26/2017 22:00 | 0.7 | 56 |
| 7/26/2017 23:00 | 0.7 | 47.8 |
| 7/27/2017 0:00 | 6.3 | 33.9 |
| 7/27/2017 1:00 | 1.3 | 16.1 |
| 7/27/2017 2:00 | 3.9 | 19.8 |
| 7/27/2017 3:00 | 1.4 | 13.1 |
| 7/27/2017 4:00 | 29.8 | 10.1 |
| 7/27/2017 5:00 | 9.6 | 10.6 |
| 7/27/2017 6:00 | 4 | 9.3 |
| 7/27/2017 7:00 | 2.6 | 9.2 |
| 7/27/2017 8:00 | 15 | 38.1 |
| 7/27/2017 9:00 | 1.4 | 12.1 |
| 7/27/2017 10:00 | 1.8 | 26.6 |
| 7/27/2017 11:00 | 1.5 | 29.3 |
| 7/27/2017 12:00 | 2 | 233 |
| 7/27/2017 13:00 | 3 | 60.6 |
| 7/27/2017 14:00 | 3.7 | 79.1 |
| 7/27/2017 15:00 | 2 | 37.5 |
| 7/27/2017 16:00 | 1.8 | 16.1 |
| 7/27/2017 17:00 | 3 | 18.6 |
| 7/27/2017 18:00 | 7.5 | 22.6 |
| 7/27/2017 19:00 | 1.5 | 43 |
| 7/27/2017 20:00 | 1.2 | 9.5 |
| 7/27/2017 21:00 | 1 | 6.2 |
| 7/27/2017 22:00 | 0.7 | 15 |
| 7/27/2017 23:00 | 27.5 | 6.8 |
| 7/28/2017 0:00 | 1 | 5.4 |
| 7/28/2017 1:00 | 2.1 | 5.1 |
| 7/28/2017 2:00 | 2.8 | 4.2 |
| 7/28/2017 3:00 | 3.4 | 3.3 |
| 7/28/2017 4:00 | 82 | 12.7 |
| 7/28/2017 5:00 | 6.7 | 6.8 |
| 7/28/2017 6:00 | 21 | 6.6 |
| 7/28/2017 7:00 | 1.8 | 6.8 |
| 7/28/2017 8:00 | 5.7 | 21.5 |
| 7/28/2017 9:00 | 3 | 5.7 |
| 7/28/2017 10:00 | 1.8 | 28.3 |
| 7/28/2017 11:00 | 4.2 | 6 |
| 7/28/2017 12:00 | 1.3 | 23.9 |
| 7/28/2017 13:00 | 2 | 5.8 |

| | Turbidity (NTU) | |
|---|---|---|
| Date | Above Forebay | Lower Bypass Compliance Point |
| 7/28/2017 14:00 | 2 | 8.8 |
| 7/28/2017 15:00 | 1.5 | 3.8 |
| 7/28/2017 16:00 | 2.4 | 5.5 |
| 7/28/2017 17:00 | 1.3 | 7.3 |
| 7/28/2017 18:00 | 3.5 | 31.2 |
| 7/28/2017 19:00 | 2.5 | 0.7 |
| 7/28/2017 20:00 | 1.7 | 4.2 |
| 7/28/2017 21:00 | 2.2 | 3.3 |
| 7/28/2017 22:00 | 12 | 5.7 |
| 7/28/2017 23:00 | 1.4 | 6.5 |
| 7/29/2017 0:00 | 13.7 | 11.5 |
| 7/29/2017 1:00 | 71.1 | 2.2 |
| 7/29/2017 2:00 | 69.1 | 1.6 |
| 7/29/2017 3:00 | 20 | 2.4 |
| 7/29/2017 4:00 | 0.3 | 15.8 |
| 7/29/2017 5:00 | 2.4 | 5.8 |
| 7/29/2017 6:00 | 51.1 | 0.7 |
| 7/29/2017 7:00 | 10.8 | 30.6 |
| 7/29/2017 8:00 | 3.3 | 10 |
| 7/29/2017 9:00 | 4.4 | 1.1 |
| 7/29/2017 10:00 | 3 | 117.4 |
| 7/29/2017 11:00 | 5.3 | 0 |
| 7/29/2017 12:00 | 0.8 | 10.1 |
| 7/29/2017 13:00 | 3 | 5.1 |
| 7/29/2017 14:00 | 23.3 | 1.2 |
| 7/29/2017 15:00 | 4 | 0.1 |
| 7/29/2017 16:00 | 6.4 | 1.3 |
| 7/29/2017 17:00 | 1.4 | 1.6 |
| 7/29/2017 18:00 | 17.5 | 0.5 |
| 7/29/2017 19:00 | 0.9 | 2.6 |
| 7/29/2017 20:00 | 3.9 | 4.6 |
| 7/29/2017 21:00 | 6 | 2.8 |
| 7/29/2017 22:00 | 22.5 | 8.4 |
| 7/29/2017 23:00 | 0.8 | 0.8 |
| 7/30/2017 0:00 | 1 | 4.4 |
| 7/30/2017 1:00 | 2.4 | 4.1 |
| 7/30/2017 2:00 | 3.2 | 11.7 |
| 7/30/2017 3:00 | 2 | 0.2 |
| 7/30/2017 4:00 | 1.1 | 0 |
| 7/30/2017 5:00 | 55.7 | 2.1 |
| 7/30/2017 6:00 | 37.6 | 1.9 |
| 7/30/2017 7:00 | 85.5 | 3.8 |
| 7/30/2017 8:00 | 25.9 | 1.1 |
| 7/30/2017 9:00 | 22.3 | 1.6 |
| 7/30/2017 10:00 | 0.6 | 0 |
| 7/30/2017 11:00 | 1 | 50.8 |
| 7/30/2017 12:00 | 1.5 | 0 |

| | Turbidity (NTU) | |
|---|---|---|
| Date | Above Forebay | Lower Bypass Compliance Point |
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| 7/30/2017 14:00 | 1.5 | 0 |
| 7/30/2017 15:00 | 3.3 | 1.3 |
| 7/30/2017 16:00 | 1.3 | 0 |
| 7/30/2017 17:00 | 3 | 0.4 |
| 7/30/2017 18:00 | 0.9 | 0.1 |
| 7/30/2017 19:00 | 2.2 | 0.2 |
| 7/30/2017 20:00 | 9.1 | 67.5 |
| 7/30/2017 21:00 | 1.9 | 3.3 |
| 7/30/2017 22:00 | 6.6 | 0 |
| 7/30/2017 23:00 | 3.6 | 11.5 |
| 7/31/2017 0:00 | 4.1 | 2.9 |
| 7/31/2017 1:00 | 1.9 | 10.8 |
| 7/31/2017 2:00 | 2.7 | 0 |
| 7/31/2017 3:00 | 27.5 | 0 |
| 7/31/2017 4:00 | 21.6 | 9.5 |
| 7/31/2017 5:00 | 1.1 | 0 |
| 7/31/2017 6:00 | 1.8 | 0.7 |
| 7/31/2017 7:00 | 19 | 0 |
| 7/31/2017 8:00 | 5.9 | 17.6 |
| 7/31/2017 9:00 | 15.6 | 22.7 |
| 7/31/2017 10:00 | 10 | 1.5 |
| 7/31/2017 11:00 | 5 | 17 |

Attachment 2

Attachment 2: Wallowa Falls 2017 Forebay Flushing Photos

Photo 1 – Dredge hose installed over spillway

Photo 2 – Dredge hose upstream of penstock intake

Photo 3 – Crew working to direct stream flow for sediment transport

Photo 4 – Stream flow through forebay redirected using rocks in forebay

Photo 5 – Channels dredged out to increase sediment transport out of forebay

Photo 6 –Forebay after dredging and flushing operation

Photo 7 – Penstock intake and low level outlet trash rack after dredging and flushing operation

# Appendix B

# Fish Salvage & Temporary Tailrace Barrier Report

# Draft

# Fish Salvage & Temporary Tailrace Barrier Report for the Wallowa Falls Hydroelectric Project Tailrace

# (FERC No. P-308)

## November, 2017


***Prepared by:***
Jeremiah Doyle
PacifiCorp
825 NE Multnomah Street
Portland, OR 97232

## Table of Contents

## 1.0 INTRODUCTION

The Federal Energy Regulatory Commission (FERC) issued a new operating license for the Wallowa Falls Hydroelectric Project (Project) January 5, 2017. Elements of the new license address fishery resources within the Project area, specifically as they pertain to the Project tailrace. **Article 411** of the license calls for a *Fish Salvage Plan* to be developed within six months of license issuance, "*the licensee must file for Commission approval a fish salvage plan that describes its proposed procedures for capturing, handling, and relocating any fish trapped in the tailrace channel during planned or unplanned unit outage events that dewater the tailrace channel. The fish salvage plan must be implemented each year following license issuance until the permanent tailrace barrier required by Appendix A condition 2(a) and Article 409 is installed and operating. In addition to the handling procedures specified by Appendix C, condition 2, the plan must include the following provisions: (1) Salvaging of fish from the tailrace channel within two hours of the installation of any temporary fish passage barrier required by Appendix A, condition 2(b); and (2) Salvaging of fish from the tailrace channel prior to complete dewatering of the tailrace channel due to a planned or unplanned outage event*."

Resident and migratory fish species currently inhabit the tailrace channel at varying densities, depending on time of year. Fish species encountered to date consist of rainbow trout (*Oncorhynchus mykiss*), bull trout (*Salvelinus confluentus*), brook trout (*Salvelinus fontinalis*), mountain whitefish (*Prosopium williamsoni*), kokanee (*Oncorhynchus nerka*), and *cottid ssp*. Infrequent unplanned unit trips with subsequent headgate closures, as well as an annually occurring planned plant outage for maintenance and annual installation of a temporary tailrace fish barrier, all cause the Project tailrace to be dewatered for a length of time great enough to drain the entire reach. During plant outages lasting longer than one hour in duration it is necessary to physically remove, or salvage, fish currently residing therein.

This Report and the information contained within fulfill Plan implementation reporting requirements of Article 411 of the FERC license as well as actions necessary to protect and preserve fishery resources within the Project area.

## 2.0 STUDY 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 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) deep. Because the Project operates as run of river, there is no measurable storage. Though no measurable storage is present in the forebay, habitat in this area is lacustrine, and given the shallow water depth no thermal stratification is present. 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. This channel has an average wetted-width of 10 feet (3.1 m) and an average depth of one foot (0.3 m). The habitat type within the tailrace channel is dominated by high gradient riffle with very few pools.

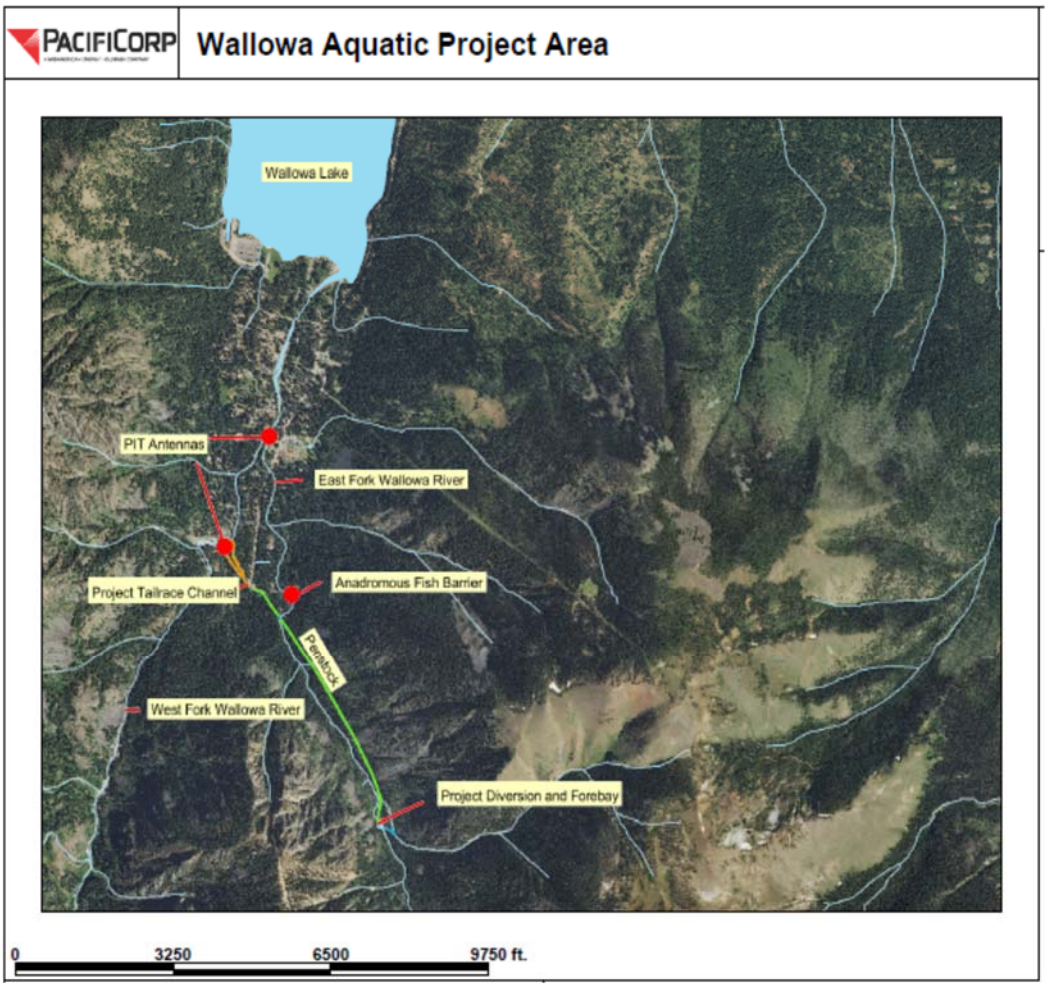


**Figure 1 Wallowa Falls Hydroelectric Project.**

## 3.0 METHODS

Onsite observations indicate when the unit trips and the headgate closes it takes approximately 90 minutes for the entire tailrace channel to drain completely of water. Conversely, if the unit trips and the headgate does not close a constant flow of approximately 3 cubic feet per second (cfs) is supplied to the tailrace channel. Thus a fish salvage event is only triggered if the unit trips along with a subsequent headgate closure. Unit trips that do not cause the headgate to close shall trigger no salvage response as the amount of water available within the tailrace channel during this scenario is sufficient for fish survival until the unit is brought back online and full flow once again commences.

Upon notification of a unit trip with corresponding headgate closure, regardless of time of day, a local on-call qualified biologist shall be immediately notified by an operator at Merwin Hydro Control and shall commence with physically rescuing stranded fish from the tailrace channel. The local qualified biologist shall live in such close proximity to the Project so as to be on-site and walking the tailrace channel within 60 minutes of the unplanned unit trip. A Smith-Root LR-24 (or similar model) backpack electrofisher or long-handled dip net shall be utilized to capture stranded fish. If a backpack electrofisher is utilized, it will be set to Direct Current (DC) and applied at the lowest voltage setting possible to still allow capture of stranded fish species. All electrofishing activities will follow protocols as set forth in the National Marine Fisheries Service Backpack Electrofishing Guidelines (NMFS 2000). To remain compliant with stipulations contained within USFWS issued Biological Opinion (BiOp) for the Wallowa Falls Hydroelectric Facility, PacifiCorp shall ensure that fish capture and removal operations are conducted by a qualified biologist, and that all staff participating in the operation have the necessary knowledge, skills, and abilities to ensure safe handling of fish. All planned unit outages with headgate closure will also occur early in the morning to ensure the lowest possible water temperatures for safe fish handling.

In 2017, any and all salvage activities began in the fenced area immediately downstream of the turbine discharge and proceeded in a downstream manner until all areas of the tailrace were thoroughly fished. All captured fish were held in five gallon buckets or small coolers with aerators until liberation into the West Fork Wallowa River downstream of the Project tailrace confluence. Fish capture and removal operations took all appropriate steps to minimize the amount and duration of handling. The operations maintained captured fish in water to the maximum extent possible during seining/netting, handling, and transfer for release, to prevent and minimize stress.

Prior to liberation, all captured fish were quantified and measured to their caudal fork. Due to the presence and possible capture of Endangered Species Act listed bull trout in the Project area, recording of information following contact with said species complied with stipulations contained within the USFWS issued the BiOp for this Project which states, “PacifiCorp shall document all bull trout encountered during work site isolation by submitting a fish handling and injury-occurrence report to the Service. The report shall include: 1) the name and address of the supervisory fish biologist; 2) methods used to isolate the work area and minimize disturbances to bull trout; 3) stream conditions before and following placement and removal of temporary barriers; 4) the means of fish removal; 5) approximate the number of fish removed by species and age class, the number of bull trout removed; 6) condition of all bull trout released; and 7) any incidence of observed injury or mortality to bull trout. Specifically, for all bull trout captured, we ask that the

fisheries biologist in charge of handling record the date and time, capture location, capture method used, length and weight of the specimen, condition (if abnormal), search for and record identification numbers from any tags that may be present, and provide the collector's name."

Also in 2017, a resistance type weir was constructed to serve as a temporary fish exclusionary device at the outlet of the tailrace channel and it's confluence with the West Fork Wallowa River. The resistance weir utilized 25.4 millimeter (mm) diameter polyvinyl chloride (PVC) set to a length of 2.4 meters (m) and spaced apart 6.35 mm by mechanically constructed stringers, the weir was stream-spanning (Figure 2). As extra precaution, a barrier net was also laid across the entire bottom of the upstream side of the weir. The openings of this barrier net were also 6.35 mm and the net was held in place by large sandbags placed end to end along the stream bottom and spanning the entire stream-width.


