



# **2019 Annual Operational Compliance Report**

**Wallowa Falls Hydroelectric Project**

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

**Grande Ronde River Basin**

**Wallowa County, Oregon**



December 2019

***Prepared by:***

**PacifiCorp**

**825 NE Multnomah Street**

**Portland, OR 97232**

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## **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 2019 Wallowa Falls Bull Trout Redd Monitoring Report required by Article 412 of the license and the 2019 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**

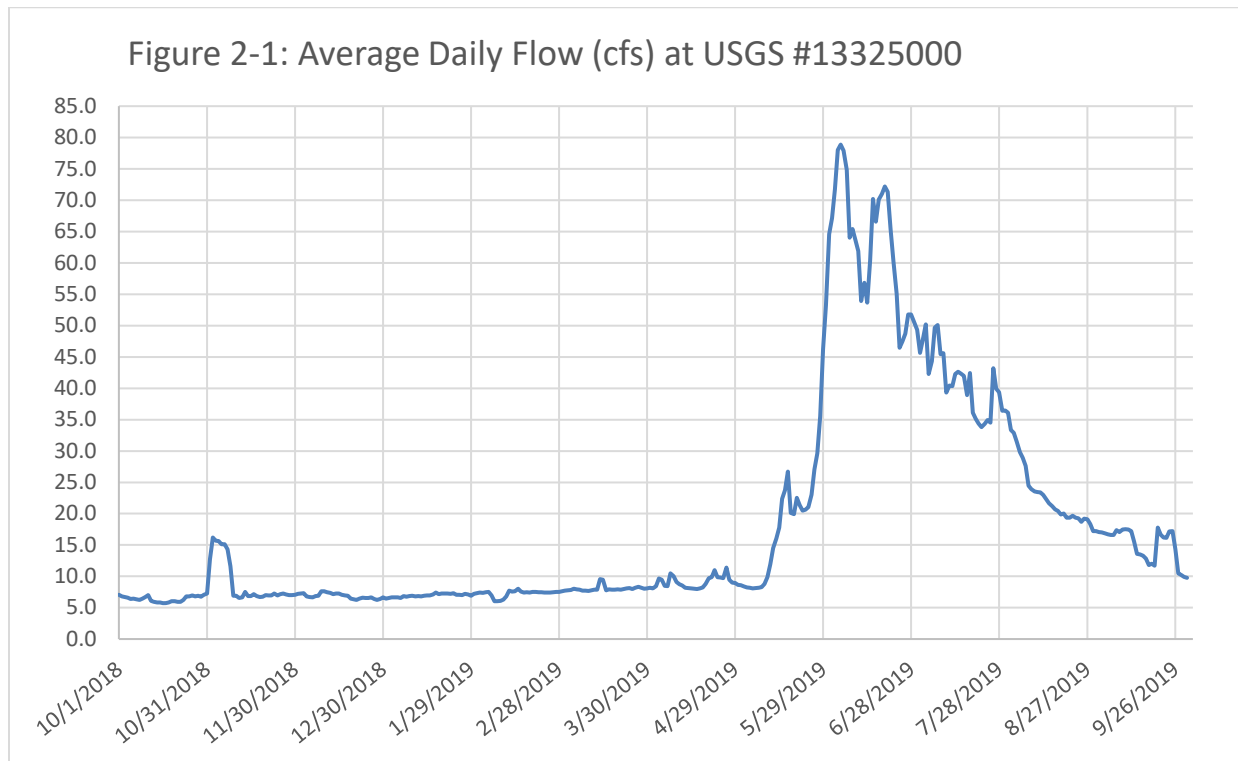
Minimum instream flows, as required by license Appendix A, Condition 1(a) and Appendix B, Condition 9(2) were implemented by PacifiCorp before July 5, 2018. PacifiCorp contracted the United States Department of the Interior, U.S. Geological Survey (USGS) to install the required stream gage and continues to conduct the required hydrologic surveillance program (USGS Gage 13325000, East Fork Wallowa River) for the Project. The gage was installed in the summer of 2017<sup>1</sup>. As required by license Appendix A, Condition 1(b), the East Fork Wallowa River gage reports a real-time recording of river stage and corresponding flow in cfs measured in 15 minute intervals. Compliance with the license required minimum flow is determined based on a top of the hour average of the previous four 15 minute readings.

From October 1, 2018 through September 30, 2019, the Project operated with 5 cubic feet per second (cfs) or greater, as measured at the compliance gage in the bypassed reach of the East Fork

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<sup>1</sup> 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.

Wallowa River. There was greater than 5 cfs in the bypassed reach, as measured on all days between October 1, 2018 and September 30, 2019. Figure 2-1 shows the average daily flow during the 2019 water year.



To facilitate the following license required project improvements, the Wallowa Falls plant did not generate from May 29, 2019 through September 11, 2019.

- Extend the Royal Purple Creek Diversion pipeline (Appendix B, Condition 11)
- Modify the intake structure on East Fork Dam to enable it to maintain the minimum instream flows required by Appendix A, Condition 1(a) and Appendix B, Condition 9(2) (Article 407)
- Install permanent tailrace barrier and re-route tailrace channel (Appendix A, condition 2(a))



### 2.1.2 Ramping

In accordance with Article 406 *Ramping Rates* and Condition 1(c) of Appendix A of the Wallowa Falls License PacifiCorp filed the *Wallowa Falls Ramping Study Report and Down-Ramping Plan* with the Commission on April 3, 2018. As discussed in the Study Report, as well as the OCMP, due to the lack of storage capacity, the Project is operated in run-of river mode and generation is subject to seasonal river flows.<sup>2</sup> All increases in generation, will comply with the Standard Operating Procedure (Down-Ramping Plan) for ramping. Improvements in automation and communication infrastructure at the Project have allowed the PLC to control unit generation based on real-time forebay level indication and streamflow in the bypassed reach. This is a much more efficient way to run the generating unit than was historically possible and also has the added benefit of holding a steadier river stage in the bypassed reach of the East Fork Wallowa River. The PLC also receives real-time data from the USGS compliance gage and is programmed to alarm locally at the plant as well as to the Hydro Control Center, in Ariel, Washington, if there is a drop in minimum flows. For example, when a rainstorm occurs and forebay indication shows a rise in inflows the PLC can ramp the unit up at 300 kW/hr. to utilize the increased inflows for generation while holding the bypassed reach at a more steady stage. PacifiCorp's water right of 16 cfs is the maximum used for generation. Therefore, any inflow in excess of 16 cfs will always spill over the dam.

In 2019 all generation changes were made in compliance with the Down-Ramping Plan, that is to say the automated Programmed Logic Control (PLC) made all generation increases in steps of 300 kW/h or less. The following unplanned and approved emergency outage occurred during the September 1 through October 31, 2019 timeframe.

As described in PacifiCorp's September 18, 2019 email to the Agencies, following completion of the intake replacement and tailrace realignment projects and the installation of the temporary fish passage barrier weir in the south tailrace channel, PacifiCorp sent an operations crew to the Project on August 28, 2019 to restart the generating unit. The headgate had been closed and the generating unit offline since May 29, 2019. Upon arriving at Wallowa Falls, the crew determined that the equipment that controls the generator nozzle and deflector plate had failed with the deflector plate in the down position, preventing power generation. The crew left the Project headgate open and the generator nozzle was closed to the standard offline position, which

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<sup>2</sup> Run of river mode of operation refers to a hydroelectric project that has little or no water (energy) storage, is subject to seasonal river flows for generation and is therefore an intermittent energy source. This is in contrast to conventional hydropower which uses reservoirs to regulate water for flood control and dispatchable electrical power.

At a run of river project there is little or no storage, therefore when generation is held at a steady state, changes to river stage in the bypassed reach are entirely the result of natural increases or decreases in inflow to the project. In contrast, at a conventional hydropower project, when generation is held at a steady state, natural increases in inflow can be absorbed (stored) in the project reservoir or natural decreases in inflow can be withdrawn from the project reservoir, allowing the downstream river stage to be maintained in steady state.

allows approximately 3 cfs to flow through the penstock and past the generating unit deflector plate into the south tailrace channel.

On September 10, 2019, a relay technician, mechanic and principle controls engineer returned to the Project to troubleshoot the issue with the deflector plate. Damaged control equipment was replaced and the unit was prepared for a manual start. The generator was put back online and ramped up to 300 kW. After starting the unit the crew noted that the forebay level indication was showing unexpected values. A number of measures were taken to try and address the forebay level indication issues without success and it was determined that the unit should be left generating at a minimal 70 kW.

On September 11, 2019, at approximately 10:00 AM, a replacement forebay level sensor was installed and in compliance with the Down-Ramping Procedure the generator was loaded from 70 kW to 350kW. An hour later the generator was ramped up to 450kW. PacifiCorp's contract biologist completed a bull trout redd survey in the East Fork Wallowa River on September 11, 2019 and confirmed that the one previously identified redd and two new observed redds were in deep enough pools that were not impacted by reducing river stage in the bypassed reach from starting generation (Appendix C). After starting the unit, the crew attempted to put the generator in full auto mode, but this failed. It was determined that a controls panel needed to be replaced and the system recalibrated to restore this function. Without this function the unit could not be remotely started. PacifiCorp requested and received approval from the Agencies for an 8-hour outage on September 26, 2019 to make the necessary repairs and equipment replacement for the unit to be fully functional.

On September 19, 2019, the generating unit tripped offline at 8:57 PM and per Appendix A, Condition 1C of the license, PacifiCorp notified the Agencies via e-mail of the unit trip. As previously explained, due to a damaged control panel the generating unit could not be restarted by local operations personnel or remotely started by the Hydro Control Center in Ariel, Washington and therefore remained offline until the previously planned emergency repair/outage on September 26, 2019.

On September 26, 2019, PacifiCorp took the planned outage and successfully made the necessary repairs to the control panel and generating unit. Prior to ramping the generator back up, PacifiCorp's contract biologist completed a bull trout redd survey in the East Fork Wallowa River on September 26, 2019 and confirmed all identified redds were in deep enough pools and would not be impacted by reducing river stage in the bypassed reach from starting generation (Appendix C). Generation was increased by 300 kW/hour, in compliance with the Down-Ramping Plan.

### 3.0 Forebay Flushing

PacifiCorp successfully flushed the Project forebay for 72 hours commencing at 8:08 AM on June 2 and completing at 7:30 AM on June 5, 2019. The use of both the low level outlet pipe and a 20-inch siphon pipe to pass all natural inflow, allowed the forebay to be drained and sediment to be evacuated downstream. Prior to the flush PacifiCorp notified agency stakeholders, via e-mail on May 21, 2019 of the planned flushing event. Representatives from Oregon Department of Environmental Quality, Oregon Department of Fish and Wildlife, the U.S. Forest Service and PacifiCorp participated in a pre-flush coordination conference call on May 21, 2019.

Visual observation of the East Fork Wallowa River during forebay flushing, indicated some pulses of observable turbidity immediately downstream of the dam, but turbidity was not visually elevated in the lower habitat section of the bypass reach. No observable bedload movement or sediment deposition in the bypassed reach of the East Fork Wallowa River was noted. A Forebay Flushing Report was filed with the Commission and the Oregon Department of Environmental Quality August 28, 2019 and is included as Appendix A to this report.