**Figure 2**

## 4.0 RESULTS

### Fish Salvage

The Wallowa Falls Tailrace Channel was salvaged for aquatic species twice in 2017. Once on June 26, 2017 due to annual maintenance of the hydroelectric unit and subsequent dewatering of the tailrace channel, and again August 24, 2017 after the temporary tailrace barrier was installed per Article 411 (1) of the operating license which stipulates that a fish salvage will be performed within two hours of a fish exclusionary device being installed within the channel.

In all, nine rainbow trout (*Oncorhynchus mykiss*) and one brook trout (*Salvelinus fontinalis*) ranging in fork lengths from 95 mm to 250 mm were captured within the tailrace channel. Of these ten captures, all were liberated to the West Fork Wallowa River (Table 1). All fish were captured by a Smith-Root model LR-24 backpack electrofisher set to straight direct current in order to minimize stress from initial capture and all protocols as set forth in the NOAA Electrofishing Guidelines Manual were followed.

**Table 1**

| Date | Species | Fork Length (mm) | Location | Comments |
|---|---|---|---|---|
| 6/26/17 | RB | 95 | Tailrace | Salvage due to de-water for annual maintenance |
| 6/26/17 | RB | 110 | Tailrace | Salvage due to de-water for annual maintenance |
| 6/26/17 | RB | 99 | Tailrace | Salvage due to de-water for annual maintenance |
| 6/26/17 | RB | 150 | Tailrace | Salvage due to de-water for annual maintenance |
| 6/26/17 | RB | 122 | Tailrace | Salvage due to de-water for annual maintenance |
| 7/24/17 | RB | 110 | Tailrace | Salvage after temp. tailrace barrier construction |
| 7/24/17 | RB | 120 | Tailrace | Salvage after temp. tailrace barrier construction |
| 7/24/17 | RB | 115 | Tailrace | Salvage after temp. tailrace barrier construction |
| 7/24/17 | RB | 250 | Tailrace | Salvage after temp. tailrace barrier construction |
| 7/24/17 | BRKT | 200 | Tailrace | Salvage after temp. tailrace barrier construction |

### Temporary Fish Barrier

Per Article 410 of the operating license, a temporary fish barrier was installed at the outlet of the Wallowa Falls Tailrace Channel July 24, 2017. This tailrace fish barrier was visually inspected twice per week until taken out November 15, 2017. At no time during weekly inspections was the barrier visually assessed to be ineffective in precluding fish from entering the tailrace (Appendix A).

## 5.0 CITATIONS

National Marine Fisheries Service. 2000. National Marine Fisheries Service Backpack Electrofishing Guidelines.

United States Fish and Wildlife Service. 2016. Biological Opinion for the Wallowa Falls Hydroelectric Project.

## APPENDIX A

## TAILRACE BARRIER WEEKLY INSPECTION NOTES

| Date | Observer | Comments |
|---|---|---|
| 7/24/2017 | J. Doyle | Weir completed and installed |
| 7/28/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 7/31/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 8/3/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 8/7/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 8/10/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 8/14/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 8/17/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 8/21/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 8/24/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 8/28/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 8/31/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 9/4/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 9/7/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 9/11/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 9/14/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 9/18/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 9/21/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 9/25/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 9/28/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| **Date** | **Observer** | **Comments** |

| | | |
|---|---|---|
| 10/2/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 10/5/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 10/9/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 10/12/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 10/16/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 10/19/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 10/23/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 10/26/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. Kokanee observed below weir in West Fork. |
| 10/30/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. |
| 11/2/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. |
| 11/6/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. |
| 11/9/2017 | Bioresources staff | Weir in place, mechanically cleaned with push broom and working well. |
| 11/15/2017 | Bioresources staff | Weir disassembled and taken out of tailrace channel. |

## APPENDIX B

## AGENCY COMMENTS

| AGENCY | COMMENT | UTILITY RESPONSE |
|---|---|---|
| | | |
| | | |
| | | |

# Appendix C

# Bull Trout Redd Monitoring Report

# 2017 Draft Bull Trout Redd Monitoring Report

Wallowa Falls Hydroelectric Project

FERC Project No. 308

**East Fork Wallowa River barrier to upstream fish migration, photo courtesy of Kendrick Moholt**

***Prepared by:***
***Jeremiah Doyle***

PACIFICORP

November 2017

## Table of Contents

## 1.0 INTRODUCTION

The United States Fish and Wildlife Service (USFWS) issued a new Biological Opinion (BiOp) for the Wallowa Falls Hydroelectric Project (Project) October 14, 2016. Monitoring elements within the new BiOp specifically pertaining to Endangered Species Act (ESA) listed bull trout (*Salvelinus confluentus)* were triggered when the Federal Energy Regulatory Commission (FERC) issued a new operating license for the Project January 7, 2017.

The USFWS listed five reasonable and prudent measures (RPM) to be undertaken in order to minimize incidental take of bull trout by Project operations. Elements within this Plan pertain specifically to RPM 4 which seeks to "*minimize the risk of adverse effects to bull trout from emergency shut-down and ramping"*. Section 8.4 4(a) of the BiOp adds specific language and actions to be taken in order to achieve RPM 4.

Resident and migratory bull trout currently inhabit the East Fork Wallowa River (Study Area) at varying densities, depending on time of year. Past redd surveys of the Study Area have revealed bull trout actively constructing redds, while no bull trout redds have ever been observed within the neighboring West Fork.

This Report and the information contained therein fulfills reporting requirements per Section 8.4 4(a) of the USFWS issued BiOp as well as results pertinent to implementation of actions necessary to assess abundance and spatial distribution of bull trout redds within the East Fork Wallowa River.

## 2.0 STUDY AREA

The bypassed portion of the East Fork Wallowa River within and near the Project area is approximately 2,800 meters (m) long from the Project diversion dam to its confluence with the Wallowa River. Gradient in this reach is high, with the upper 1,600 m averaging 19 percent and the lower 1,200 m averaging 8.5 percent. Channel morphology within most of the upper reach is dominated mainly by steep bedrock, vertical waterfalls, and cascades over boulders; though the upper reaches are steep, the lower 800 m to the confluence with the Wallowa River has a shallower gradient, consisting of numerous riffles and pools. Over the course of its length, the bypassed East Fork Wallowa River drops approximately 365 m from the dam to the confluence with the Wallowa River. The upper and lower portions are divided by a 3.7 m vertical falls (Report cover photo), an impassible upstream migration fish barrier.

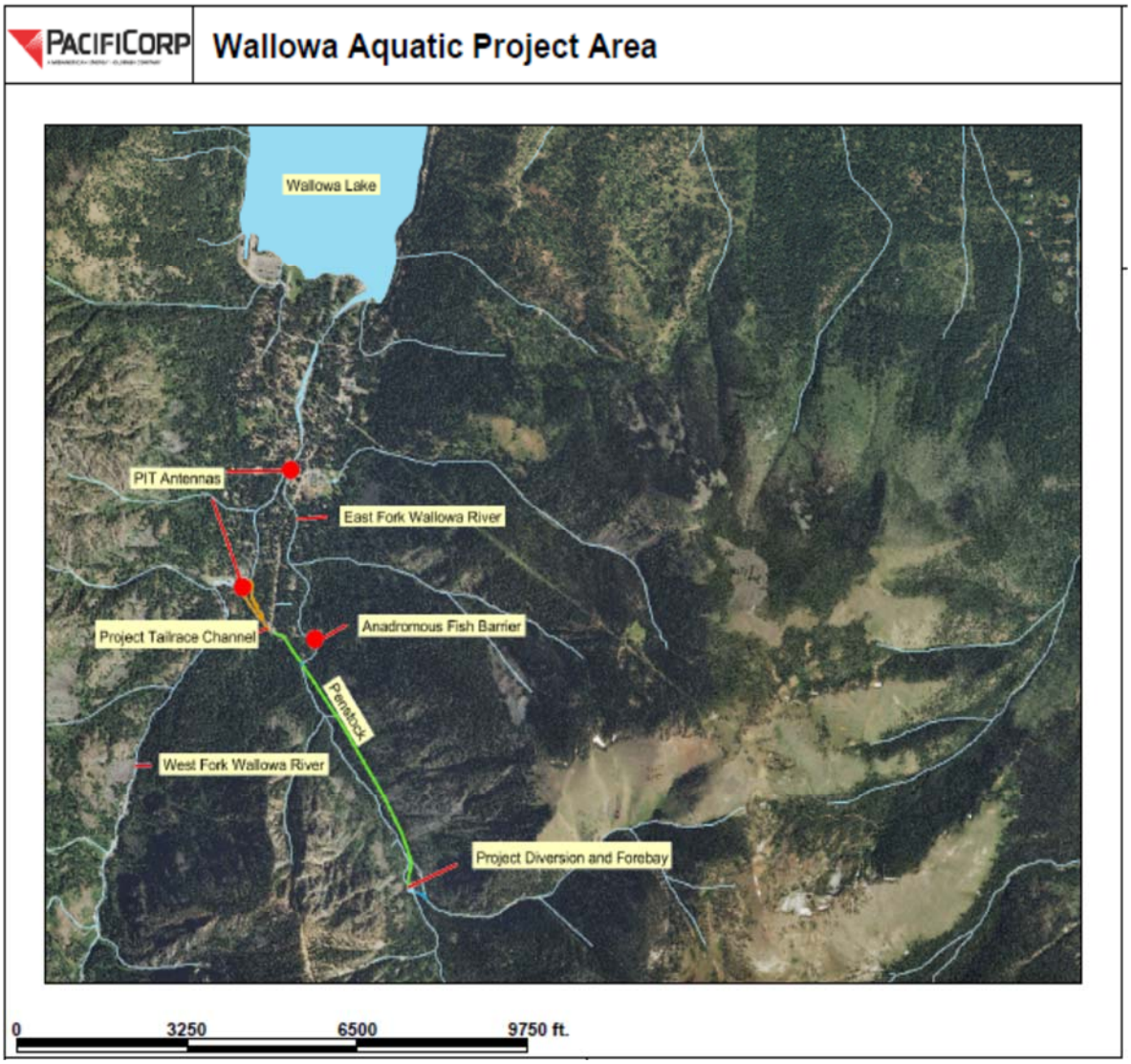


**Figure 2. Wallowa Falls Hydroelectric Project.**

## 3.0 METHODS

Section 8.4 4(a) of the BiOp states the following terms and conditions are necessary for the implementation of RPM 4, "*Conduct bull trout redd monitoring in the East Fork Wallowa River (from the upstream falls to the confluence with the Wallowa River) on an annual basis for 10 years to monitor take. FERC/PacifiCorp shall meet with the Service at the end of the 10 year period to determine whether additional years of redd monitoring are necessary GPS and map redds and photo document redds during survey. Measure the size of a redd and its location. Document bull trout observed (<6 inches in length, < 12 inches in length, <14 inches in length, and > 14 inches in length, while conducting redd count and document if bull trout occupy the redd). Note if brook trout are spawning with bull trout. Document flows during annual redd counts and during a shutdown and ramping. Conduct this redd monitoring in mid-September and October. If an emergency shutdown and ramping occurs during the spawning season, the East Fork Wallowa River spawning area will be field visited for any new redds built near the water's edge that could be dewatered due to shut down and ramping. Notify the Service of both positive and negative findings".*

Bull trout redd surveys of the lower portion of the East Fork Wallowa River began September 12, 2017 and continued weekly through November 1, 2017 for a total of nine redd surveys. During each survey the entire lower portion of the East Fork Wallowa River was walked by an experienced qualified biologist, from the confluence with the West Fork Wallowa River upstream 800 m to the migratory fish barrier. In order to standardize inherent observer error, the same experienced surveyor was utilized for all nine surveys in 2017. All encountered bull trout redds were demarcated by handheld GPS, flagged for visual reference within the stream, and photographs were taken of each redd. During subsequent surveys, previously identified redds were revisited and assessed for visibility. Flagging was either marked Still Visible along with the survey date if redd could still be visually identified, or the flagging taken down if the redd was no longer visible. Time taken for redd to no longer remain visible within the stream was recorded in order to assess redd life. Though the Planning document called for only four redd surveys during the spawning period, this being the first year of study and redd life being unknown, nine surveys were performed in order to gain an accurate understanding of visual redd persistence within this watershed. 2017 observed redd life will be utilized to adjust frequency of surveys moving forward.

All fish observed in the vicinity of identified redds were recorded to species if possible, as well as estimated for fork length.

Per Section 1(c) of the Oregon Department of Environmental Quality issued 401 Water Quality Permit, no planned Project ramping events shall be initiated from September 1 – October 31. In the event an unplanned emergency shutdown does occur that causes the headgate to close during the bull trout spawn timeframe, a redd survey will be triggered and performed prior to the Project being brought back online in order to document any bull trout redds that may have been constructed high on the margin during the shutdown. Redds constructed on the margin during the Project shutdown could subsequently become dewatered when the Project is brought back online and minimum instream flows are once again restored. Redds identified high on the margin during this

emergency shutdown triggered survey will be revisited after the Project is brought back online to verify if redd desiccation indeed occurred.

## 4.0 RESULTS

Three bull trout redds were identified and marked by GPS during the nine redd surveys performed of the East Fork Wallowa River in 2017 (Figure 1). All three bull trout redds were large and indicative of being constructed by large migratory-sized fish. Two of the three redds were identified during the very first survey on September 12. Both of these redds had a single bull trout in very near proximity. Four other bull trout lives were also observed during the September 12 survey, all six observed live bull trout were estimated to range in fork length between 350 millimeters - 600 millimeters (Figure 2 and Figure 3). The third redd was identified on September 25 and was found to also have a pair of bull trout actively over the top and in the process of constructing the redd, these fish were estimated to have been ~400 millimeters in fork length. An additional bull trout live was observed during a survey on October 2 and was estimated to have been ~350 millimeters in fork length. No other bull trout redds or lives were observed during the study period.


**Figure 1 – Courtesy of E. Lesko**

All three bull trout redds were in the upper portion of available habitat below the barrier, with the uppermost redd ~20 meters below the impassible falls. Redd 1 visually persisted for 20 days, while redd 2 and redd 3 both persisted for 13 and 10 days, respectively. The average time redds in 2017 were found to still be visually distinguishable within the stream was 14 days.

**Figure 2**

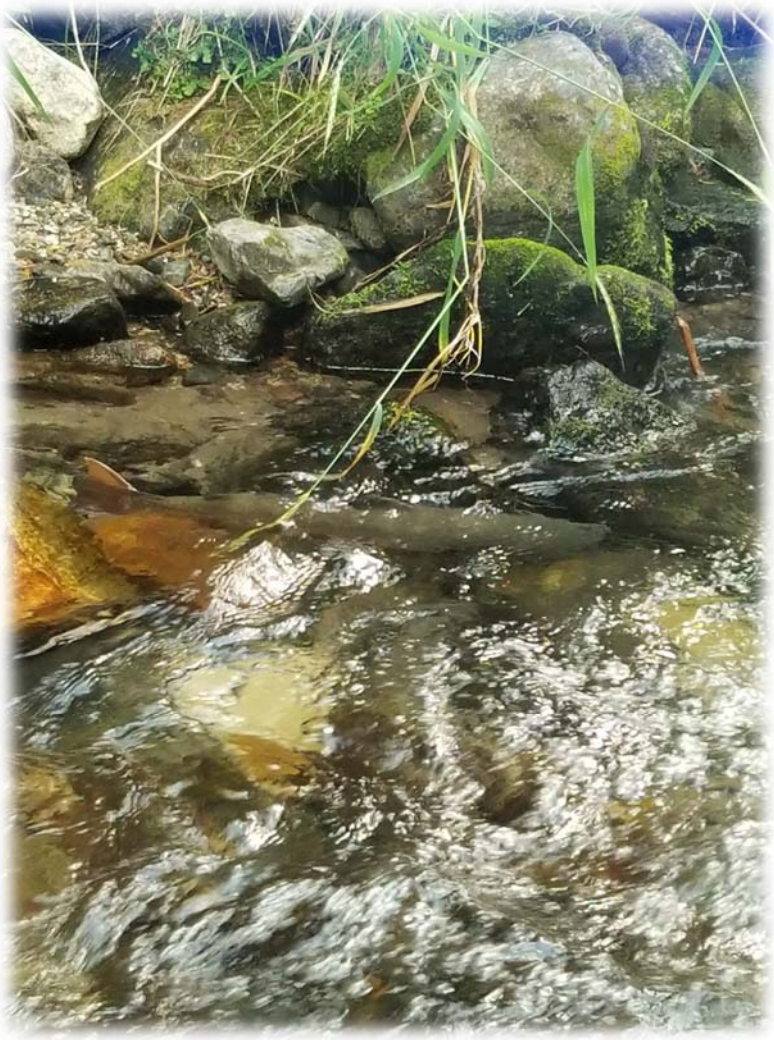

**Figure 3**

An emergency shutdown of the Project unit occurred September 15, 2017 due to a trip of the unit, the outage remained until November 1, 2017. Details concerning operational aspects of the outage can be found in the Outage Report located in Appendix A. This Outage Report was submitted to pertinent Agency representatives October 9, 2017. This unit trip did not cause the headgate to close so subsequently the tailrace channel was not dewatered but maintained a constant three cubic feet per second (cfs) of discharge. With the unit not in operation, higher than normal flow conditions persisted within the East Fork Wallowa River throughout the bull trout spawn timeframe.

On November 1, 2017, per Section 8.4 4(a) of the BiOp, a redd survey was performed before the unit was turned back on and water diverted from the East Fork Wallowa River. Previously identified redds were revisited and the redd assessed to be most readily impacted by receding flows was identified. A biologist was stationed at this redd with a two-way radio so as to be in contact with an operator at the Wallowa Falls powerhouse as the unit was slowly brought back online. The unit was stepped up in 400 kilowatt increments and time was allowed between step changes for the change in water flow to take effect in the East Fork Wallowa. The biologist on-site at the

bull trout redd was in constant communication with the hydro operator during the entire unit ramp up procedure. Water level over the redd pocket as the unit was brought fully back online decreased, but at no time did the redd become dessicated.