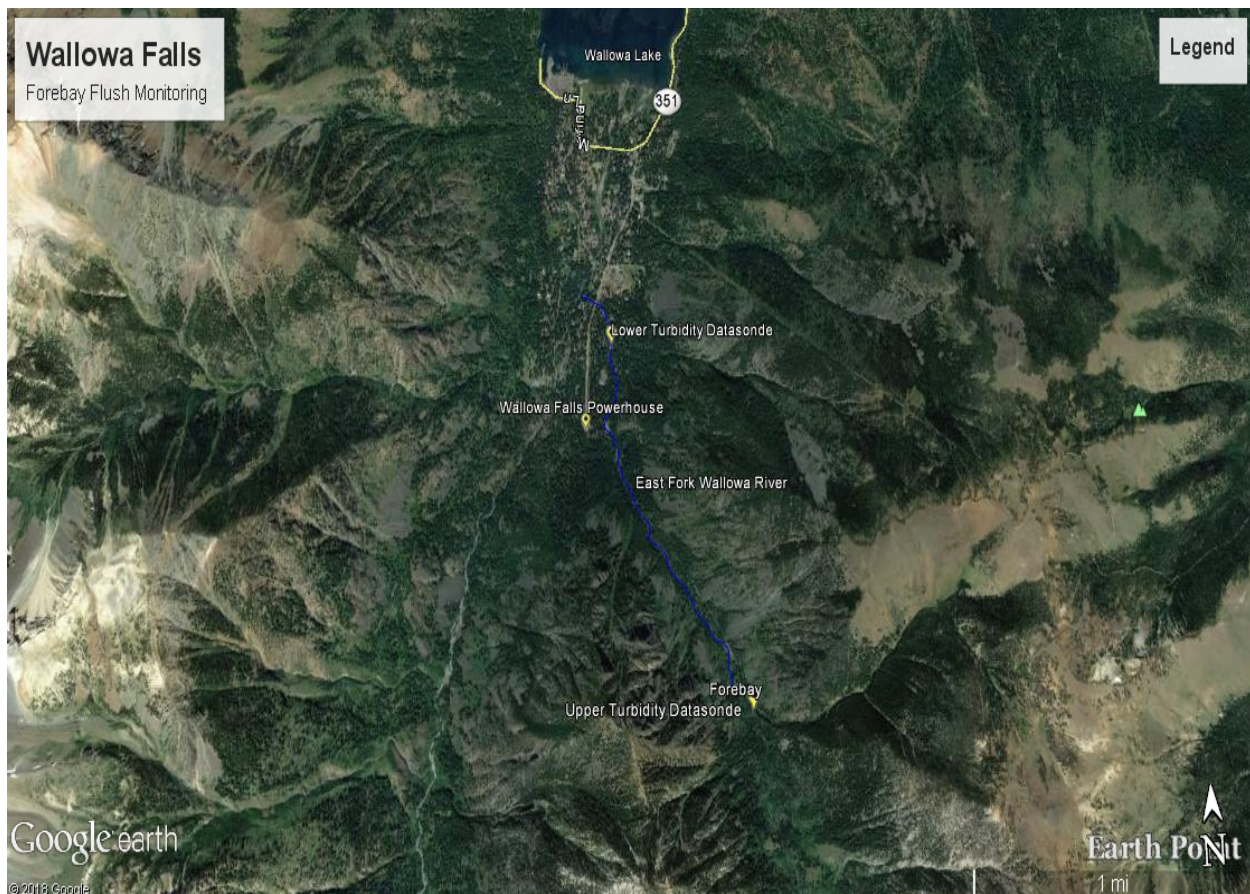


Figure 3.0. Location of Wallowa Falls forebay flush monitoring datasondes in 2019.

## **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 2019 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).

The results of fish handled for work-site isolation for in-water construction on the Wallowa Falls Hydroelectric Project in 2019, are included in Appendix C. Per license Article 412 and Appendix C, condition 4(a), the results of bull trout redd monitoring for calendar year 2019 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 2019 Noxious Weed Control Plan Annual Report is included as Appendix D to this report.

## **7.0 Deviations and Unanticipated Events**

On Saturday June 1, PacifiCorp's contractor discovered erosion/slope failure on the left bank of Royale Purple Creek immediately downstream of the Royal Purple diversion dam. The erosion on the slope was downslope/below the location where the Royal Purple flowline makes a left hand turn to transfer water from the creek to the project forebay/East Fork Wallowa River (Photos 7.1 and 7.2). The contractor did not see any erosion on Friday evening when they were up at the project forebay, so it is presumed that the erosion happened sometime Friday night or early Saturday morning. The contractor immediately removed the flashboard on the Royal Purple Creek diversion dam to stop any flow from going through the flowline and redirect all flow down the creek. On Sunday the contractor further isolated the flowline by placing visqueen over the pipe inlet at Royal Purple Creek. The event was reported via e-mail to Agencies and the Commission on June 3, 2019.

The erosion on the left bank of Royal Purple Creek resulted in short-term sediment transport and increased turbidity in the creek, however turbidity levels at the time of the erosion and immediately after are unknown. Once the flashboard in the diversion dam was removed, PacifiCorp's contractor reported that turbidity visually decreased within about 30 minutes. There was significant active spring runoff on June 1, 2019<sup>3</sup>, so there was increased background turbidity in the system. When contractors returned to the site on the morning of June 2, there was no visual sediment transport or increased turbidity over background levels in the creek.

Although the majority of the wood stave Royal Purple flowline had previously been replaced with polyvinyl chloride (PVC) pipe, in June 2019, a portion of the buried flowline from Royal Purple creek to the project forebay was still wood stave. In light of the erosion to the slope above Royal Purple Creek, PacifiCorp instructed our contractor to line the remainder of the buried historic Royal Purple wood stave flowline with polyvinyl chloride (PVC) pipe as part of the project to extend the Royal Purple flowline. The entire extent of the Royal Purple flowline is now PVC pipe.

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<sup>3</sup> Flows as measured at USGS Gage 13325000 at 1900 hours on May 29 and 30 were 49.1 cubic feet per second (cfs), at 1900 hours on May 31, 2019 flows had increased to 60.5 cfs and at 1900 hours on June 1 flows were holding steady at 59 cfs.





Photo 7.1 – Erosion on left bank of Royal Purple Creek



Photo 7.2 - Erosion on left bank of Royal Purple Creek

## 8.0 Implementation Projects

In calendar year 2019, PacifiCorp completed phase 1 of the water conveyance structural improvements, as well as, some of the recreational and visual/aesthetic improvements required by the FERC license. Table 1 provides a summary of work completed in 2019. Photos are provided in Appendix E.

**Table 1 – 2019 Implementation Projects**

<b>Requirement</b>	<b>2019 Action</b>	<b>Photo Reference</b>
FERC License, Article 407	The intake structure and gate was replaced. A wye was added to the penstock immediately downstream of the dam to allow for the bypass of additional flow, beyond the capacity of the low level outlet pipe, during annual forebay flushing.	Photos 1, 2, 3 and 4
FERC License, Appendix B – 4(e) Condition 7(A)	The foundation for a new Wallowa Lake trailhead sign was installed. The sign panels will be installed in 2020.	Photo 5
FERC License, Appendix B – 4(e) Condition 7(E)	A new gate was installed at the entrance to the PacifiCorp maintenance road.	Photo 6
Recreation, Visual and Aesthetic Management Plan	The exposed portion of the penstock was recoated.	Photo 7
Recreation, Visual and Aesthetic Management Plan	The foundation for a new interpretive sign was installed at the forebay. The sign panels will be installed in 2020.	NA
FERC License, Appendix B – 4(e) Condition 11	Royal Purple Creek diversion pipe was extended and the damaged portion of pipe was replaced.	Photo 8
FERC License, Appendix A – Condition 2(a)	Phase 1 – The northern tailrace channel was deepened and extended to a new outfall location into the West Fork Wallowa River. A fish barrier was to prevent upstream migrating adult salmonids from entering the tailrace at its	Photos 9 - 15

<b>Requirement</b>	<b>2019 Action</b>	<b>Photo Reference</b>
	confluence with the West Fork Wallowa River.	