## 5.0 CITATIONS

Oregon Department of Environmental Quality. 2016. 401 Water Quality Certification for the Wallowa Falls Hydroelectric Project.

United States Fish and Wildlife Service. 2016. Biological Opinion for the Wallowa Falls Hydroelectric Project.

## APPENDIX A

## UNIT OUTAGE REPORT

PACIFICORP
A BERKSHIRE HATHAWAY ENERGY COMPANY

825 NE Multnomah St., Ste. 1500
Portland, OR. 97232

## Event Notification – Wallowa Falls Hydroelectric Project (FERC NO. 308)

**Reporting Date:** October 9, 2017
**Reported By : Russ Howison**

**Contacts:**
Roger Reynolds (Hydrologist): 503-813-6631, roger.reynolds@pacificorp.com
Russ Howison (Project Manager): 503-813-6626, russ.howison@pacificorp.com
Briana Weatherly (Compliance Manager): 503-813-7039, Briana Weatherlybriana.weatherly@pacficorp.com

**External Distribution List:**

| | | |
|---|---|---|
| John Dadoly, ODEQ | Elizabeth Osier Moats, ODFW | Gretchen Sausen, USFWS |
| Mary Grainey, OWRD | Erich Gaedeke, FERC | Dan Gonzalez, USDA-FS |

**Summary of Events**

| Date | Location* | Type | Cause† | No. Events | Duration (hr) | License Requirement | Observation ** (ΔkW/hr *or* Minimum Flow (cfs)) |
|---|---|---|---|---|---|---|---|
| 9/15/17 | Wallowa | Unplanned Outage | 8 | 1 | 21 days | NA | |

**†The following codes represent the cause of an event:**

1: Natural Flows, rapid flow changes upstream, or woody debris removal
2: Electrical fault causes unit outage or otherwise compromises generation/project control
3: Emergency shutdowns
4: System Test
5: Environmental noise (applies to minor, apparent exceedances attributed to the limits of stream gage resolution)
6: In-stream flow rating equation change and implementation
7: Loss of signal from compliance flow equipment
8: Equipment malfunction (applies to equipment malfunctions or computer system software/hardware malfunctions)

****Observation describes greatest magnitude of a single event, or the magnitude range of multiple events. Date, time, and magnitude of observations are based on provisional, real-time data and are subject to change in the final water year report following download of on-site data.**

**Remarks**

**Event Description & Corrective Actions:**
The Wallowa Falls (Project) generating unit tripped offline due to a line disturbance on September 15, 2017. The penstock intake headgate remained open and the tailrace was not dewatered during the event. For unknown reasons, the generating plant's Programmable Logic Controller (PLC) lost both primary and back-up power during the event, resulting in a memory wipe of the PLCs operating schema for the plant. The hydraulic system that actuates the generator needle valve and deflector plate also currently has an oil leak and is not fully functional. As a result, the unit cannot be restarted until the PLC is reprogrammed and the hydraulic flow control system is repaired. An Operations crew and Electrical Controls Engineer are scheduled to travel to the Project the week of October 9, 2017 to re-program the PLC. Repair of the hydraulic generation flow control system is tentatively scheduled to occur the week ending October 27, 2017 after which the generator can be re-started. Although the ramp rate restrictions prescribed under FERC License Appendix A, Condition 1c) are not in effect until July 5, 2018, PacifiCorp is providing this Event Notification as a courtesy.

Since the unit trip on September 15, 2017, water has continued to be discharged through the impulse nozzle, past the deflector plate, into the tailrace channel. The temporary fish barrier has also been in place in the tailrace channel for the duration of this event period. When bringing the generating unit back on-line PacifiCorp will step –up generation at no more than 400 killowatts (kW)/hour (the rate at which the onsite ramping study indicates bypass reach stage change is less than 0.1 foot/hour). In addition, to protect aquatic resources including bull trout redds, a biologist will monitor the

water level at the recorded redd locations to assure that flow is adequate to protect redds. As necessary, PacifiCorp will open the low level outlet gate at the dam to provide adequate flow to protect redds in the bypassed reach.

**Environmental Impacts:**

With the generating unit offline all natural inflow, with the exception of approximately 3 cfs that is being diverted down the penstock, is spilling over the Wallowa Falls diversion dam into the bypassed reach of the East Fork Wallowa River. This has resulted in increased flows in the bypassed reach during the bull trout spawning period.

The East Fork Wallowa River has been surveyed for bull trout redds weekly since September 12, 2017 for a total of four occurrences. During each survey a biologist walks from the confluence of the East Fork/West Fork Wallowa River upstream to the migratory fish barrier, a total of ~900 meters. To date, three bull trout redds and nine large migratory live bull trout have been observed over the course of the four surveys. All three redds have been observed to be located in tail-outs of step pools, in close proximity to the center of the thalweg, in the upper ~400 meters of the accessible reach. Three more surveys are scheduled to be completed before the end of the bull trout spawning season.

As discussed above, when brought back online, the unit will be ramped up using 400 kW/hr steps. A biologist will monitor water levels over the recorded redds to ensure that there is sufficient water over redds to protect eggs during each generation step up. As warranted, the low level sluice outlet gate will be raised to provide adequate water in the bypassed reach to protect redds until fry emergence in the spring.

**Attachments:**

## APPENDIX B

## AGENCY COMMENTS

| AGENCY | COMMENT | UTILITY RESPONSE |
|---|---|---|
| | | |
| | | |
| | | |

# Appendix D

# Noxious Weed Control Plan Annual Report

# 2017 Noxious Weed Control Plan Annual Report

Wallowa Falls Hydroelectric Project

FERC Project No. 308

***Prepared by:***

PACIFICORP

December 2017

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## FIGURES



## TABLES



## APPENDICES

# 1.0 Introduction

The Wallowa Falls Hydroelectric Project (FERC Project No. 308) received a new operating license from the Federal Energy Regulatory Commission (Commission) on January 5, 2017 (FERC 2017). Article 415 of the FERC license required PacifiCorp to file a noxious weed control plan (NWCP) with FERC within 6 month from the date of the license issuance (July 5, 2017):

> Article 415. *Noxious Weed Control Plan*. The revised Noxious Weed Control Plan required by Appendix B, condition 6, must be developed after consultation with the Oregon Department of Fish and Wildlife and U.S. Fish and Wildlife Service. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.
>
> The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

The United States Department of Agriculture (USDA), Forest Service Final Section 4(e) Conditions were filed on February 16, 2016 and included as Appendix B in FERC license (FERC 2017). The following conditions apply to the NWCP (PacifiCorp 2017):

> Condition No. 6 – *Noxious Weed Management Plan* The Licensee shall, within six months following License issuance, revise the Noxious Weed Management Plan (NWMP), Appendix K, Volume III of the FLA [Final License Application] (February 2015), in consultation with the USDA Forest Service. The NWMP shall include measures A through D below and must meet USDA Forest Service standards, guidelines, methods, and monitoring protocols for actions undertaken on National Forest Service (NFS) lands. The NWMP shall be filed with the Commission for approval. After Commission approval, the Licensee shall immediately implement the NWMP.

A. The Licensee shall implement applicable noxious weed control measures found in invasive plant management direction for the Pacific Northwest Region and/or the Wallowa-Whitman National Forest Land and Resource Management Plan, as amended for the period of the License. Future changes or modifications to the management direction will require the Licensee to coordinate with the USDA Forest Service at the Annual Resource Coordination Meeting required in Condition 5 to ensure the Licensee's implementation activities comply with those changes or modifications.

B. The Licensee shall survey and treat noxious weeds on NFS lands within the FERC Project Boundary for three (3) consecutive years between June 1 and July 31 following construction or maintenance activities described in the FLA. If for three consecutive years, no noxious weeds are detected during the annual surveys, then survey intervals shall shift to a biennial schedule until a noxious weed infestation is detected. Control methods that will effectively control all Class A and other target weeds shall be implemented the same year as detection as allowed by U.S. Forest Service Pacific Northwest Region Invasive Plant Program, Preventing and Managing Invasive Plants (April 2005) and Record of Decision (ROD) (October 2005).

C. The exact timing between June 1 and July 31 are recommended to implement control methods for optimal effectiveness in association with the guidelines provided by U.S. Forest Service Pacific Northwest Region Invasive Plant Program, Preventing and Managing Invasive Plants (April 2005) and Record of Decision (ROD) (October 2005). Manual control methods shall include measures including but not limited to reseeding, mulching and supplemental irrigation to ensure establishment of non-noxious vegetation in treated areas.

D. The Licensee shall ensure that: a) ground cover in treated areas equals or exceeds 80 percent of that in an undisturbed control area with similar vegetation and is adjacent to the Project area and b) species composition in disturbed areas equals or exceeds 75 percent non-weedy species. If the standards above are not feasible or achievable, the Licensee shall consult and coordinate with the USDA Forest Service to develop suitable alternatives.

E. The Licensee shall include a status report in its Annual Report, required by Condition No. 5 – Resource Coordination, describing activities related to weed control, assessment of weed areas, and identification of future efforts to control noxious weed spread and colonization within the Project boundary.

PacifiCorp submitted the Noxious Weed Control Plan (NWCP) to the Commission on June 1, 2017 pursuant to Article 415 and the Forest Service Final Section 4E Conditions included as Appendix B of the FERC license. A FERC order approving NWCP was issued by the Commission on July 25, 2017 (Appendix A). PacifiCorp implement the NWCP in 2017 prior to receiving the Commission approval to insure that noxious weed monitoring and control methods were completed during the growing season and would optimize effectiveness.

This report complies with the FERC License Appendix B USDA, Forest Service Final Section 4(e) Condition No. 5- Resource Coordination requiring PacifiCorp to provide an Annual Report to Wallowa Whitman National Forest (WWNF) on the status of the NWCP activities for that year (FERC 2017). The status report should be completed by December 1 each year to allow for at least a 30-day review prior to the Annual Resource Coordination meeting. The status report will only apply to the Project Boundary as described in Section 2.0 and shown in Appendix B:

- The current year Invasive Plant Inventory Forms

- A description of the control methods, operation and maintenance, and success of the control methods conducted that year and the accompanying treatment forms [Herbicide Application (2510), Insect Release (2550), and/or Mechanical/Physical Treatment (2530)
- Future anticipated soil disturbing activities, noxious weed prevention methods to be conducted, and identification of future efforts to control noxious weed spread and colonization for the following year within the Project Boundary
- Future expected efforts and a schedule for monitoring
- Compliance with the current Wallowa Whitman National Forest, State and Local regulations for weed management activities
- Results of revegetation success for all ground disturbance activities

# 2.0 Project location

The Wallowa Falls Hydroelectric Project is located on the east fork of the Wallowa River near the town of Joseph, Oregon in Wallowa County. The project powerhouse discharges into the West Fork of the Wallowa River upstream of Wallowa Lake (Figure 1).

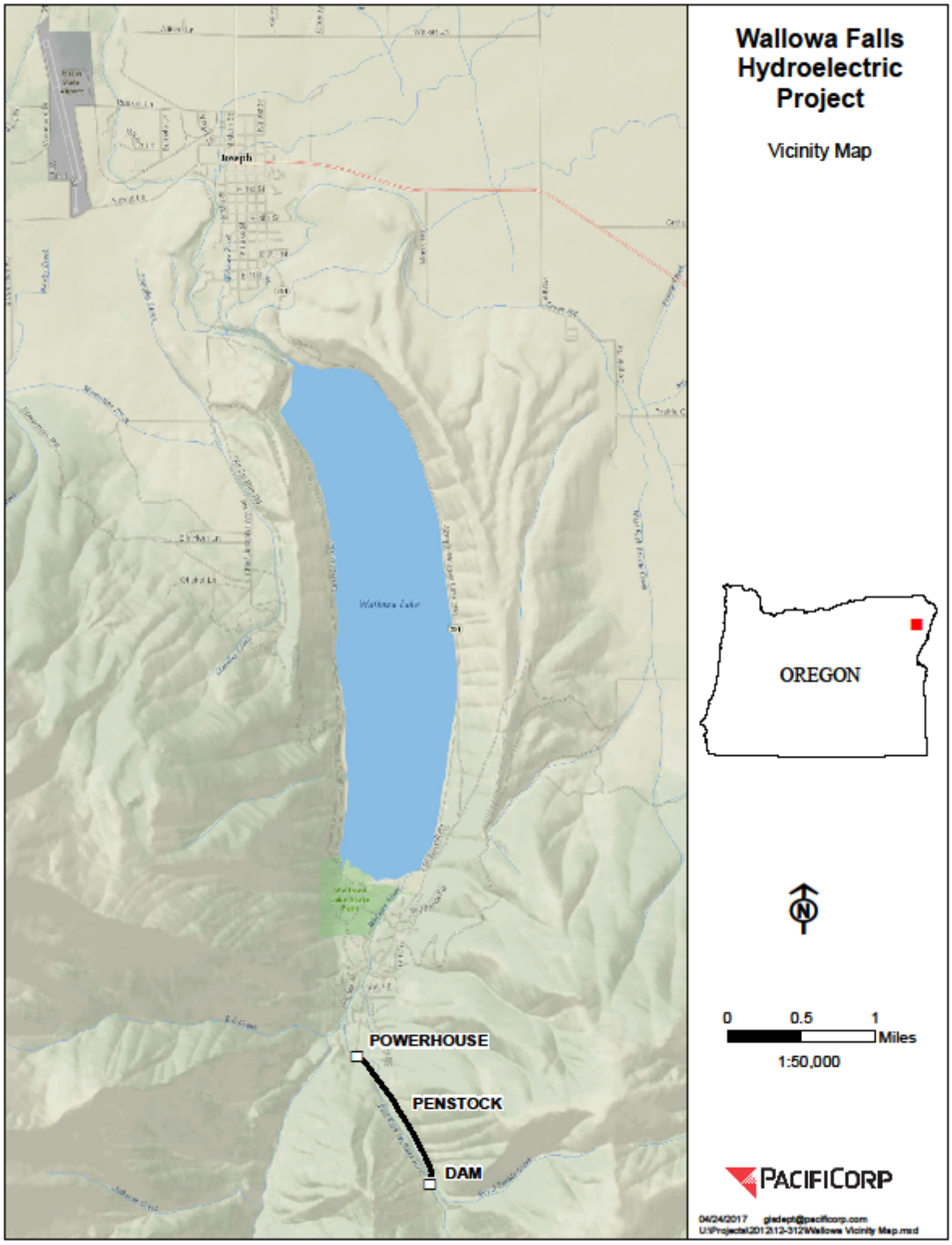
The Project Boundary is an estimated 26 acres and encloses project operations, such as Royal Purple Creek Diversion Dam, the pipeline and open channel conveying water from the Royal Purple Creek Diversion Dam to the East Fork Dam and impoundment, penstock, powerhouse, transmission line, and non-project substation (FERC 2017). Portions of the access road, tailrace, and Pacific Park Campground are also included within the Project Boundary (FERC 2017). Approximately half lands within the Project Boundary are owned by PacifiCorp and the other half are on WWNF lands. Appendix B shows the Project Boundary and the associated features.

Areas within the Project Boundary may be more susceptible to noxious weeds due to exposed soils and/or are adjacent to frequent human activity. Therefore the Project Boundary is differentiated into three noxious weed priority areas to prioritize monitoring, prevention, and control methods accordingly. Noxious weed priority areas are defined as follows and are shown on Appendix B.

> **High Priority**: areas with frequent or continued soil disturbance, frequent or constant exposure to weed seed vectors, or is known to have existing noxious weeds. These areas include the campground, forebay area, and portions of the WWNF trail within the Project Boundary.
>
> **Medium Priority**: areas with prior or frequent soil disturbance, but has low exposure to weed seed vectors. Examples of this would include the access road and penstock.
>
> **Low Priority**: areas that have intact soils and a low exposure to weed seed vectors. Examples of this would include talus slopes and forested areas away from high use areas.

These areas may be modified as needed to adjust for changes in the Project Boundary or in public use of an area (e.g. new trails etc.). No changes were required to the Project Boundary or the noxious weed priority areas in 2017.

**Figure 1: Wallowa Falls Hydroelectric Project Vicinity Map**



# 3.0 Regulation and Compliance

A comprehensive review of current and applicable WWNF, State and local regulations was completed in June 2017. The laws are as follows and PacifiCorp complied with these regulations and guidelines for all noxious weed monitoring and management in 2017:

## 3.1 USFS and WWNF regulations guidelines

The following USFS documents were used as guidelines and reference for all noxious weed monitoring and control methods implemented in 2017:

- Land and Resource Management Plan Wallowa-Whitman National Forest, as amended (USFS 1990).
- Pacific Northwest Region Invasive Plant Program Preventing and Managing Invasive Plants Final Environmental Impact Statement (USFS 2005a).
- Pacific Northwest Region Invasive Plant Program Preventing and Managing Invasive Plants Record of Decision. (USFS 2005b).
- Wallowa-Whitman National Forest Invasive Plants Treatment Project Final Environmental Impact Statement. (USFS 2010a).
- Wallowa-Whitman National Forest Invasive Plant Treatment Project Record of Decision. (USFS March 2010b).

## 3.2 Oregon Revised Statues

The following Oregon Revised Statues (ORS) are chapter 569 Weed Control that provide state and county authority to manage noxious weeds and are applicable to NWCP:

**2015 ORS 569.175 applicable definitions:**

(1) "Noxious weed" means a terrestrial, aquatic or marine plant designated by the State Weed Board under ORS 569.615 (Duties of board) as among those representing the greatest public menace and as a top priority for action by weed control programs.

(2) "Person" means a person as defined in ORS 174.100 (Definitions), the federal government or any of its agencies, the State of Oregon or any of its agencies, or any city, county, district or municipal corporation of this state

**2015 ORS 569.185 State Department of Agriculture authority:**

(13) Request any person owning or controlling land within this state to control, prevent the spread of or, when feasible, eradicate noxious weeds, and to supervise such activities.

**2015 ORS 569.350 Necessity of eradication of weeds:**

Noxious weeds have become so thoroughly established and are spreading so rapidly on state, county and federally owned lands, as well as on property in individual ownership and in transition to county ownership through tax delinquency, that they hereby are declared a

menace to the public welfare. While it is recognized that complete eradication may not be practicable, it hereby is established that steps leading to eradication and control are necessary and that responsibility rests not only on the individual landowner and operator but also on the county, state and federal government, and that the county, state and federal government should cooperate with individual owners in the control and eradication of noxious weed pests.

## 3.3 Noxious Weed Monitoring List

State of Oregon and Wallowa County maintain a list of target Noxious Weeds that are separated into the following three categories for prioritizing management (Oregon Department of Agriculture 2017):

**A listed Weed:** A weed of known economic importance which occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent.

Recommended action: Infestations are subject to eradication or intensive control when and where found. A noxious weed that is currently established and generally widespread in many counties of the state. These weeds are capable of rapid spread and render land unfit or greatly limit beneficial uses. Management actions for this category include awareness and education, containment and suppression of existing infestations and prevention of new infestations.

**B listed Weed:** A weed of known economic importance which occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent.

Recommended action: Infestations are subject to eradication or intensive control when and where found.

**T Designated Weed:** A designated group of weed species that are selected and will be the focus for prevention and control by the Noxious Weed Control Program. Action against these weeds will receive priority. T designated noxious weeds are determined by the Oregon State Weed Board and directs Oregon Department of Agriculture (ODA) to develop and implement a statewide management plan. T designated noxious weeds are species selected from either the A or B list.

The following table is a list of species included in the 2017 NWCP monitoring:

**Table 1: 2017 Oregon State and Wallowa County Listed Noxious Weeds**

| Common Name [2,3] | Scientific Name[1,2] | Oregon State Category[2] | Wallowa County Category[3] |
|---|---|---|---|
| Absinthe Wormwood* | *Artemisia absinthium* | | B |
| African Rue | *Peganum harmala* | A (T) | |
| Annual Bugloss* | *Anchusa officialis* | | B |
| Armenian blackberry (Himalayan blackberry) * | *Rubus armeniacus* | B | B |
| Atlantic Ivy | *Hedera hibernica* | B | |
| Bachelor Button* | *Centaurea cyanus* | | B |
| Barbed goatgrass | *Aegilops triuncialis* | A (T) | |
| Biddy-biddy | *Acaena novae-zelandiae* | B | |
| Bohemian Knotweed | *Polygonum behemicum* | | A (T) |
| Buffalobur | *Solunum rostratum* | B | |
| Bull thistle** | *Cirsium vulgare* | B | |
| Bur Buttercup* | *Ceratocephala testiculata* | | B |
| Butterfly bush | *Buddleja davidii* | B | |
| Camelthorn | *Alhagi pseudalhag* | A | |
| Canada thistle** | *Cirsium arvense* | B | B |
| Cape Ivy | *Delairea odorata* | A (T) | |
| Chicory* | *Cichorium intybus* | | B |
| Coltsfoot | *Tussilago farfara* | A | |
| Common Burdock** | *Arctium minus* | | B |
| Common Bugloss* | *Anchusa officinalis* | B(T) | A (T) |
| Common cordgrass | *Spartina anglica* | A(T) | |
| Common Crupina* | *Crupina vulgaris* | B | B |
| Common frogbit | *Hydrocharis morsus-range* | A | |
| Common reed | *Phragmites australis* | B | |
| Common Tansy | *Tanacetum vulgare* | | A |
| Common Teasel | *Dipsacus fullonum* | | B |
| Creeping yellowcress | *Rorippa sylvestris* | | B |
| Cut-leaved Teasel | *Dipsacus laciniatus* | B | |
| Dalmatian Toadflax* | *Linaria dalmatica* | B(T) | B |
| Dense flowered cord grass | *Spartina densilfora* | A (T) | |
| Diffuse Knapweed* | *Centaurea diffusa* | B | B |
| Dodder* | *Cuscuta spp.* | B | |
| Dyer's Woad* | *Isatis tinctoria* | B | T |
| English Ivy | *Hedera helix* | B | |
| Eurasian watermilfoil | *Myriophyllum spicatum* | B | |
| European water chestnut | *Trapa natans* | A | |
| False Brome | *Brachypodium sylvaticaum* | B | |

**Table 1: 2017 Listed Oregon and Wallowa County Listed Noxious Weeds (continued)**

| Common Name [2,3] | Scientific Name[1,2] | Oregon State Category[2] | Wallowa County Category[3] |
|---|---|---|---|
| Field Bindweed* | *Convolvulus arvensis* | B (T) | B |
| Flowering Rush | *Butomus umbellatus* | A (T) | |
| French Broom | *Genista monspessulana* | B | |
| Garden yellow loosestrife | *Lysimachia vulgaris* | A | |
| Garlic Mustard | *Alliaria petiolata* | B (T) | A (T) |
| Giant hogweed | *Heracleum mantegazzianum* | A (T) | |
| Giant Knotweed | *Polygonum sachalinense* | B | A (T) |
| Goatsrue | *Galega officinalis* | A (T) | |
| Gorse | *Ulex europaeus* | B (T) | |
| Hairy whitetop * | *Lepidium pubescens* | B | |
| Halogeton | *Halogeton glomeratus* | B | |
| Herb Robert | *Geranium robertianum* | B | |
| Himalayan knotweed | *Polygonum polystachum* | B | |
| Hoary Alyssum (False Hoary Alyssum) * | *Berteroa incana* | A (T) | A (T) |
| Hoary cress whitetop* | *Lepidium draba* | B | A (T) |
| Houndstongue** | *Cynoglossum officinale* | B | B |
| Hydrilla | *Hydrilla verticillata* | A | |
| Iberian starthistle | *Centaurea iberica* | A (T) | A |
| Indigo bush | *Amorpha fruticosa* | B | |
| Italian Thistle | *Carduss pycnocephalus* | B | A (T) |
| Japanese dodder | *Cuscuta japonica* | A | |
| Japanese knotweed* | *Polygonum cuspidatum* | B | |
| Johnsongrass | *Sorghum halepense* | B | |
| Jointed goatgrass* | *Aegilops cylindriva* | B | B (T) |
| Jubata grass | *Cortaderia jubata* | B | |
| King devil hawkweed | *Pilosella piloselloides* | A | |
| Kochia* | *Kocia scoparia* | B | B |
| Kudzu | *Pueraria lobata* | A(T) | |
| Leafy Spurge* | *Euphorbia esula* | B(T) | A (T) |
| Lens podded whitetop* | *Cardaria chalapensis* | B | |
| Lesser celandine | *Ranunculus ficaria* | B | |
| Long-Spine sandbur | *Cenchrus longispinus* | | B |
| Matgrass | *Nardus stricta* | A (T) | |
| Meadow Hawkweed* | *Hieracium pratense* | B (T) | B |
| Meadow Knapweed* | *Centaurea pratensis* | B | A (T) |
| Mediterranean Sage | *Salvia aethiopis* | B | A (T) |
| Medusahead Rye* | *Taeniatherum canput-medusae* | B | B (T) |
| Milk thistle | *Silybum marianum* | B | |

**Table 1: 2017 Listed Oregon and Wallowa County Listed Noxious Weeds (continued)**

| Common Name [2,3] | Scientific Name[1,2] | Oregon State Category[2] | Wallowa County Category[3] |
|---|---|---|---|
| Mouse-ear hawkweed | *Pilosella pilosella* | A (T) | |
| Musk Thistle * | *Cardus ntuans* | B | A (T) |
| Myrtle Spurge* | *Euphorbia myrsinities* | B | A (T) |
| Oblong spurge | *Euphorbia oblongata* | A (T) | |
| Old Man's Beard | *Clematis vitalba* | B | |
| Orange Hawkweed* | *Pilosella aurantiacum* | A (T) | A (T) |
| Oregano | *Origanum vulgare* | | A (T) |
| Ovate goatgrass | *Aegilops ovata* | A | |
| Oxeye Daisy** | *Leucanthemum vulgare* | | B |
| Parrot's feather | *Myriophyllum aquaticum* | B | B |
| Paterson's curse | *Echium plantagineum* | A (T) | |
| Perennial peavine | *Lathyrus latifolius* | B | |
| Perennial Pepperweed* | *Lepdium latifolium* | B(T) | A(T) |
| Pheasanteye (Blooddrop) * | *Adonis aestivalis* | | B |
| Plumeless Thistle* | *Carduus acanthoides* | A (T) | A (T) |
| Poison Hemlock* | *Conium maculatum* | B | B |
| Policeman's Helmet | *Impatiens glandulifera* | B | |
| Portuguese broom | *Cytisus striatus* | B(T) | |
| Punturevine* | *Tribulus terrestris* | B | A |
| Purple Loosestrife* | *Lythrum salicaria* | B | A |
| Purple nutsedge | *Cyperus rotundus* | A | |
| Purple Star Thistle | *Centaurea calcitrapa* | A (T) | T |
| Ragweed | *Ambrosia artemisifolia* | B | |
| Ravenna grass | *Saccharum ravennae* | A (T) | A |
| Reed Canarygrass (Ribbon grass) | *Phalaris arundinaceae* | B (T) | B |
| Rose campion | *Lychnis coronaria* | | A |
| Rush Skeletonweed* | *Chondrilla juncea* | B(T) | B (T) |
| Russian Knapweed* | *Acroptilon repens* | B | A (T) |
| Saltcedar* | *Tamarix ramoissima* | B (T) | |
| Salt meadow cordgrass | *Spartina patens* | A (T) | |
| Scotch Broom* | *Cytisus scoparius* | B | A(T) |
| Scotch Thistle* | *Onopordium acanthium* | B | B (T) |
| Shiny leaf geranium | *Geranium lucidum* | B | |
| Silverleaf nightshade | *Solanum elaeagnifolium* | A | |
| Slender flowered thistle | *Carduss tenuiflorus* | B | |
| Small broomrape | *Orobranche minor* | B | |
| Smooth distaff thistle | *Carthamus baeticus* | A | |
| South American waterweed | *Egeria densa* | B | |

**Table 1: 2017 Listed Oregon and Wallowa County Listed Noxious Weeds (continued)**

| Common Name [2,3] | Scientific Name[1,2] | Oregon State Category[2] | Wallowa County Category[3] |
|---|---|---|---|
| Spanish broom | *Sparitium junceun* | B | |
| Spanish heath | *Erica lusitanica* | B | |
| Spikeweed | *Hemizonia pungens* | B | |
| Spiny cocklebur* | *Xanthium spinosum* | B | |
| Spotted Cats ear | *Hyphochaeris glabra* | | T |
| Spotted Knapweed** | *Centaurea stoebe* | B(T) | A (T) |
| Spurge laurel | *Daphne Laureola* | B | B |
| Squarrose knapweed | *Centaurea virgata* | A (T) | |
| St. Johnswort** | *Hypericum perforatum* | B | B |
| Sulfur Cinquefoil* | *Potentilla recta* | B | B (T) |
| Swainsonpea | *Sphaerophysa salsula* | B | |
| Sweetbriar Rose* | *Rosa rubiginosa* | | B |
| Syrian bean-caper | *Zygophyllum fabago* | A | |
| Tall Buttercup* | *Ranunculus acris* | | B |
| Tansy Ragwort* | *Senecio jacobaea* | B (T) | A (T) |
| Tuarian thistle | *Onopordum tauricum* | A(T) | |
| Tree of Heaven* | *Ailanthus altissima* | B | |
| Velvetleaf | *Abultilon theophrasti* | B | |
| Ventenata (North Africa grass) * | *Ventenata dubia* | | B |
| Water soldier | *Stratiotes aloides* | A | |
| Waterprimrose | *Ludwigia hexapetala* | B (T) | |
| Welted Thistle* | *Carduus crispis* | A (T) | A (T) |
| West Indian sponge Plant | *Limnobium laevigatum* | A | |
| White bryonia (white bryony) | *Byronia alba* | A | A |
| White Campion | *Siline latifolia* | | B |
| Wooly distaff thistle | *Carthamus lanatus* | A (T) | |
| Yellow archangel | *Lamiastrum galeobdolon* | B | |
| Yellow flag iris* | *Iris psuedocorus* | A (T) | A (T) |
| Yellow floating heart | *Nymphoides peltata* | A (T) | |
| Yellow hawkweed* | *Pilosella floribundum* | A (T) | |
| Yellow nutsedge | *Cyperus esculentus* | B | |
| Yellow starthistle* | *Centuarea solstialis* | B | A |
| Yellow toadflax* | *Linaria vulgaris* | B | B |
| Yellowtuft | *Alyssum coriscan* | A(T) | |

***Noxious weeds are known to exist within Wallowa County [1, 2]**

**Noxious weeds are known to exist within the Project Boundary (PacifiCorp 2013)

[1] Natural Resources Conservation Service 2017

[2] Oregon Department of Agriculture 2017

[3] Wallowa County 2017

# 4.0 2017 Monitoring and Management

The following is description of noxious weed monitoring, control and other management strategies that occurred in 2017 within the Project Boundary.

## 4.1 Prevention

Activities that disturb soils through the removal of native vegetation result in exposed ground that promotes the establishment of noxious weeds. Therefore noxious weeds will be controlled prior to conducting any soil disturbing activity and the area will be revegetated to prevent noxious weed establishment. No ground disturbing activities occurred within the Project Boundary in 2017.

## 4.2 Noxious Weed Monitoring

PacifiCorp contracted with local contractor, Kendrick Moholt (Bio-Resources, Inc.) to implement the NWCP monitoring and oversee control methods. The noxious weed monitoring surveys were completed by Kendrick on July 19, 2017 and included all high and medium priority noxious weed areas. This was 4 days later than the survey deadline date identified in the NWCP, but due to the persistent cold temperatures and wet conditions in the early summer, it was determined that delaying the survey would be more effective in identifying noxious weeds while in flower. A record of the each noxious weed infestation has been documented on Invasive Plant Inventory Forms are provided in Appendix C. The table below provides a list of the noxious weeds location and status.

**Table 2: Noxious Weeds Located in 2017 within the Project Boundary.**

| Common Name | Scientific Name | Oregon State Category | Wallowa County Category | Location |
|---|---|---|---|---|
| Canada thistle | *Cirsium arvense* | B | B | Campground |
| Bull thistle | *Cirsium vulgare* | B | None | Campground |
| Houndstongue | *Cynoglossum officinale* | B | B | Campground |
| Common Burdock | *Arctium minus* | None | B | Campground |
| Spotted knapweed | *Centaurea maculosa* | B (T) | A (T) | Trail head parking area |
| Oxeye daisy | *Leucanthemum vulgar*, formerly *Chrysanthemum leucanthemum* | | B | Trail head parking area |
| Meadow hawkweed | *Hieracium caespitosum* | B(T) | B | Access road and near dam |
| St. Johnswort | *Hypericum perforatum* | B | B | Access road |

## 4.3 Control Methods

Kendrick Moholt supervised the spray operation to control noxious weeds within the Project Boundary on July 19. 2017. Treatment consisted of spraying with Milestone® herbicide, mixed

with a surfactant and a marking dye. The Herbicide Application Form 2510 is provided in Appendix C.

The campground and surrounding areas had Canada thistle, bull thistle, houndstongue, and burdock treated with spot application using backpack sprayers to minimize the application to individual plants.

An area near the entrance to the campground and the east side of the county road (near the trail head and horse rails) was thoroughly sprayed with backpack sprayers and ATV mounted sprayer to control larger infestations of spotted knapweed and oxeye daisy. The spotted knapweed will likely need to be treated again in 2018 to be completely effective.

Along the access road and trail there are three locations, including the area near the dam, were sprayed to control meadow hawkweed. Due to the potential presence of rare plants, special care was taken to avoid impacting rare plants. The two hawkweed populations identified during the relicensing studies do not appear to be spreading and the largest patch, near the dam, appears to be decreasing in size. A third population consisting of two plants was located near the trailhead. Additional treatments in 2018 will be necessary to eradicate hawkweed. Other target noxious weed treated along access road and trail include bull thistle, Canada thistle and St. Johnswort.

## 4.4 Revegetation Success

All areas of prior ground disturbance within Project Boundary will be evaluated during the annual noxious weed monitoring to determine if the following criteria have been met:

a) ground cover in treated areas equals or exceeds 80 percent of that in an undisturbed control area with similar vegetation and is adjacent to the area of ground disturbance and

b) species composition in disturbed areas equals or exceeds 75 percent non-weedy species.

These areas will be monitored until the above criteria is met for 3 consecutive years. If the criteria cannot be met and is not feasible or achievable, then PacifiCorp will consult and coordinate with the US Forest Service at the Annual Resource Coordination Meeting. Currently there are no areas ground disturbance areas that require revegetation and/or revegetation success monitoring.

# 5.0 2018 Monitoring and Management

In 2018, there are no soil disturbance activities scheduled or anticipated within the Project Boundary. Therefore noxious weed monitoring in 2018 will include all high and medium priority areas within the Project Boundary (Appendix B) and noxious weed control will occur as needed. The hawkweed infestations and spotted knapweed infestation near the trailhead will likely need additional herbicide treatment in 2018.

# 6.0 References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# Appendix A
# FERC Order Approving Invasive Plant and Noxious Weed Control Plan Pursuant to Article 415

**160 FERC ¶ 62,067**

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

PacifiCorp Project No. 308-012

# ORDER APPROVING INVASIVE PLANT AND NOXIOUS WEED CONTROL PLAN PURSUANT TO ARTICLE 415

(Issued July 25, 2017)

1. On June 1, 2017, PacifiCorp, licensee for the Wallowa Falls Hydroelectric Project No. 308, filed an Invasive Plant and Noxious Weed Control Plan pursuant to Article 415 of the project license and U.S. Forest Service (Forest Service) 4(e) condition 6.[1] The project is located on the East Fork Wallowa River (East Fork) and on Royal Purple Creek, a tributary of the Wallowa River, in Wallowa County, Oregon. The project occupies federal lands within the Wallowa-Whitman National Forest administered by the U.S. Department of Agriculture, Forest Service.