In calendar year 2020 new trail, safety and interpretive signage will be installed, and additional aesthetic measures, as prescribed in the Recreation, Visual and Aesthetic Management Plan, will be implemented. The tailrace reroute project will be completed and commissioned per the schedule provided in the final Permanent Tailrace Barrier Plan dated February 2019.

## **9.0 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.

PacifiCorp. 2018. Wallowa Falls Ramping Study Report and Down-Ramping Plan. Wallowa Falls Hydroelectric Project FERC Project No. P-308. Portland, Oregon.



## **Appendix A**

### **Wallowa Falls Forebay Flushing Report**

**Amended December 31, 2019 to address Agency comments on the 2019 Operation Compliance Management Plan (OCMP)**

Electronically filed August 28, 2019

Ms. Kimberly D. Bose, Secretary Federal Energy Regulatory Commission 888 First Street, NE Washington, DC 20426	Mr. John Dadoly Oregon Department of Environmental Quality 700 SE Emigrant Ave – Suite 330 Pendleton, OR 97801
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**Subject:     Wallowa Falls Hydroelectric Project (FERC No. P-308)  
              2019 Forebay Flushing Report**

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 flushed the forebay for 72 hours commencing at 8:08 AM on June 2 and completing at 7:30 AM on June 5, 2019. Prior to the flush, PacifiCorp notified agency stakeholders<sup>1</sup> via e-mail on May 21, 2019 of the planned flushing event. ~~Agency stakeholders declined the offer of a pre-flush coordination conference call.~~ **Representatives from Oregon Department of Environmental Quality, Oregon Department of Fish and Wildlife, the U.S. Forest Service and PacifiCorp participated in a pre-flush coordination conference call on May 21, 2019.**

The final Turbidity Monitoring Plan for Forebay Flushing, dated June 2, 2017, requires that natural inflow to the Project be greater than or equal to 15 cubic feet per second (cfs) for flushing to occur. The flow in the lower bypassed reach of East Fork Wallowa River, as measured at the U.S. Geological Survey (USGS) #13325000, at 8:00 AM June 2, 2019, was 73 cfs. Bypassed reach flows remained greater than 62 cfs, and predominantly above 75 cfs, for the duration of the 72 hour flushing event.

For forebay flushing the following general sequence of events occurred:

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<sup>1</sup> Oregon Department of Environmental Quality, Oregon Department of Fish and Wildlife, U.S. Fish and Wildlife Service and U.S. Forest Service.

May 29: PacifiCorp personnel mobilized to the Project forebay and closed and tagged out the penstock intake gate and took the hydroelectric generator offline.

May 29: PacifiCorp's biologist, with the assistance of our contracted biologist conducted a fish salvage of the Project tailrace per the final Fish Salvage plan dated May 2, 2017.

May 30, 2019: PacifiCorp's contract biologist mobilized to site and deployed In-Situ datasondes in the East Fork Wallowa River upstream of the inlet to the Project forebay and downstream of the Project dam at the USGS gage site. Two datasondes were deployed at each the upper and lower monitoring sites to ensure the collection of representative data for the flushing period. Graphs and hourly turbidity data for the period of May 31, 2019 through June 6, 2019 are provided in Attachment 1 to this letter report.

June 2, 2019: Weekly Brothers, Inc., PacifiCorp's contractor, mobilized to the Project forebay and opened the low level outlet gate to 100 percent to allow all inflow, within pipe capacity, to flow through the dam via the pipe.

June 3, 2019: Weekly Brothers, Inc. installed a 20-inch siphon pipe to pass the remainder of the natural inflow to the Project forebay that was greater than the capacity of the low level outlet pipe. The siphon was turned on at 10:15 AM (Attachment 2-Photo 1 and 3).

June 5, 2019: The forebay flush was completed and in-water work for the Wallowa Falls Intake Modification Project began.

June 7, 2018: In-Situ datasondes were removed from the East Fork Wallowa River upstream and downstream locations.

With the use of both the low level outlet pipe and the temporary siphon pipe, Weekly Brothers, Inc. was able to drain the Project forebay (Attachment 2-Photo 2) which naturally mobilized accumulated sediment into the East Fork Wallowa River below the Project dam.

Throughout the flushing period background turbidity, as measured at the upper monitoring site, averaged 5.65 NTU, while downstream turbidity, as measured at the downstream monitoring site, averaged 13.07 NTU. In-water work for the intake modification project began at the end of the flushing period on June 5, 2019.

This letter report and its attachments are being filed electronically. If you have any questions please contact Briana Weatherly at 503-813-7039 or [Briana.weatherly@pacificorp.com](mailto:Briana.weatherly@pacificorp.com).

Sincerely,

Mark A. Sturtevant  
Managing Director, Renewable Resources

MAS: BW: km

<b>Encl:</b>	Letter – Public
	Attachment 1 – Wallowa Falls 2019 Forebay Flush Turbidity Data - Public
	Attachment 2 – Wallowa Falls 2019 Forebay Flush Photos - Public

<b>eFile:</b>	Kimberly D. Bose, Secretary Via eLibrary at <a href="http://www.ferc.gov">www.ferc.gov</a>	<b>eMail:</b> John Dadoly, ODEQ DADOLY.John@deq.state.or.us
<b>Cc:</b>	Gretchen Sausen, USFWS	<b>Cc:</b> Adrian Cuzick, USDA- FS
<b>Cc:</b>	Elizabeth A. O. Moats, ODFW	