2. Article 415 requires the licensee to develop an Invasive Plant and Noxious Weed Control Plan required by Forest Service 4(e) condition 6 in consultation with the Oregon Department of Fish and Wildlife (Oregon DFW) and U.S. Fish and Wildlife Service (FWS) for Commission approval.[2] Condition 6 specifically requires that the plan be developed in consultation with the Forest Service by revising the noxious weed management plan included in Appendix K, volume III of the February 2015 final license application. Pursuant to condition 6, the plan must include specified prevention and control measures; strategies and measures to minimize ground disturbance; and monitoring plans for sites within the project boundary.

3. The plan filed by the licensee is intended to satisfy the requirements of both Article 415 and condition 6. The licensee proposes to control noxious weeds prior to conducting soil disturbing activities by following the Wallowa-Whitman National Forest Weed Prevention Practices and Analysis Guidelines on lands within the project boundary. All lands within the project boundary would also be surveyed annually to detect and monitor noxious weed infestations following maintenance activities as described in the February 2015 final license application. Surveys would be conducted annually between

[1] *PacifiCorp*, 158 FERC ¶ 62,006 (2017).

[2] Entitled Noxious Weed Management Plan in 4(e) condition 6.

June 1 and July 15 in all high and medium priority areas, as identified in Appendix B of the plan.

4. All noxious weeds control treatments would follow guidelines provided in Appendix C of the plan and would occur between June 1 and July 31, as recommended by the Forest Service. All control methods would be recorded on treatment forms and would be submitted to the Forest Service botanist upon completion. Areas of ground disturbance within the project boundary would be evaluated during annual noxious weed monitoring to determine if standards have been met. Noxious weed occurrence would be recorded on the Noxious Weed Plant Occurrence Record Wallowa-Whitman National Forest form.

5. The licensee would provide the Forest Service a status report on work under the plan by December 1 annually, so that the Forest Service has 30 days to review the report before the Annual Resource Coordination Meeting.[3] This meeting would cover current year inspection reports, description and successes of control methods, future anticipated soil disturbing activities, preventative and proactive measures regarding noxious weed treatment, monitoring schedules, compliance with weed management regulations, and revegetation success results for ground disturbance activities.

6. The licensee provided a draft of the plan to the resource agencies for review prior to filing the final plan with the Commission. The Oregon DFW and the Forest Service responded to the licensee in letters dated May 19 and May 27, 2016, respectively. Comments from both agencies were acknowledged and accommodated in the plan as filed with the Commission.

7. The licensee's Invasive Plant and Noxious Weed Control Plan fulfills the requirements of Article 415 and Forest Service condition 6. To keep the Commission informed of its progress under the plan, the licensee should be required to file annual reports with the Commission each year by January 31. The final report should include a copy of the report provided to the Forest Service prior to the Annual Resource Coordination Meeting of the previous year, a summary of issues discussed at the meeting regarding the plan, and descriptions of how any problems identified in the report or in the meeting were resolved. The first report for 2017 should be filed by January 31, 2018.

[3] Members of the meeting include, but are not limited to, the Oregon DFW and the Forest Service

The Director orders:

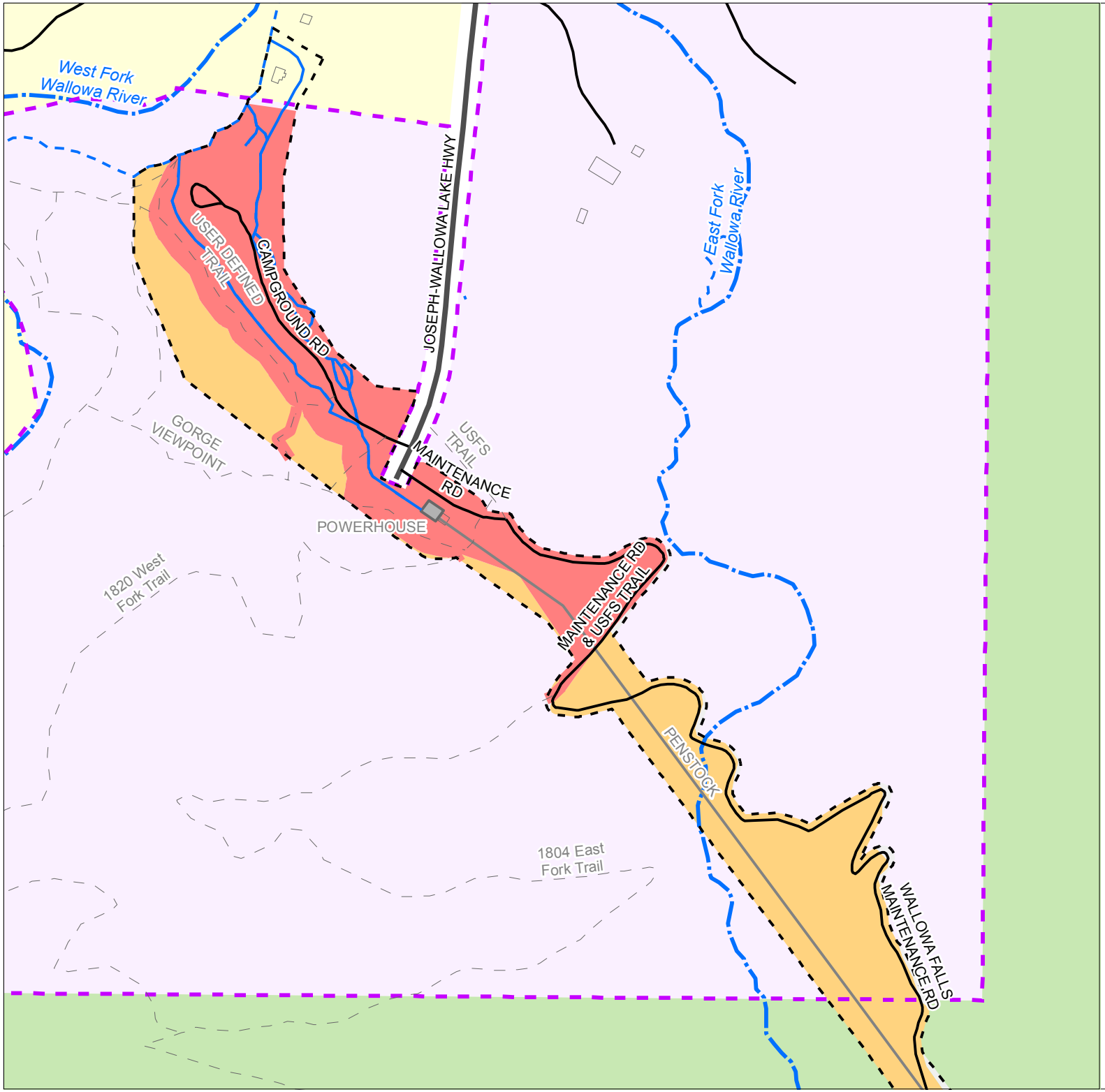
(A) PacifiCorp's Invasive Plant and Noxious Weed Control Plan filed June 1, 2017, pursuant to Article 415 of the license for the Wallowa Falls Hydroelectric Project No. 308, is approved.

(B) By January 31 of each year following the issuance of this order, the licensee must file an annual report of its progress in controlling noxious weeds under the Invasive Plant and Noxious Weed Control Plan. Each report must include a copy of the report provided to the U.S. Forest Service prior to the Annual Resource Coordination Meeting of the previous year, a summary of issues discussed at the meeting regarding the plan, and descriptions of how any problems identified in the report or in the meeting were resolved.

(C) 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. § 825*l* (2012), and the Commission's regulations at 18 C.F.R. § 385.713 (2016). 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.

Steve Hocking, Chief
Environmental and Project Review Branch
Division of Hydropower Administration
and Compliance

# Appendix B
# Noxious Weed Monitoring Area




# Wallowa Falls Hydroelectric Project

## Noxious Weed Monitoring Area



**Legend**

- Trail
- Road
- Highway
- Facility
- Penstock
- FERC Boundary

**Priority Noxious Weed Areas**

- High
- Medium
- Low

**Land Ownership**

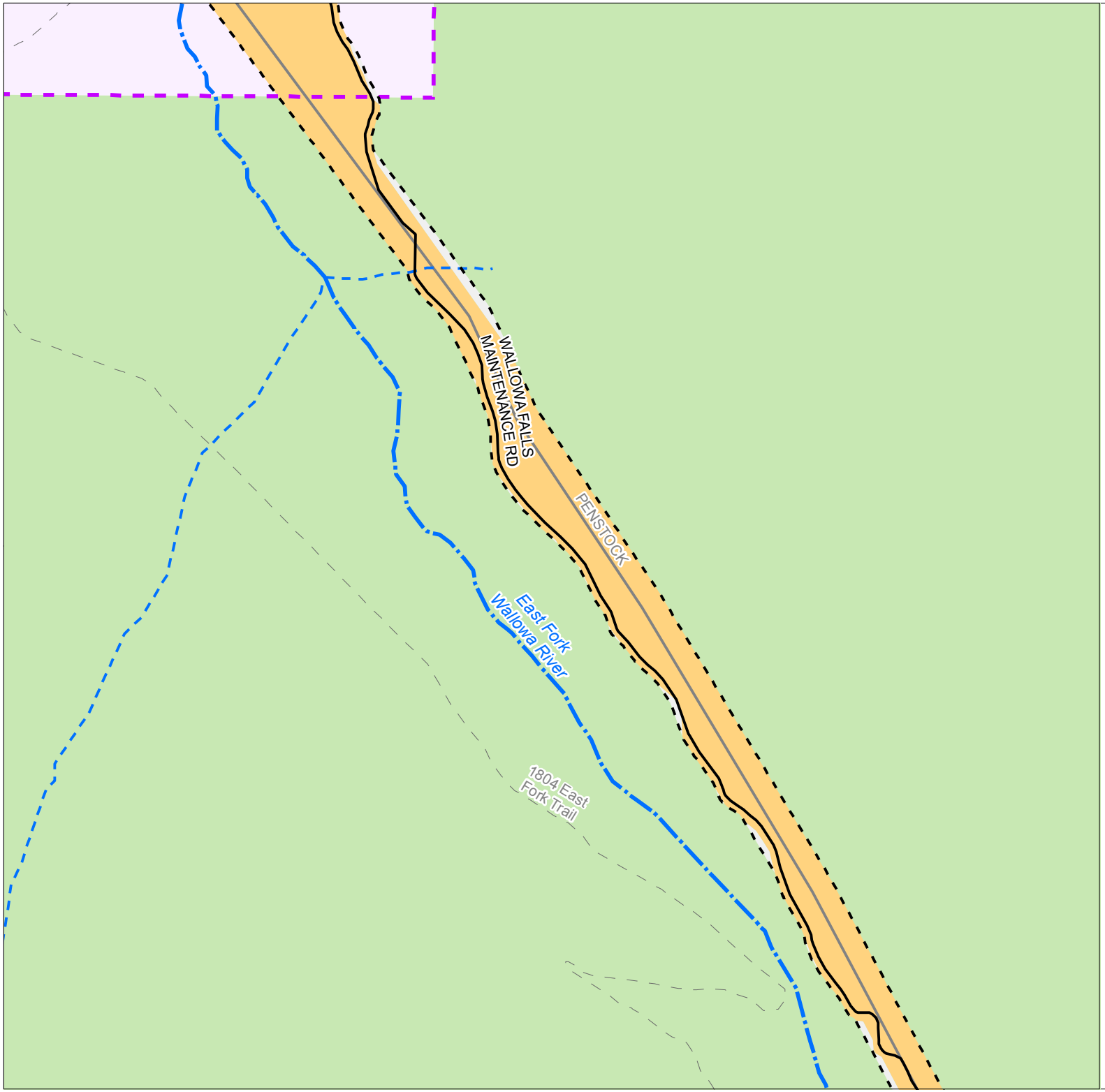
- PacifiCorp
- USFS
- Private

1:3,600

0 250 500 Feet

PACIFICORP

04/20/2017 gisdept@pacificorp.com
U:\Projects\2012\12-312\Noxious Weed Monitoring Area Map.mxd




# Wallowa Falls Hydroelectric Project

## Noxious Weed Monitoring Area



**Legend**

- Trail
- Road
- Highway
- Facility
- Penstock
- FERC Boundary

**Priority Noxious Weed Areas**

- High
- Medium
- Low

**Land Ownership**

- PacifiCorp
- USFS
- Private

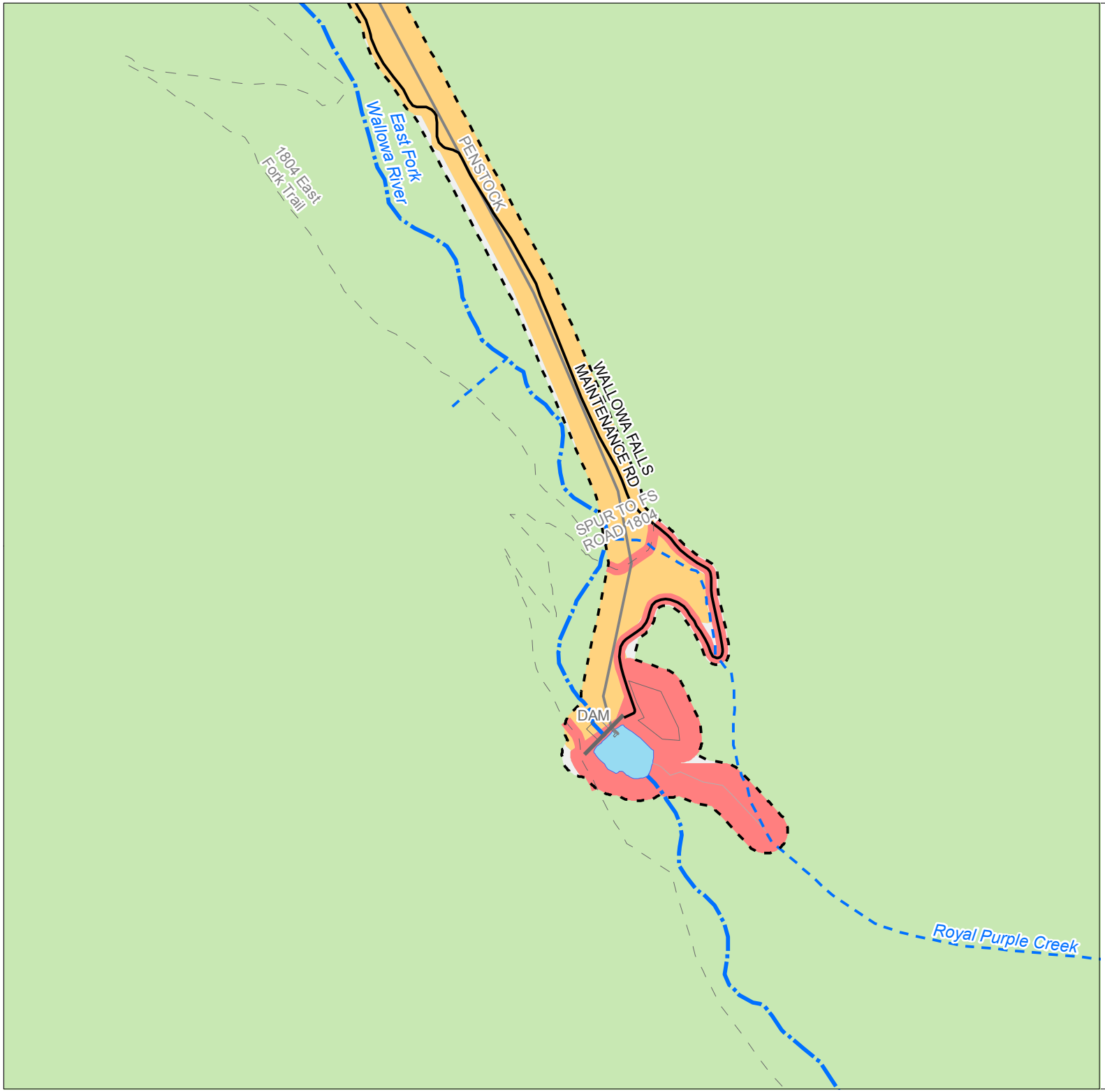
1:3,600

N

0 250 500 Feet

PACIFICORP

04/20/2017 gisdept@pacificorp.com
U:\Projects\2012\12-312\Noxious Weed Monitoring Area Map.mxd




# Wallowa Falls Hydroelectric Project

## Noxious Weed Monitoring Area



**Legend**

- Trail
- Road
- Highway
- Facility
- Penstock
- FERC Boundary

**Priority Noxious Weed Areas**

- High
- Medium
- Low

**Land Ownership**

- PacifiCorp
- USFS
- Private

1:3,600

N

0 250 500 Feet

PACIFICORP

04/20/2017 gisdept@pacificorp.com
U:\Projects\2012\12-312\Noxious Weed Monitoring Area Map.mxd

# Appendix C
# Invasive Plant Inventory Form and Herbicide Application (2510) Forms

# Herbicide Application (2510) Data Form

***General Treatment Data***

| Treatment Area Name | Owner | FACTS ID # | Subunit | Project |
|---|---|---|---|---|
| Wallowa Falls Hydroelectric Project | USFS & PacifiCorp | _____ | __ | Wallowa Falls Hydroelectric Project |
| **Equipment** | **Fund Code** | Comments | | |
| 4-Wheeler spray rig, backpack spray rig | NA | | | |

***Infestation/Target Species***

| INFESTATION_ID | Species Name | % Infested | Infested Area Treat | Phenology |
|---|---|---|---|---|
| TBD | Meadow Hawkweed *Hieracium caespitosum* | <1% | 0.10 ac USFS (spot app) 0.05ac PacifiCorp (spot app) | Flowering |
| TBD | Bull Thistle *Cirsium vulgare* | <1% | 0.10 ac USFS (spot app) 0.05ac PacifiCorp (spot app) | Flowering |
| TBD | Canada Thistle *Cirsium arvense* | <1% | 0.25ac USFS (spot app) 0.05ac PacifiCorp (spot app) | Flowering |
| TBD | Common Burdock *Arctium minus* | <1% | 0.10ac PacifiCorp (spot app) | Flowering |
| TBD | Hounds' Tongue *Cynoglossum officinale* | <1% | 0.15ac PacifiCorp (spot app) | Flowering |
| TBD | Oxeye Daisy *Leucanthemum vulgare* | <1% | 0.25ac USFS (spot app) 0.05ac PacifiCorp (spot app) | Flowering |
| TBD | Spotted Knapweed *Centaurea stoebe* | <1% | 0.25ac PacifiCorp (spot app) | Flowering |
| TBD | St. John's Wort *Hypericum perforatum* | <1% | 0.10ac USFS (spot app) | Flowering |

***DailyLog***

| Application Site | Licensed Applicator Name and License # | Applicators (other) |
|---|---|---|
| Wallowa Falls Hydroelectric Project campground, trail and fore bay area | Veezy Contracting #AG-L 1009406 CPA | ___ |

| Application Date | Application Area (Acres) | Time Start | Time Stop | Temp (F) | Wind Speed (MPH) | Wind Direction | Cloud Cover | RH% | Water Distance |
|---|---|---|---|---|---|---|---|---|---|
| 19 July 2017 | 1.5 | 0900 | 1400 | 70°F | 1-5 | NW | clear | 30 | >30m |

| Calibrated Volume | UOM | Volume Applied | UOM | Mix (oz/gal) | Dilutent |
|---|---|---|---|---|---|
| 16 | Gal/Acre | 24 | Gal | 0.44 | Water |

| Herb Product Name | EPA Reg # | Product Rate | UOM | Additives | Rate | UOM |
|---|---|---|---|---|---|---|
| Milestone | 62719-519 | 7 | Oz/Ac | INSIST 90 | 12 | Oz/Ac |
| | | | Oz/Ac | | | Oz/Ac |
| | | | Oz/Ac | | | Oz/Ac |

**Remarks**: Bio-Resources, Inc contract botanist, Kendrick Moholt, on site during application.

For use when more than one day is necessary to treat the Infestation

***DailyLog (Day2)***

| Application Site | Licensed Applicator Name and License # | Applicators (other) |
|---|---|---|
| | | |

| Application Date | Application Area (Acres) | Time Start | Time Stop | Temp (F) | Wind Speed (MPH) | Wind Direction | Cloud Cover | RH% | Water Distance |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

| Calibrated Volume | UOM | Volume Applied | UOM | Mix (oz/gal) | Dilutent |
|---|---|---|---|---|---|
| | Gal/Acre | | Gal | | Water |

| Herb Product Name | EPA Reg # | Product Rate | UOM | Additives | Rate | UOM |
|---|---|---|---|---|---|---|
| | | | Oz/Ac | | | Oz/Ac |
| | | | Oz/Ac | | | Oz/Ac |
| | | | Oz/Ac | | | Oz/Ac |

***DailyLog (Day 3)***

| Application Site | Licensed Applicator Name and License # | Applicators (other) |
|---|---|---|
| | | |

| Application Date | Application Area (Acres) | Time Start | Time Stop | Temp (F) | Wind Speed (MPH) | Wind Direction | Cloud Cover | RH% | Water Distance |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

| Calibrated Volume | UOM | Volume Applied | UOM | Mix (oz/gal) | Dilutent |
|---|---|---|---|---|---|
| | Gal/Acre | | Gal | | Water |

| Herb Product Name | EPA Reg # | Product Rate | UOM | Additives | Rate | UOM |
|---|---|---|---|---|---|---|
| | | | Oz/Ac | | | Oz/Ac |
| | | | Oz/Ac | | | Oz/Ac |
| | | | Oz/Ac | | | Oz/Ac |

# Invasive Plant Inventory Form

## General Site Information

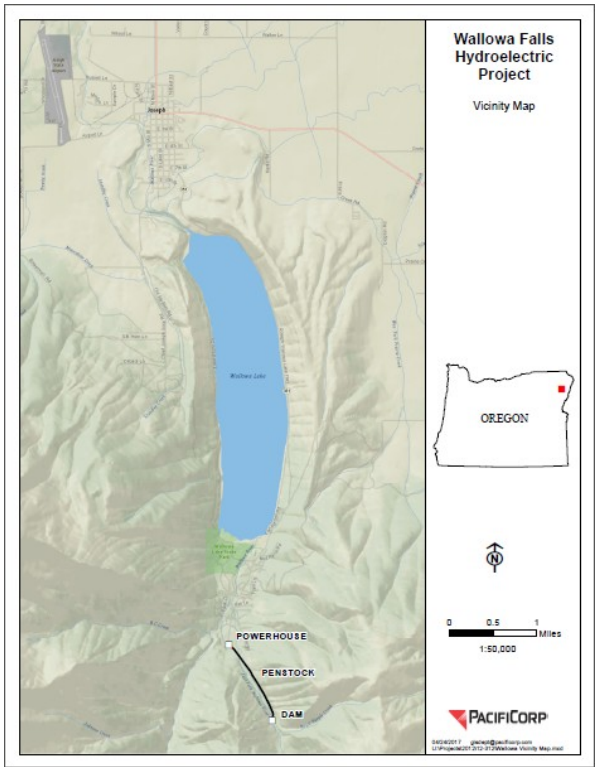
| | | | |
|---|---|---|---|
| **Site Name:** Wallowa Falls Hydroelectric Project | | | **Date:** 19 July 2017 |
| Photo Point (GPS): | | | Ownership/District:USFS, WWNF, Eagle Cap and PacifiCorp |
| Photo Name: | | | **Examiner:** Kendrick Moholt, Bio-Resources, Inc. |
| Botanist Initial:<br>Wildlife Biologist: | **Elevation:** 4700'-5800' | **GPS Coordinates:** 0483259 E 5012652N to 0484159E 5011062N | **Datum:** UTM (NAD 27) Zone 11 |
| EDRR: Y N | **GPS File Name:** | Other Observations: | |
| **Access: Road Trail** X **River Other** campground | | | |
| **Township:** 3S **Range:** 45E **Section:** 33 NW¼ of NW¼, SW¼ of NW¼, NW¼ of SW¼, SE¼ of SW¼ | | | |
| **Township:** 3S **Range:** 45E **Section:** 29 SW ¼ | | | |
| **Township:** 3S **Range:** 45E **Section:** 32 NE¼ of NE¼ | | | |

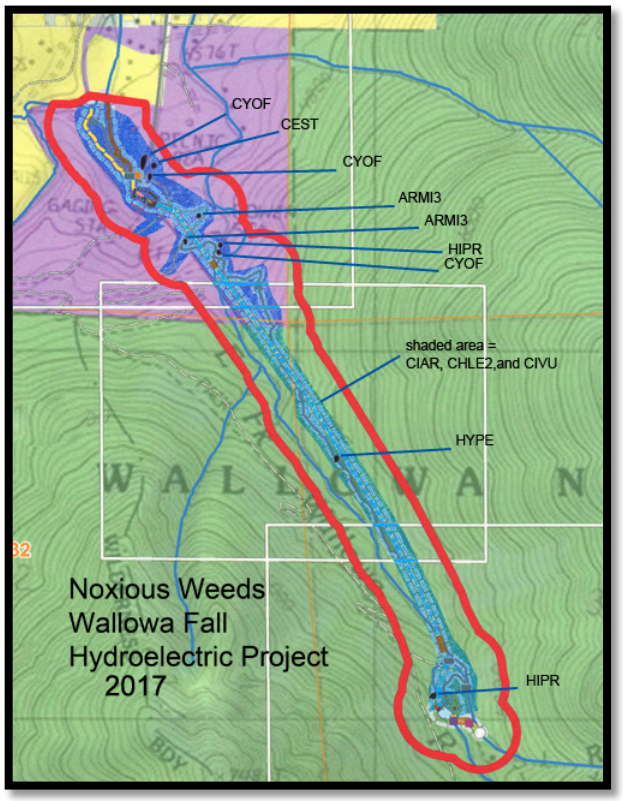
## Site Data Information

| | | |
|---|---|---|
| **Target Species Code:** CIVU | **Common Name:** Bull Thistle | |
| **Scientific Name:** *Cirsium vulgare* | | **Phenology: R B FL** X **S** |
| **Distribution: CL**umped **L**inear **SE** Scattered even<br>**SP** Scattered Patchy X **C**ontinuous | | |
| **Total Acres:** 26 | **Percent Infested:** <1% | **Infested Acres:** ~0.15 |
| % Cover or Count (weeds): ~50 | | Understory Cover % (all):40-90% |
| Potential to Spread: High Med x Low | | **Distance to Water:** >30m |
| **Water Type: Perennial Ephemeral** | | **System: Lake River Spring Stream** |
| Soil Types: sandy loam | | Slope % aspect: 2-20%, Aspect variable |
| Other Species on Site: | | |

## Comments

# Map of Site


Wallowa Falls
Hydroelectric
Project
Vicinity Map
OREGON
POWERHOUSE
PENSTOCK
DAM
0 0.5 1
Miles
1:50,000
PACIFICORP


CYOF
CEST
CYOF
ARMI3
ARMI3
HIPR
CYOF
shaded area =
CIAR, CHLE2,and CIVU
HYPE
Noxious Weeds
Wallowa Fall
Hydroelectric Project
2017
HIPR

# Invasive Plant Inventory Form

## General Site Information

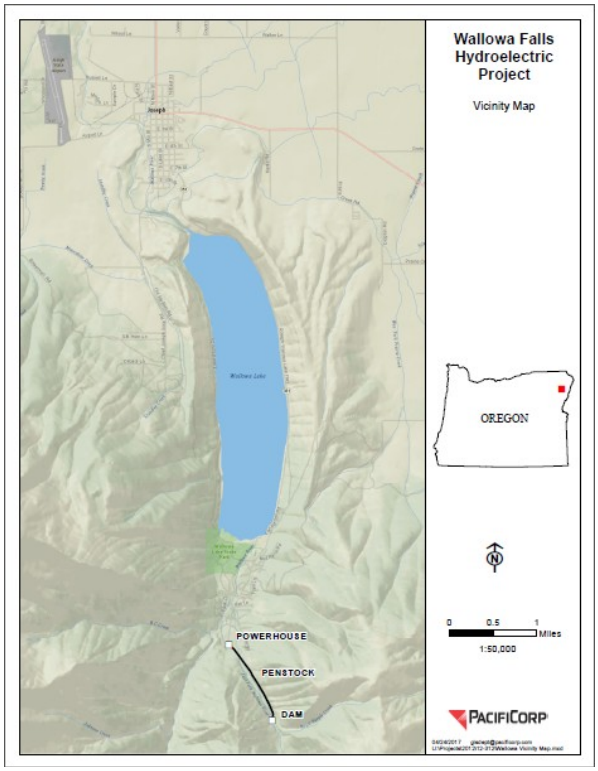
| | | | |
|---|---|---|---|
| **Site Name:** Wallowa Falls Hydroelectric Project | | | **Date:** 19 July 2017 |
| Photo Point (GPS): | | | Ownership/District:USFS, WWNF, Eagle Cap and PacifiCorp |
| Photo Name: | | | **Examiner:** Kendrick Moholt, Bio-Resources, Inc. |
| Botanist Initial:<br>Wildlife Biologist: | **Elevation:** 4700'-5800' | **GPS Coordinates:** 0483259 E 5012652N to 0484159E 5011062N | **Datum:** UTM (NAD 27) Zone 11 |
| EDRR: Y N | **GPS File Name:** | Other Observations: | |
| **Access: Road Trail** X **River Other** campground | | | |
| **Township:** 3S **Range:** 45E **Section:** 33 NW¼ of NW¼, SW¼ of NW¼, NW¼ of SW¼, SE¼ of SW¼ | | | |
| **Township:** 3S **Range:** 45E **Section:** 29 SW ¼ | | | |
| **Township:** 3S **Range:** 45E **Section:** 32 NE¼ of NE¼ | | | |

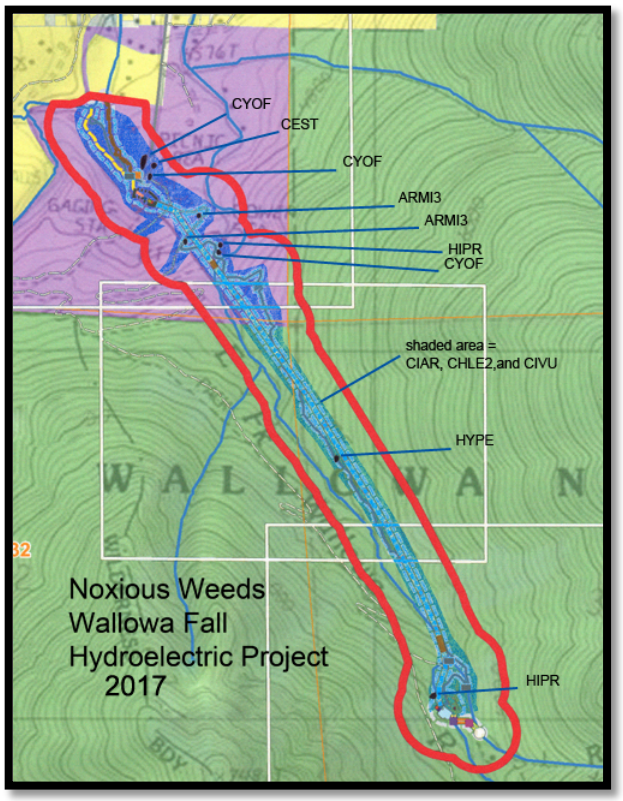
## Site Data Information

| | | |
|---|---|---|
| **Target Species Code:** CIAV | **Common Name:** Canada Thistle | |
| **Scientific Name:** *Cirsium arvense* | | **Phenology: R B FL** X **S** |
| **Distribution: CL**umped **L**inear **SE** Scattered even<br>**SP** Scattered Patchy X **C**ontinuous | | |
| **Total Acres:** 26 | **Percent Infested:** <1% | **Infested Acres:** ~0.3 |
| % Cover or Count (weeds): ~1000 | | Understory Cover % (all):40-90% |
| Potential to Spread: High Med x Low | | **Distance to Water:** >30m |
| **Water Type: Perennial Ephemeral** | | **System: Lake River Spring Stream** |
| Soil Types: sandy loam | | Slope % aspect: 2-20%, Aspect variable |
| Other Species on Site: | | |

## Comments

# Map of Site


Wallowa Falls
Hydroelectric
Project
Vicinity Map
OREGON
POWERHOUSE
PENSTOCK
DAM
0 0.5 1
Miles
1:50,000
PACIFICORP


CYOF
CEST
CYOF
ARMI3
ARMI3
HIPR
CYOF
shaded area =
CIAR, CHLE2,and CIVU
HYPE
Noxious Weeds
Wallowa Fall
Hydroelectric Project
2017
HIPR

# Invasive Plant Inventory Form

## General Site Information

| | | | |
|---|---|---|---|
| **Site Name:** Wallowa Falls Hydroelectric Project | | | **Date:** 19 July 2017 |
| Photo Point (GPS): | | | Ownership: PacifiCorp |
| Photo Name: | | | **Examiner:** Kendrick Moholt, Bio-Resources, Inc. |
| Botanist Initial:<br>Wildlife Biologist: | **Elevation:** 4700'-5000' | **GPS Coordinates:** 0483488E 5012298N and 0483529E 5012336N | **Datum:** UTM (NAD 27) Zone 11 |

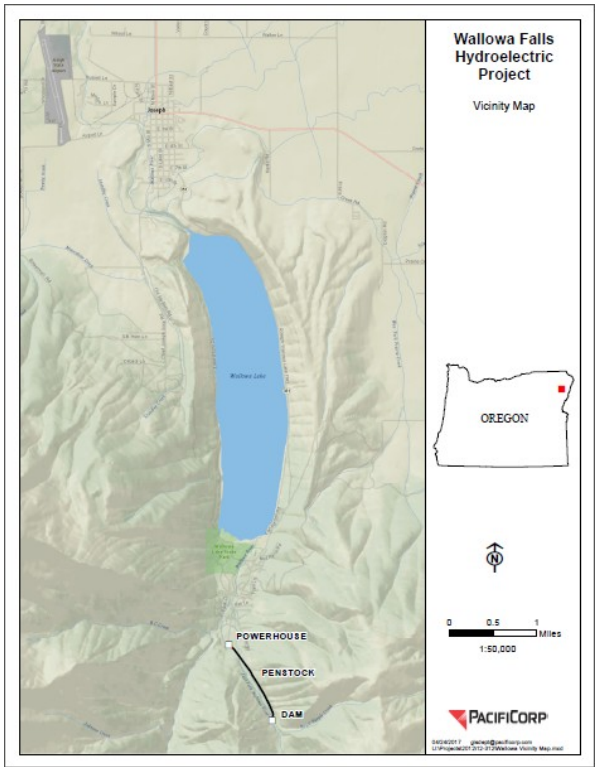
| | | |
|---|---|---|
| EDRR:__Y__N | **GPS File Name:** | Other Observations: |
| **Access: Road__ Trail** X **River_ Other** Campground | | |
| **Township:** 3S **Range:** 45E **Section:** 29 **¼ sec:** SE of ¼ sec: SE | | |