## Attachment 1 – Wallowa Falls Forebay Flush Turbidity Data

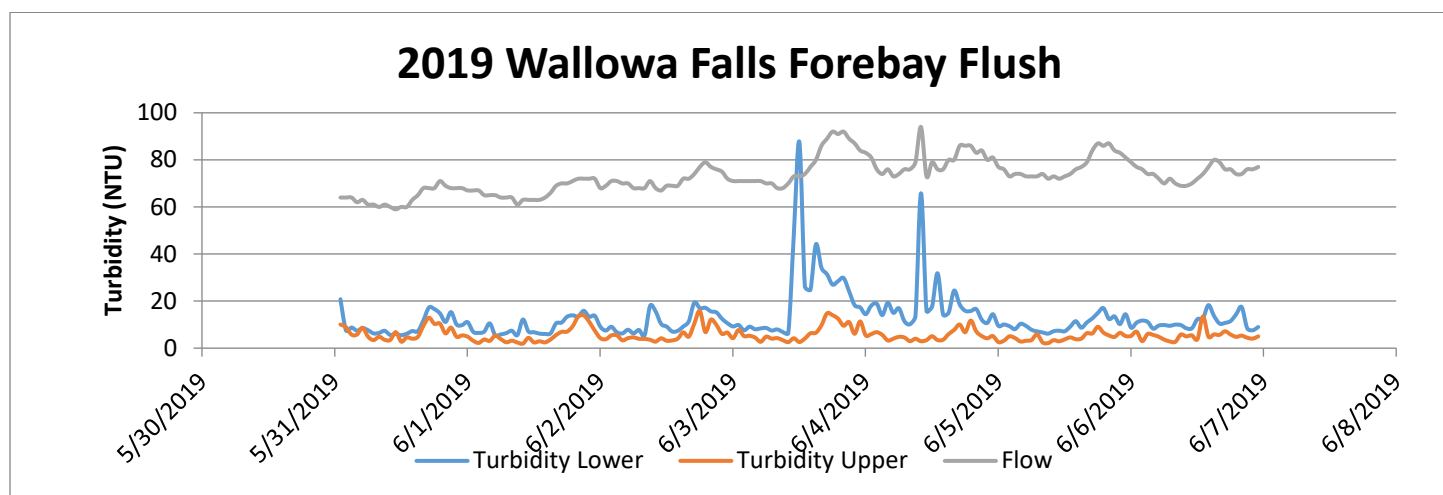


Table 1 – Wallowa Falls 2019 Foreaby Flush: Turbidity Data in East Fork Wallowa River

\*The gray shaded portion of the table represents data recorded during the 72 hour active flush period.

Date	Time	Flows(cfs)	Turbidity Lower	Turbidity Upper (background)
5/31/2019	0:00		11.148	7.214
5/31/2019	1:00		20.787	10.043
5/31/2019	2:00		7.559	8.939
5/31/2019	3:00		8.789	5.754
5/31/2019	4:00		7.401	5.799
5/31/2019	5:00		8.51	8.67
5/31/2019	6:00		7.622	4.859
5/31/2019	7:00		6.242	3.417
5/31/2019	8:00		6.485	4.867
5/31/2019	9:00		7.372	3.544
5/31/2019	10:00		5.611	3.477
5/31/2019	11:00		6.056	6.796
5/31/2019	12:00		5.484	2.753
5/31/2019	13:00		6.138	4.59
5/31/2019	14:00		7.279	4.013
5/31/2019	15:00		7.182	4.808
5/31/2019	16:00		11.8	9.468
5/31/2019	17:00		17.255	12.923
5/31/2019	18:00		16.596	10.316
5/31/2019	19:00		14.752	10.453
5/31/2019	20:00		11.12	6.272
5/31/2019	21:00		15.339	8.741
5/31/2019	22:00		10.058	4.851
5/31/2019	23:00		9.792	5.421
6/1/2019	0:00		11.056	4.89
6/1/2019	1:00		6.973	3.15
6/1/2019	2:00		6.485	2.229
6/1/2019	3:00		7.015	3.686
6/1/2019	4:00		10.531	3.101
6/1/2019	5:00		5.474	5.308
6/1/2019	6:00		5.848	3.844
6/1/2019	7:00		6.401	2.498
6/1/2019	8:00		7.412	3.165
6/1/2019	9:00		5.542	2.419
6/1/2019	10:00		12.174	1.922
6/1/2019	11:00		7.104	4.389
6/1/2019	12:00		6.786	2.442
6/1/2019	13:00		6.175	2.925
6/1/2019	14:00		6.047	2.461
6/1/2019	15:00		6.282	3.671

Date	Time	Flows(cfs)	Turbidity Lower	Turbidity Upper (background)
6/1/2019	16:00		10.545	5.579
6/1/2019	17:00		10.881	6.932
6/1/2019	18:00		13.37	7.048
6/1/2019	19:00		13.953	9.301
6/1/2019	20:00		13.464	13.379
6/1/2019	21:00		15.889	13.925
6/1/2019	22:00		13.337	11.187
6/1/2019	23:00		13.767	7.444
6/2/2019	0:00		9.12	4.288
6/2/2019	1:00		7.481	3.82
6/2/2019	2:00		9.067	5.424
6/2/2019	3:00		6.739	5.446
6/2/2019	4:00		6.266	3.334
6/2/2019	5:00		7.819	4.238
6/2/2019	6:00		6.287	4.585
6/2/2019	7:00		7.733	3.966
6/2/2019	8:00	68.8	5.404	3.927
6/2/2019	9:00	71.7	17.964	3.569
6/2/2019	10:00	68.9	15.626	2.777
6/2/2019	11:00	67.5	10.288	4.187
6/2/2019	12:00	69.1	9.168	3.147
6/2/2019	13:00	69.1	7.075	3.292
6/2/2019	14:00	69.2	7.358	4.017
6/2/2019	15:00	72.0	9.182	6.705
6/2/2019	16:00	72.1	11.363	4.899
6/2/2019	17:00	74.9	19.322	10.398
6/2/2019	18:00	77.7	17.015	15.832
6/2/2019	19:00	79.2	17.152	6.845
6/2/2019	20:00	77.8	15.628	12.139
6/2/2019	21:00	76.5	15.188	9.846
6/2/2019	22:00	75.1	12.504	6.092
6/2/2019	23:00	72.4	10.589	6.6
6/3/2019	0:00	71.1	9.23	4.228
6/3/2019	1:00	71.2	9.83	7.702
6/3/2019	2:00	71.2	7.611	5.136
6/3/2019	3:00	71.3	9.134	5.257
6/3/2019	4:00	71.3	8.033	4.481
6/3/2019	5:00	71.4	8.395	2.694
6/3/2019	6:00	70.1	8.587	4.897
6/3/2019	7:00	70.1	7.486	4.042
6/3/2019	8:00	68.7	7.961	4.28
6/3/2019	9:00	68.8	6.894	3.393
6/3/2019	10:00	73.3	6.43	2.553
6/3/2019	11:00	73.0	48.246	4.201

Date	Time	Flows(cfs)	Turbidity Lower	Turbidity Upper (background)
6/3/2019	12:00	73.1	87.609	2.606
6/3/2019	13:00	74.5	26.287	4.092
6/3/2019	14:00	77.4	24.718	6.301
6/3/2019	15:00	80.3	44.134	6.552
6/3/2019	16:00	86.3	34.155	9.714
6/3/2019	17:00	89.4	31.412	14.775
6/3/2019	18:00	92.7	27.008	14.001
6/3/2019	19:00	91.1	28.46	12.537
6/3/2019	20:00	92.7	29.801	9.531
6/3/2019	21:00	89.5	24.147	11.082
6/3/2019	22:00	87.9	18.243	6.102
6/3/2019	23:00	84.9	17.322	11.367
6/4/2019	0:00	83.4	14.434	5.439
6/4/2019	1:00	81.9	18.052	5.986
6/4/2019	2:00	76.2	18.911	6.787
6/4/2019	3:00	74.8	14.031	5.638
6/4/2019	4:00	76.2	19.307	3.266
6/4/2019	5:00	73.4	15.002	4.032
6/4/2019	6:00	74.8	16.978	4.816
6/4/2019	7:00	76.2	11.473	4.533
6/4/2019	8:00	76.2	10.14	2.963
6/4/2019	9:00	79.0	13.688	4.008
6/4/2019	10:00	94.3	65.813	2.936
6/4/2019	11:00	73.4	15.835	3.41
6/4/2019	12:00	79.0	17.571	5.069
6/4/2019	13:00	76.2	31.831	3.445
6/4/2019	14:00	76.2	14.306	3.575
6/4/2019	15:00	80.4	15.057	5.991
6/4/2019	16:00	80.4	24.458	7.767
6/4/2019	17:00	86.4	18.552	10.052
6/4/2019	18:00	86.4	15.881	6.752
6/4/2019	19:00	86.4	15.778	11.727
6/4/2019	20:00	83.4	16.594	7.094
6/4/2019	21:00	84.9	12.061	5.143
6/4/2019	22:00	80.4	10.73	4.193
6/4/2019	23:00	81.9	14.424	5.138
6/5/2019	0:00	77.6	9.477	2.576
6/5/2019	1:00	76.2	10.051	3.168
6/5/2019	2:00	73.4	9.347	5.025
6/5/2019	3:00	74.8	8.077	4.314
6/5/2019	4:00	74.8	10.349	2.825
6/5/2019	5:00	73.4	9.445	3.154
6/5/2019	6:00	73.4	7.804	3.462
6/5/2019	7:00	73.4	7.12	5.879



Date	Time	Flows(cfs)	Turbidity Lower	Turbidity Upper (background)
6/5/2019	8:00		6.672	2.441
6/5/2019	9:00		6.168	2.159
6/5/2019	10:00		7.204	3.368
6/5/2019	11:00		7.415	2.909
6/5/2019	12:00		7.189	3.737
6/5/2019	13:00		9.127	4.56
6/5/2019	14:00		11.46	3.826
6/5/2019	15:00		8.685	4.031
6/5/2019	16:00		10.916	6.354
6/5/2019	17:00		12.663	6.264
6/5/2019	18:00		14.987	9.075
6/5/2019	19:00		17.007	6.603
6/5/2019	20:00		12.399	5.403
6/5/2019	21:00		13.498	4.768
6/5/2019	22:00		10.229	6.495
6/5/2019	23:00		14.421	5.139
6/6/2019	0:00		8.705	5.209
6/6/2019	1:00		10.855	7.009
6/6/2019	2:00		11.713	2.984
6/6/2019	3:00		11.147	6.04
6/6/2019	4:00		8.274	5.619
6/6/2019	5:00		9.605	4.858
6/6/2019	6:00		9.819	3.627
6/6/2019	7:00		9.494	2.854
6/6/2019	8:00		9.985	2.686
6/6/2019	9:00		9.798	5.786
6/6/2019	10:00		8.45	4.993
6/6/2019	11:00		8.442	5.445
6/6/2019	12:00		12.323	3.782
6/6/2019	13:00		12.697	13.459
6/6/2019	14:00		18.291	4.867
6/6/2019	15:00		13.7	5.853
6/6/2019	16:00		10.468	5.637
6/6/2019	17:00		10.73	7.169
6/6/2019	18:00		11.521	5.784
6/6/2019	19:00		14.359	4.811
6/6/2019	20:00		17.491	5.318
6/6/2019	21:00		8.488	4.44
6/6/2019	22:00		7.603	4.049
6/6/2019	23:00		8.969	5.01

## Attachment 2 – Wallowa Falls Forebay Flush Photos



Photo 1 – Wallowa Falls Dam: low level outlet pipe and 20-inch siphon pipe



Photo 2 – Wallowa Falls Forebay on June 3, 2019





Photo 3 – 20-inch siphon in Wallowa Falls Forebay

## **Appendix B**

### **Fish Salvage & Temporary Tailrace Barrier Report**



**Final**

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

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

**December 27, 2019**



***Prepared by:***

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## 1.0 INTRODUCTION

The Federal Energy Regulatory Commission (FERC) issued a new operating license for the Wallowa Falls Hydroelectric Project (Project) on January 5, 2017. 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 (17 kilometers) outside of the City of Joseph in Northeastern Oregon. The Project (Figure 1) reservoir/forebay lies over 5,200 feet (1,600 meters) 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.