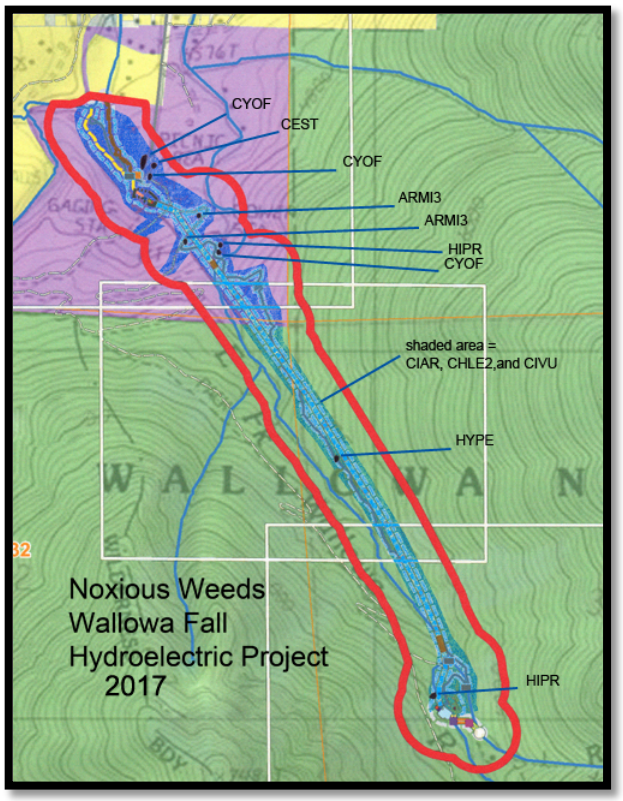
## Site Data Information

| | | |
|---|---|---|
| **Target Species Code:** ARMI3 | **Common Name:** Common Burdock | |
| **Scientific Name:** *Arctium minus* | | **Phenology: R__ B__ FL** X **S_** |
| **Distribution: CL**umped____**L**inear_____**SES**cattered even_____ **SP**Scattered Patchy X_ **C**ontinuous_____ | | |
| **Total Acres:** 26 | **Percent Infested:** <1% | **Infested Acres:** ~0.1 |
| % Cover or Count (weeds): ~5 | | Understory Cover % (all):60-90% |
| Potential to Spread: High__ Med x_Low_____ | | **Distance to Water:** >30m |
| **Water Type: Perennial_ Ephemeral____** | | **System: Lake__ River__ Spring_ Stream_** |
| Soil Types: sandy loam | | Slope % aspect: 2-10%, Aspect variable |
| Other Species on Site: | | |

## Comments

# Map of Site


Wallowa Falls
Hydroelectric
Project
Vicinity Map
OREGON
POWERHOUSE
PENSTOCK
DAM
0 0.5 1
Miles
1:50,000
PACIFICORP


CYOF
CEST
CYOF
ARMI3
ARMI3
HIPR
CYOF
shaded area =
CIAR, CHLE2,and CIVU
HYPE
HIPR
Noxious Weeds
Wallowa Fall
Hydroelectric Project
2017

# Invasive Plant Inventory Form

## General Site Information

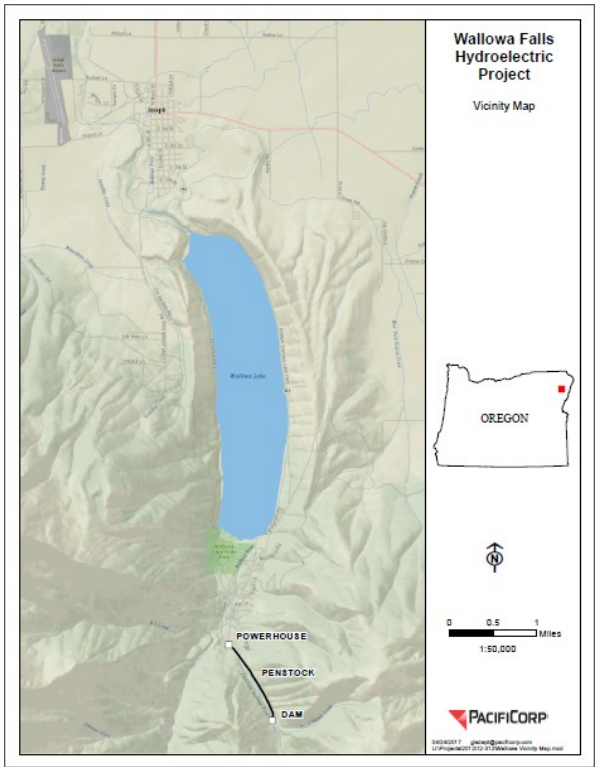
| | | | |
|---|---|---|---|
| **Site Name:** Wallowa Falls Hydroelectric Project | | **Date:** 19 July 2017 | |
| Photo Point (GPS): | | Ownership: PacifiCorp | |
| Photo Name: | | **Examiner:** Kendrick Moholt, Bio-Resources, Inc. | |
| Botanist Initial:<br>Wildlife Biologist: | **Elevation:** 4700'-5000' | **GPS Coordinates:** 0483297 5012651N and 0483577E 5012260N | **Datum:** UTM (NAD 27) Zone 11 |
| EDRR: Y N | **GPS File Name:** | Other Observations: | |
| **Access: Road Trail** X **River Other #** | | | |
| **Township:** 3S **Range:** 45E **Section:** 29 **¼ sec**: NW of ¼ sec: SE | | | |
| **Township:** 3S **Range:** 45E **Section:** 29 **¼ sec**: SE of ¼ sec: SE | | | |

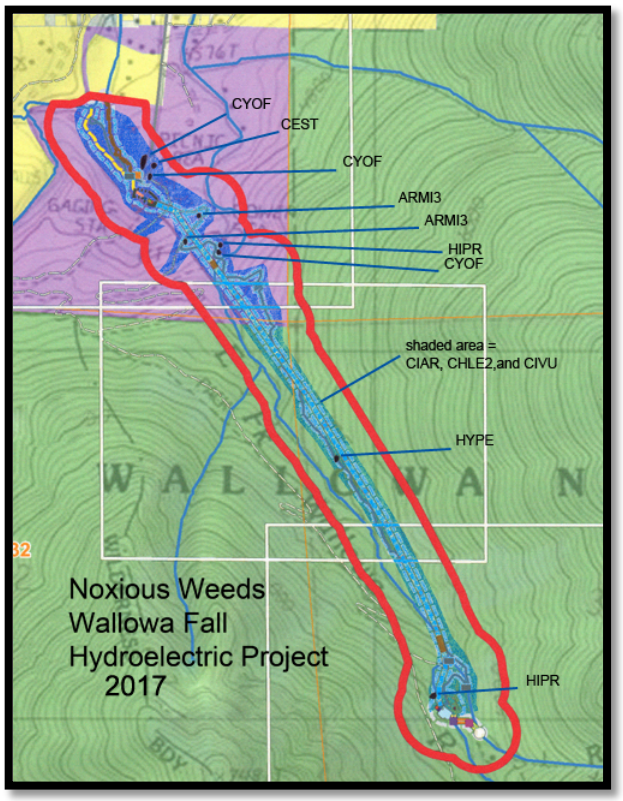
## Site Data Information

| | | |
|---|---|---|
| **Target Species Code:** CYOF | **Common Name:** Houndstongue | |
| **Scientific Name:** *Cynoglossum officinale* | **Phenology: R B FL** X **S** | |
| **Distribution: CL**umped **L**inear **SES**cattered even<br>**SP**Scattered Patchy X **C**ontinuous | | |
| **Total Acres:** 26 | **Percent Infested:** <1% | **Infested Acres:** ~0.15 |
| % Cover or Count (weeds): ~60 | Understory Cover % (all):40-90% | |
| Potential to Spread: High x Med Low | **Distance to Water:** >30m | |
| **Water Type: Perennial Ephemeral** | **System: Lake River Spring Stream** | |
| Soil Types: sandy loam | Slope % aspect: 2-10%, Aspect variable | |
| Other Species on Site: | | |

## Comments

# Map of Site


Wallowa Falls
Hydroelectric
Project
Vicinity Map
OREGON
POWERHOUSE
PENSTOCK
DAM
0 0.5 1
Miles
1:50,000
PACIFICORP


CYOF
CEST
CYOF
ARMI3
ARMI3
HIPR
CYOF
shaded area =
CIAR, CHLE2,and CIVU
HYPE
HIPR
Noxious Weeds
Wallowa Fall
Hydroelectric Project
2017

# Invasive Plant Inventory Form

## General Site Information

| | | | |
|---|---|---|---|
| **Site Name:** Wallowa Falls Hydroelectric Project | | **Date:** 19 July 2017 | |
| Photo Point (GPS): | | Ownership/District: USFS, WWNF, Eagle Cap and PacifiCorp | |
| Photo Name: | | **Examiner:** Kendrick Moholt, Bio-Resources, Inc. | |
| Botanist Initial:<br>Wildlife Biologist: | **Elevation:** 4700'-5800' | **GPS Coordinates:** 0484195E 5011062N (USFS)<br>0484223E 5011018N (Pacif) | **Datum:** UTM (NAD 27) Zone 11 |
| EDRR: Y N | **GPS File Name:** | Other Observations: | |
| **Access: Road Trail** X **River Other #** | | | |
| **Township:** 3S **Range:** 45E **Section:** 33 **¼ sec:** SE (USFS) | | | |
| **Township:** 3S **Range:** 45E **Section:** 29 **¼ sec:** SE of **¼ sec:** SE (PacifiCorp) | | | |

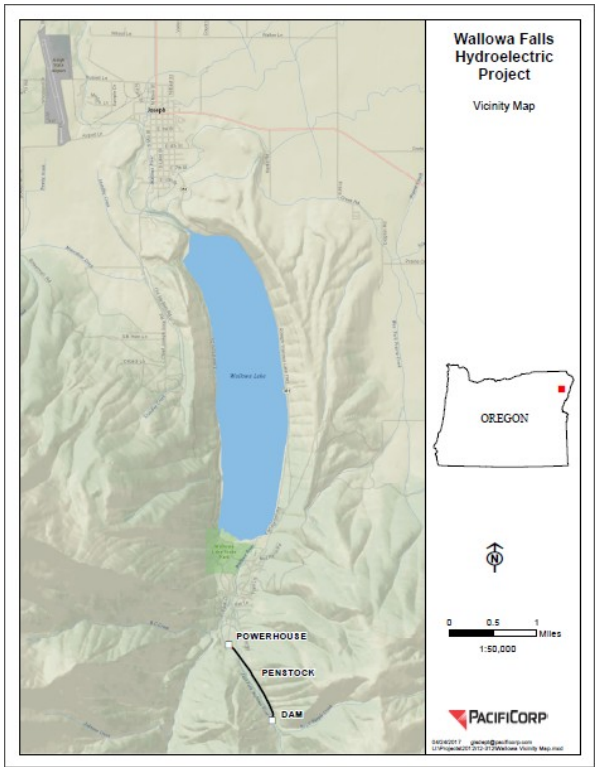
## Site Data Information

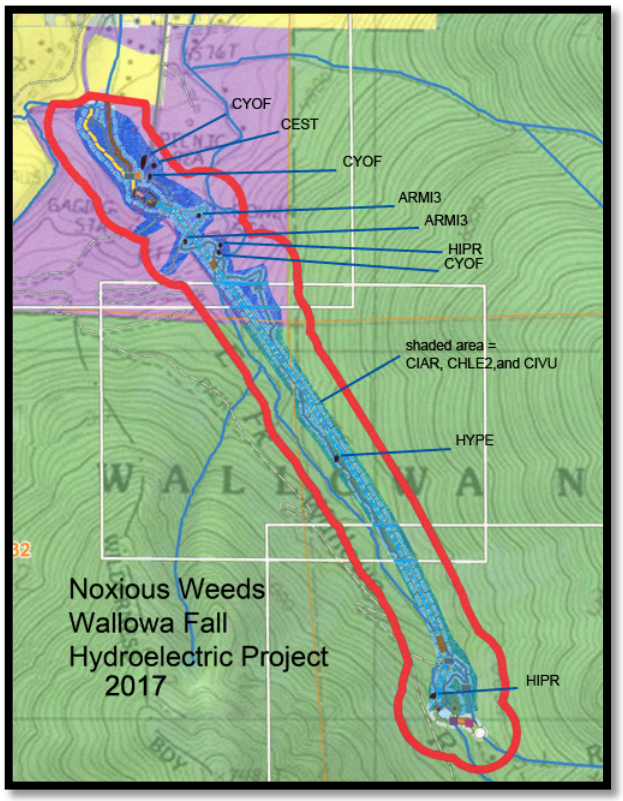
| | | |
|---|---|---|
| **Target Species Code:** HIPR | **Common Name:** meadow hawkweed | |
| **Scientific Name:** *Hieracium caespitosum* (Synonym: *Hieracium pratense*) | | **Phenology: R B FL** X **S** |
| **Distribution: CL**umped **L**inear **SE**Scattered even **SP**Scattered Patchy X **C**ontinuous | | |
| **Total Acres:** 26 | **Percent Infested:** <1% | **Infested Acres:** ~0.15 |
| % Cover or Count (weeds): <1% (~60 plants) | | Understory Cover % (all):40-90% |
| Potential to Spread: High x Med Low | | **Distance to Water:** >30m |
| **Water Type: Perennial Ephemeral** | | **System: Lake River Spring Stream** |
| Soil Types: sandy loam to sandy lithosol | | Slope % aspect: 2-20%, Aspect variable |
| Other Species on Site: | | |

## Comments

The hawkweed treated here is not in the same location formerly recorded with the infestation ID numbers MH3555 and MH3560. Plants have not been relocated at these older infestation sites.

# Map of Site


Wallowa Falls
Hydroelectric
Project
Vicinity Map
OREGON
POWERHOUSE
PENSTOCK
DAM
0 0.5 1
Miles
1:50,000
PACIFICORP


CYOF
CEST
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ARMI3
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HIPR
CYOF
shaded area =
CIAR, CHLE2,and CIVU
HYPE
HIPR
Noxious Weeds
Wallowa Fall
Hydroelectric Project
2017

# Invasive Plant Inventory Form

## General Site Information

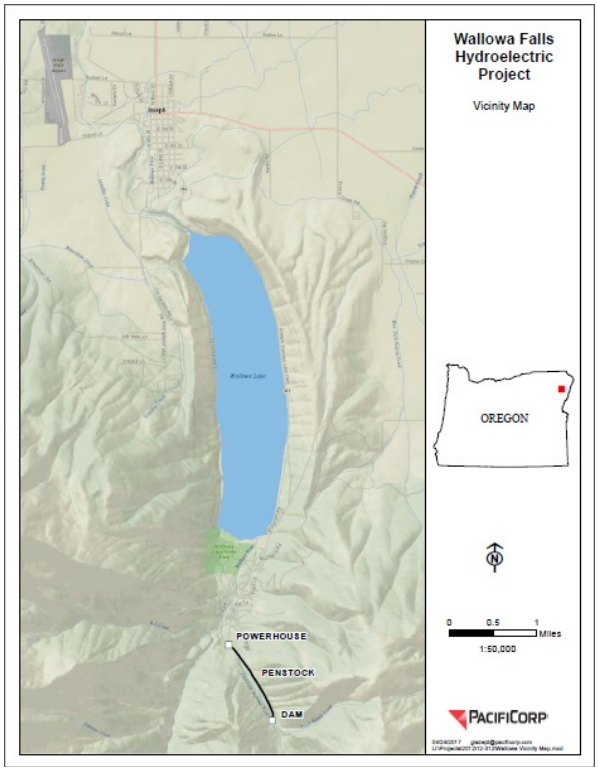
| | | | |
|---|---|---|---|
| **Site Name:** Wallowa Falls Hydroelectric Project | | | **Date:** 19 July 2017 |
| Photo Point (GPS): | | | Ownership/District:USFS, WWNF, Eagle Cap and PacifiCorp |
| Photo Name: | | | **Examiner:** Kendrick Moholt, Bio-Resources, Inc. |
| Botanist Initial:<br>Wildlife Biologist: | **Elevation:** 4700'-5800' | **GPS Coordinates:** 0483259 E 5012652N to 0484159E 5011062N | **Datum:** UTM (NAD 27) Zone 11 |
| EDRR: __Y __N | **GPS File Name:** | Other Observations: | |
| **Access: Road__ Trail** X **River_ Other** campground | | | |
| **Township:** 3S**Range:** 45E **Section:** 33 NW¼ of NW¼, SW¼ of NW¼, NW¼ of SW¼, SE¼ of SW¼ | | | |
| **Township:** 3S**Range:** 45E **Section:** 29 SW ¼ | | | |
| **Township:** 3S**Range:** 45E **Section:** 32 NE¼ of NE¼ | | | |

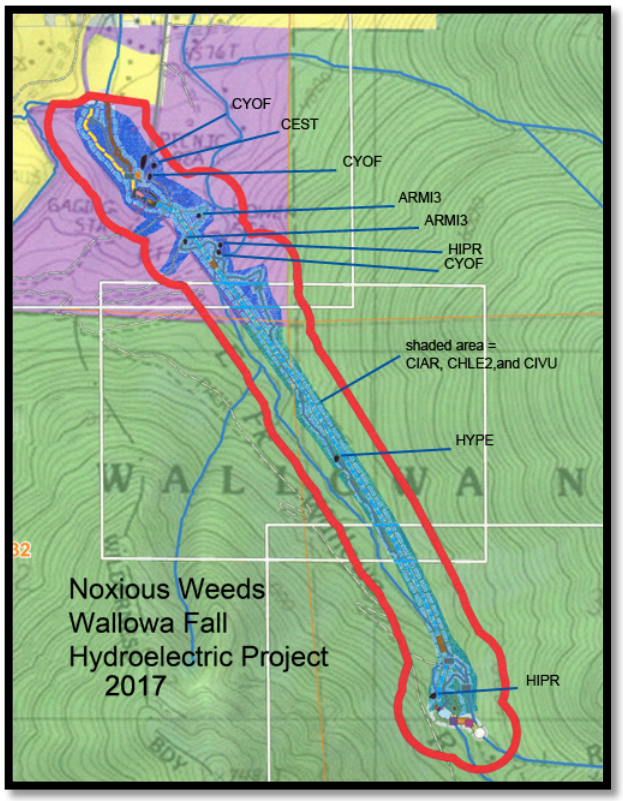
## Site Data Information

| | | |
|---|---|---|
| **Target Species Code:** CHLE2 | **Common Name:** Oxeye Daisy | |
| **Scientific Name:** *Leucanthemum vulgare* (Synonym- *Chrysanthemum leucanthemum*) | **Phenology: R__ B__ FL** X **S_** | |
| **Distribution: CL**umped____**L**inear_____**SE** Scattered even_____ **SP** Scattered Patchy X_ **C**ontinuous_____ | | |
| **Total Acres:** 26 | **Percent Infested:** <1% | **Infested Acres:** ~0.3 |
| % Cover or Count (weeds): ~1000 | | Understory Cover % (all):40-90% |
| Potential to Spread: High__ Med x Low____ | | **Distance to Water:** >30m |
| **Water Type: Perennial_ Ephemeral____** | | **System: Lake__ River__ Spring_ Stream_** |
| Soil Types: sandy loam | | Slope % aspect: 2-20%, Aspect variable |
| Other Species on Site: | | |

## Comments

# Map of Site


Wallowa Falls
Hydroelectric
Project
Vicinity Map
OREGON
POWERHOUSE
PENSTOCK
DAM
0 0.5 1
Miles
1:50,000
PACIFICORP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Wallowa Fall
Hydroelectric Project
2017

# Invasive Plant Inventory Form

## General Site Information

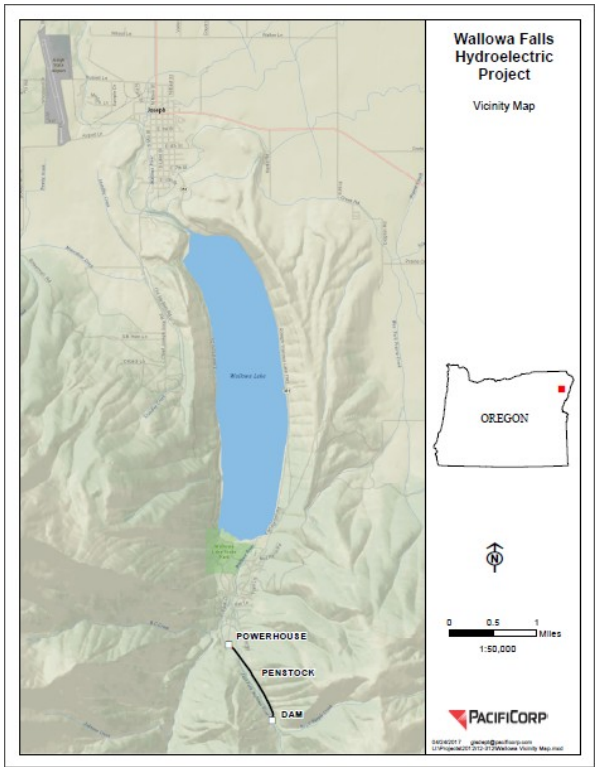
| | | | |
|---|---|---|---|
| **Site Name:** Wallowa Falls Hydroelectric Project | | **Date:** 19 July 2017 | |
| Photo Point (GPS): | | Ownership: PacifiCorp | |
| Photo Name: | | **Examiner:** Kendrick Moholt, Bio-Resources, Inc. | |
| Botanist Initial:<br>Wildlife Biologist: | **Elevation:** 4700'-5000' | **GPS Coordinates:** 0483409E 5012480N | **Datum:** UTM (NAD 27) Zone 11 |
| EDRR: Y N | **GPS File Name:** | Other Observations: | |
| **Access: Road** X **Trail** **River** **Other** Campground | | | |
| **Township:** 3S **Range:** 45E **Section:** 29 **¼ sec:** NW of **¼ sec:** SE | | | |

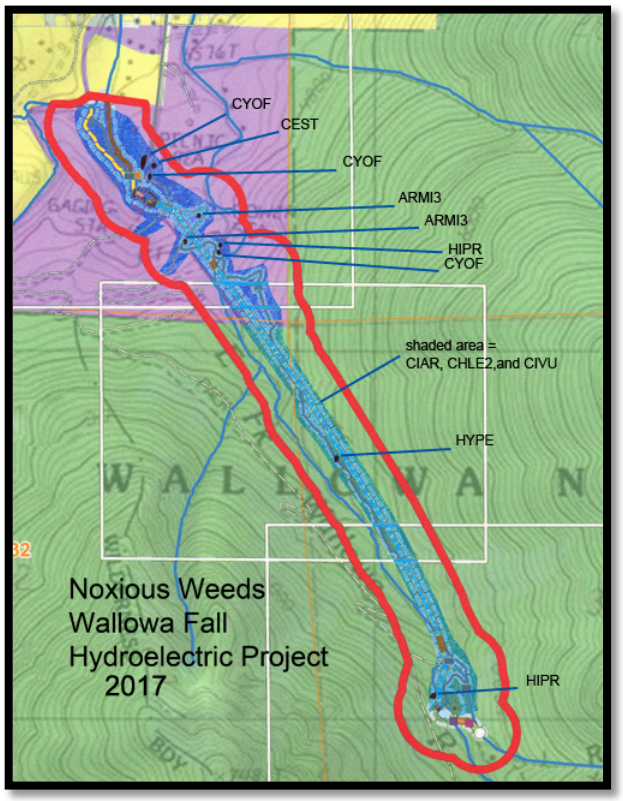
## Site Data Information

| | | |
|---|---|---|
| **Target Species Code:** CEST | **Common Name:** Spotted Knapweed | |
| **Scientific Name:** *Centaurea stoebe*<br>Synonym (*Centaurea maculosa*) | **Phenology: R** **B** **FL** X **S** | |
| **Distribution: CL**umped **L**inear **SES**cattered even<br>**SP**Scattered Patchy X **C**ontinuous | | |
| **Total Acres:** 26 | **Percent Infested:** <1% | **Infested Acres:** ~0.25 |
| % Cover or Count (weeds): dozens | Understory Cover % (all):40-90% | |
| Potential to Spread: High x Med Low | **Distance to Water:** >30m | |
| **Water Type: Perennial** **Ephemeral** | **System: Lake River Spring Stream** | |
| Soil Types: sandy loam | Slope % aspect: 2-10%, Aspect variable | |
| Other Species on Site: | | |

## Comments

# Map of Site


Wallowa Falls
Hydroelectric
Project
Vicinity Map
OREGON
POWERHOUSE
PENSTOCK
DAM
0 0.5 1
Miles
1:50,000
PACIFICORP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Hydroelectric Project
2017

# Invasive Plant Inventory Form

## General Site Information

| | | | |
|---|---|---|---|
| **Site Name:** Wallowa Falls Hydroelectric Project | | **Date:** 19 July 2017 | |
| Photo Point (GPS): | | Ownership/District:USFS, WWNF, Eagle Cap | |
| Photo Name: | | **Examiner:** Kendrick Moholt, Bio-Resources, Inc. | |
| Botanist Initial:<br>Wildlife Biologist: | **Elevation:** 5500' | **GPS Coordinates:** 0484018E 5011521N | **Datum:** UTM (NAD 27) Zone 11 |
| EDRR: Y N | **GPS File Name:** | Other Observations: | |
| **Access: Road Trail** X **River Other #** | | | |
| **Township:** 3S **Range:** 45E **Section:** 33 **¼ sec:** NW | | | |

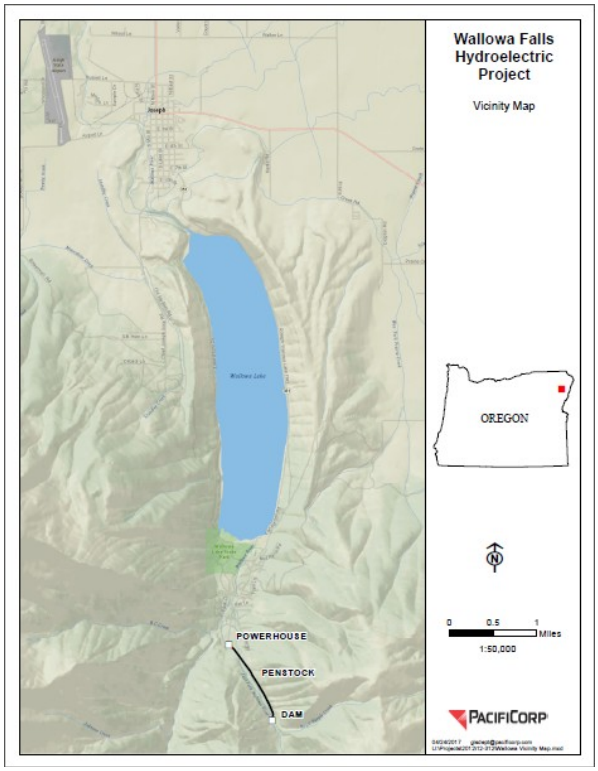
## Site Data Information

| | | |
|---|---|---|
| **Target Species Code:** HIPR | **Common Name:** St. John's Wort | |
| **Scientific Name:** *Hypericum perforatum* | **Phenology: R B FL** X **S** | |
| **Distribution: CL**umped **L**inear **SES**cattered even<br>**SP**Scattered Patchy X **C**ontinuous | | |
| **Total Acres:** 26 | **Percent Infested:** <1% | **Infested Acres:** ~0.1 |
| % Cover or Count (weeds): ~50 | Understory Cover % (all): 90% | |
| Potential to Spread: High Med Low X | **Distance to Water:** >30m | |
| **Water Type: Perennial Ephemeral** | **System: Lake River Spring Stream** | |
| Soil Types: sandy loam | Slope % aspect: 2%, 230° | |
| Other Species on Site: | | |

## Comments

Approximately 1 mile from trailhead on Wallowa Falls Maintenance Road (NE of the FS1804 trail switchback on the Sec. 32/33 border).

# Map of Site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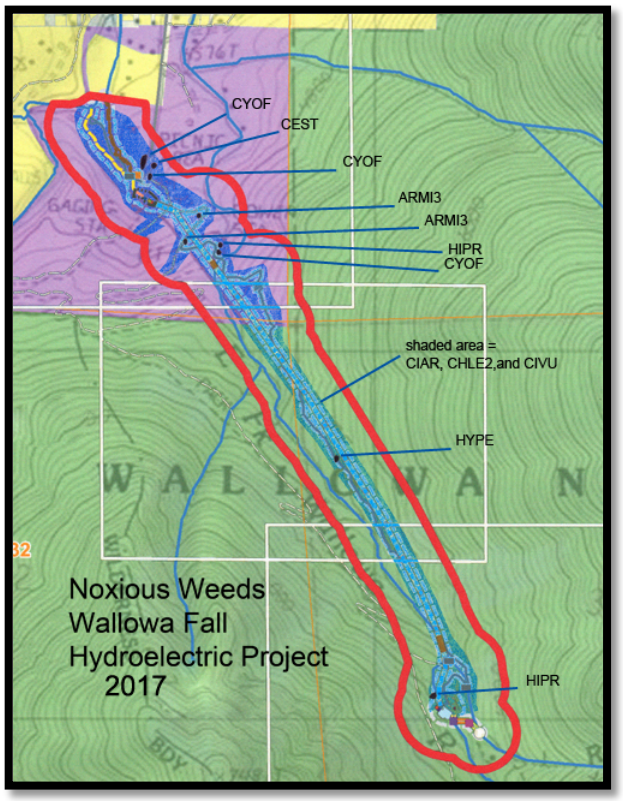
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CYOF
shaded area =
CIAR, CHLE2,and CIVU
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Noxious Weeds
Wallowa Fall
Hydroelectric Project
2017
HIPR

# Appendix E

# Agency Comments

| AGENCY | COMMENT | UTILITY RESPONSE |
|---|---|---|
| ODEQ | As discussed previously, the timing of forebay flushing should be during high flows that typically occur in June. PacifiCorp should continue to develop methods and plans for conducting the flushing during the time period specified in the Section 401 Water Quality Certification for the Wallowa Falls Project. The flushing operation should be conducted continuously during the authorized 72 hour window whenever possible under safe working conditions in order to disperse sediment. | Comment noted. |
| ODEQ | The reporting of flow measurements at the upstream and downstream gaging locations should be included in future reports. | Noted. In the future, all flow measurements taken at the newly implemented USGS compliance gage will be reported. |
| ODEQ | A map showing the turbidity and flow monitoring locations along with photos of these locations should be included in future reports. | Comment noted. |
| OWRD | One edit on page 5, first full paragraph – ramping rate compliance will likely need to be **a generation change of no greater than** 300 KW per hour. | 300 Kw/h generation changes is the units lower end limitation, it cannot make any smaller adjustments. Thus the wording in the Report is accurate and consistent with Article 1 (c) of the 401 Water Quality Certificate. |

| | | |
|---|---|---|
| ODFW | The third paragraph on page 1 that describes the project inflow at the time of forebay flushing. The report indicates that "the staff gage immediately below the Wallowa Falls Dam indicated that flows were approximately 44.77 cfs" and indicates that the flow of Royal Purple Creek was assumed to be 1 cfs. The report then indicates that the inflow to the forebay was approximately 43.77. Based on the Water Resources Study conducted during relicensing, ODFW understands that the natural inflow to the project is calculated by adding the flow below the dam to the flow to the hydro project through the penstock. Therefore, it is unclear why the assumed flow from Royal Purple Creek (1 cfs) was deleted from this calculation. Additionally, the flow diverted into the penstock was not reported. Please revise to more clearly communicate total inflow to the forebay. | Royal Purple Creek flow was not deleted from the total flow calculation; the way the Report reads is to list inflow (East Fork Wallowa River) at 43.77 and then the assumed 1 cfs from Royal Purple Creek for a total outflow below the dam of 44.77 cfs. Penstock flow was not reported because the headgate was closed and the unit was not in operation during flushing activities. |

| | | |
|---|---|---|
| ODFW | The report indicates that forebay flushing was conducted in late July during 8-hour work periods over the course of three days, requiring the forebay discharge to be shut down between work periods. This is not consistent with the intent of the Sediment Management Program in Section 2.2.2 of the Project Final License Application (February 2015), as ODFW understood it during relicensing consultation. To protect fish in the East Fork Bypassed Reach by fully flushing all sediment out of the system, forebay flushing in future years should be conducted in June during the highest flows. Further, the flushing was expected to occur continuously for a period not to exceed 72 hours. The start-and-stop of flushing flow in the East Fork Bypassed Reach is less likely to fully flush the sediment out of the system, which could result in alterations to habitat for bull trout and other aquatic organisms. While PacifiCorp consulted with, and received concurrence from, ODFW and other agency stakeholders on the forebay flushing plan for 2017, in future years it is expected that forebay flushing will occur in June for a continuous period not to exceed 72 hours. If extraneous circumstances occur that make this impossible or unsafe, ODFW is willing to consider, for its approval and that of other stakeholders, alternative forebay flushing methods on a case-by-case basis, if proposed in a timely manner. Any adjustments to a given year's forebay flushing plan should be communicated with agency stakeholders as early as possible to allow adequate consideration and analysis of alternatives. | Comment noted. |
| ODFW | If PacifiCorp foresees that license requirements for forebay flushing cannot consistently be met in the future, then a revised forebay flushing plan should be developed in consultation with ODFW and other agency stakeholders. In the event of a new forebay flushing plan, agency stakeholders should be afforded at least 30 days to review and approve the final plan. | Comment noted. |
| ODFW | For interpretation of the turbidity data, it would be helpful to also include flow data, so turbidity variation due to stream flow unrelated to forebay flushing (such as precipitation) could be ascertained. | Comment noted, flow data will be included in the future. The newly established USGS flow compliance gage was not operational during flushing operations in 2017. |

| | | |
|---|---|---|
| ODFW | On page 3 of Attachment 2 to the Forebay Flushing Report, Photos 5 and 6 appear to be the same picture, therefore it is assumed that one is incorrect. | Comment noted and the assumption is correct. |
| USFWS | Forebay Flush- The OCMP report documents that forebay flushing was conducted in late July during 8-hour work periods over the course of three days, requiring the forebay discharge to be shut down between work periods. This was not the intent of the forebay flushing plan when it was written. Forebay flushing, in future years, should be conducted in June during the highest flows to maximize flushing this excess sediment out of the system to protect bull trout and bull trout critical habitat, as well as other aquatic species in the East Fork Bypassed Reach. The Service understands the issues that prohibited this from occurring this year, but expects in future years that the forebay flushing will occur in June. In addition, the flushing was expected to occur continuously for a period not to exceed 72 hours. The start and stop of flushing flow in the East Fork Bypassed Reach is less likely to fully flush the sediment out of the system, which could result in negative impacts to critical habitat for bull trout and other aquatic organisms. PacifiCorp consulted with, and received concurrence from the Service and other agency stakeholders on the changes from the license for the forebay plan in 2017. In future years it is expected that forebay flushing will occur during June higher flows and for a continuous period not to exceed 72 hours. | Comment noted. |
| USFWS | Turbidity monitoring – Recommend that the report include a map with the locations of the turbidity monitoring both above and below the forebay flushing. In addition, it would be helpful to have photos of stream turbidity prior to the flush, during high turbidity readings, and post-flush showing low readings, to better interpret the numerical data at both the upstream forebay and downstream turbidity monitoring locations. | Comment noted. Map and photos will be included within future years reports. |