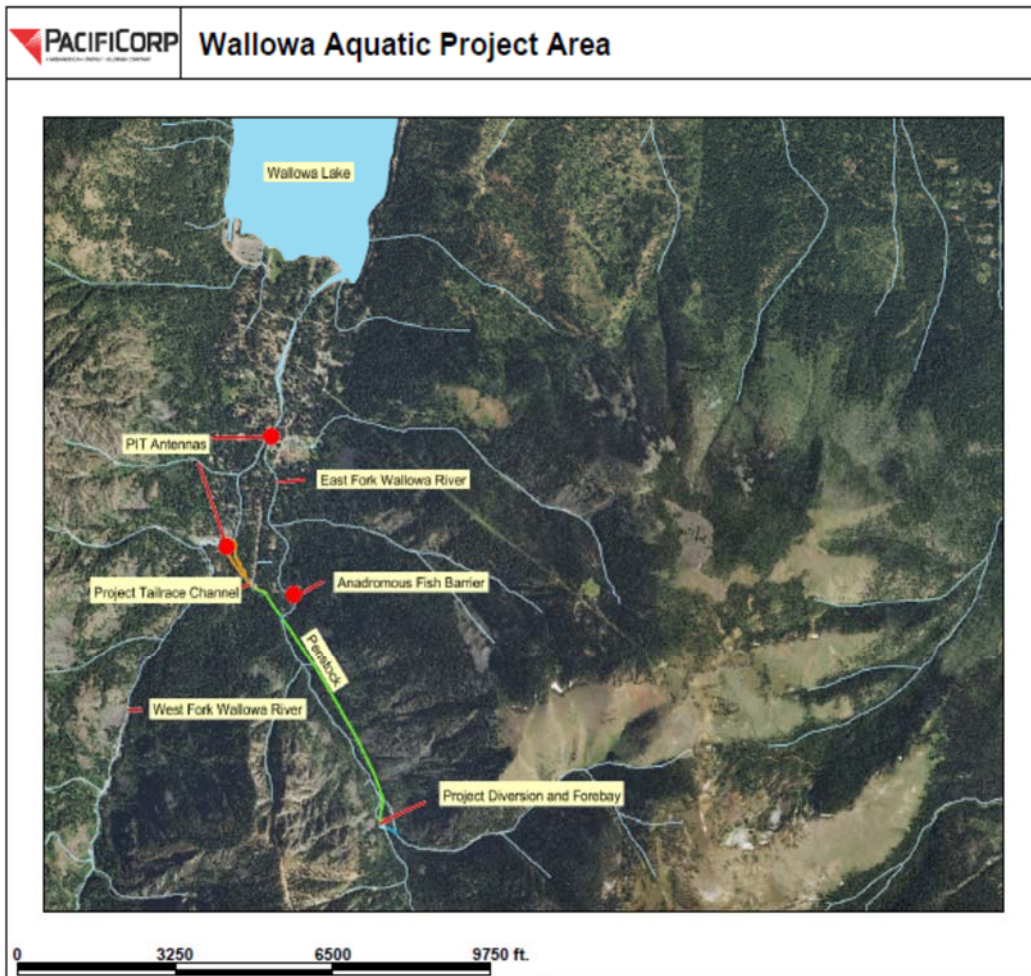


Figure 1 Wallowa Falls Hydroelectric Project.



### 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 was immediately notified by an operator at Merwin Hydro Control and commenced with physically rescuing stranded fish from the tailrace channel. The local qualified biologist lives in 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 was utilized to capture stranded fish. If a backpack electrofisher was utilized, it was set to Direct Current (DC) and applied at the lowest voltage setting possible to still allow capture of stranded fish species. All electrofishing activities followed protocols as set forth in the National Marine Fisheries Service Backpack Electrofishing Guidelines (NMFS 2000). To remain compliant with stipulations contained within the USFWS issued Biological Opinion (BiOp) for the Wallowa Falls Hydroelectric Facility, PacifiCorp ensured that fish capture and removal operations were conducted by a qualified biologist, and that all staff participating in the operation had the necessary knowledge, skills, and abilities to ensure safe handling of fish. All planned unit outages with headgate closure occurred early in the morning to ensure the lowest possible water temperatures for safe fish handling.

In 2019, 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 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.” This Report and information contained therein shall qualify also as the “fish handling and injury-occurrence report” as stipulated within the USFWS issued BiOp for the Project.

Also in 2019, 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. Photo of Wallowa Falls tailrace barrier in operation. Photo taken on September 12, 2019.**

## 4.0 RESULTS

### Fish Salvage

The Wallowa Falls Tailrace Channel was salvaged for aquatic species on two separate occasions in 2019. The first salvage occurred on March 14 and was due to a unit trip and subsequent headgate drop. No fish were observed or captured during this salvage. The second salvage occurred on May 29 from planned dewatering due to construction of the permanent tailrace barrier over the summer and early fall. Four rainbow trout were captured and liberated downstream to the West Fork Wallowa River.

In all, four rainbow trout ranging in fork length from 90 mm to 185 mm were captured within the tailrace channel. All four captures 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
3/14/2019	n/a	n/a	Wallowa Falls tailrace channel	Emergency salvage due to headgate closure, no fish captured or observed.
5/29/2019	RB	185	Wallowa Falls tailrace channel	Pre-construction tailrace salvage. Tailrace flows turned off until mid-September
5/29/2019	RB	130	Wallowa Falls tailrace channel	Pre-construction tailrace salvage. Tailrace flows turned off until mid-September
5/29/2019	RB	90	Wallowa Falls tailrace channel	Pre-construction tailrace salvage. Tailrace flows turned off until mid-September
5/29/2019	RB	180	Wallowa Falls tailrace channel	Pre-construction tailrace salvage. Tailrace flows turned off until mid-September

### 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 on August 26, 2019. Typically, and in past years, this barrier would've been put into place before August 1, but due to construction activities within the tailrace that began in May 2019, no water was in the channel until it was watered back up on September 11. The tailrace fish barrier was visually inspected twice per week until taken out on November 15, 2019. 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**

<b>Date</b>	<b>Observer</b>	<b>Comments</b>
8/23/2019	Bioresources staff	Weir completed and installed
9/12/2019	Bioresources staff	Power plant turned on, first water flow in tailrace since May 29, weir in place.
9/15/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
9/19/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
9/22/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
9/24/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
9/27/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/2/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well. .
10/7/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/9/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/12/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/17/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/21/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/24/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/28/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
11/6/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
11/10/2019	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
11/15/2019	Bioresources staff	Weir disassembled and taken out of tailrace channel.

## **Appendix C**

### **Bull Trout Redd Monitoring Report**



**Final**

**Bull Trout Redd Monitoring Report for the Wallowa Falls  
Hydroelectric Project**



**Bull trout on redd in East Fork Wallowa River, Sept 16, 2019 photo courtesy of Kendrick Moholt  
(FERC No. P-308)**

**December 22, 2019**

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## 1.0 INTRODUCTION

The United States Fish and Wildlife Service (USFWS) issued a new Biological Opinion (BiOp) for the Wallowa Falls Hydroelectric Project (Project) on 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 on January 7, 2017.

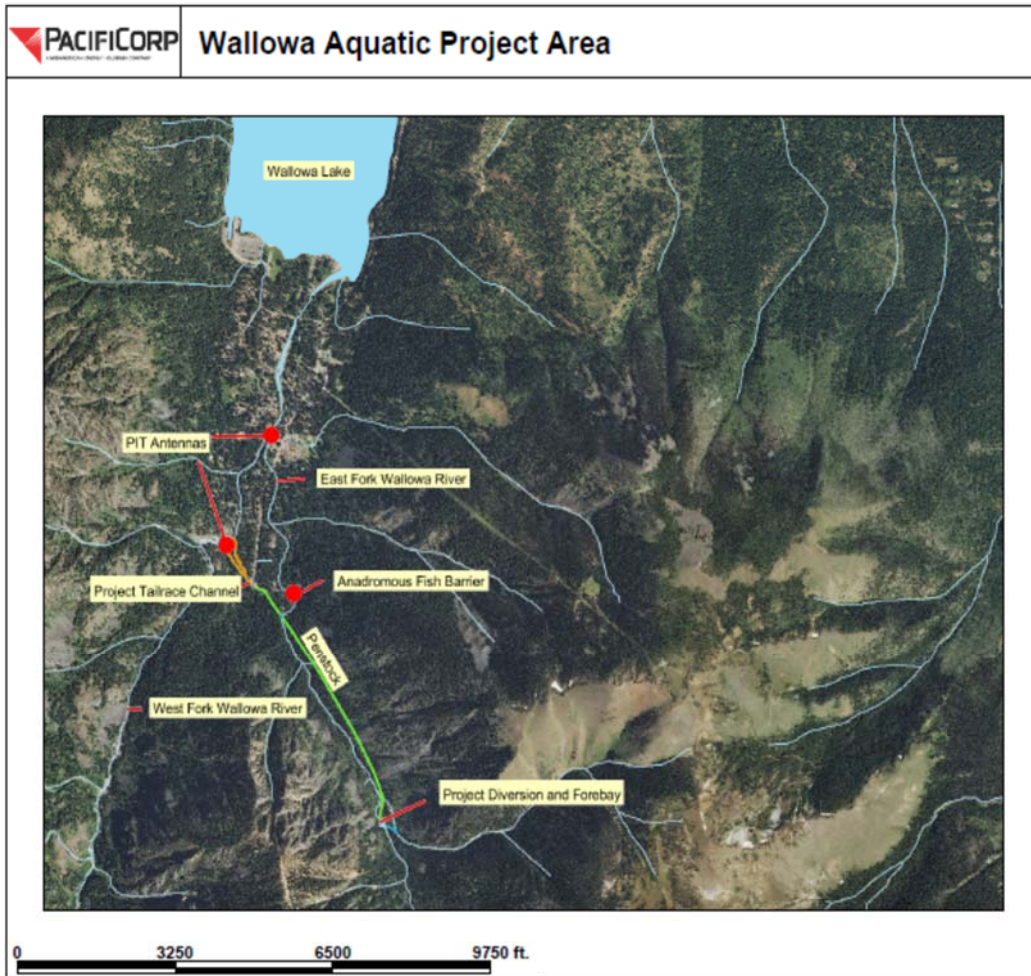
The USFWS listed five reasonable and prudent measures (RPM) to be undertaken in order to minimize incidental take of bull trout by Project operations. Elements within this Plan pertain specifically to RPM 4 which seeks to “*minimize the risk of adverse effects to bull trout from emergency shut-down and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

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 (Figure 1). 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 1. 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 1, 2019 and continued weekly through October 31, 2019 for a total of ten 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 ten surveys in 2019. All encountered bull trout redds were demarcated by handheld GPS, flagged for visual reference within the stream, measured, and photographed. 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 third year of study and redd life still being characterized, ten surveys were performed in order to gain an accurate understanding of visual redd persistence within this watershed. Average and minimum observed redd life will be utilized to adjust frequency of surveys moving forward. Flows during the survey period (Sep-Oct) remained relatively stable and measured between 9-20 cubic feet per second as measured at the United States Geological Survey gage.

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

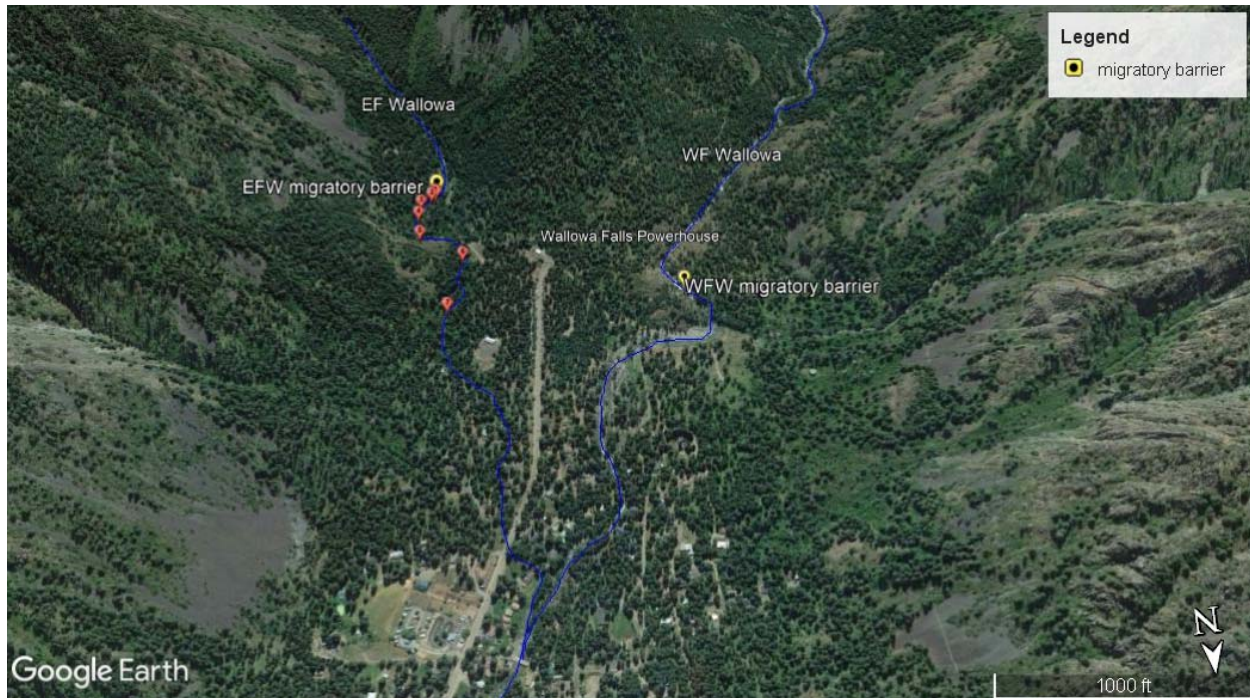
### 4.0 RESULTS

Seven bull trout redds were identified and marked by GPS during the ten redd surveys performed of the East Fork Wallowa River in 2019 (Figure 2). Five of the bull trout redds were large and indicative of being constructed by large migratory-sized fish, while two were smaller and indicative of being constructed from smaller resident-sized fish (Table 1). Six of the seven identified bull trout redds were observed on surveys between September 3 and September 16, with the peak occurring on September 16 when three redds were counted. One final redd was observed

on October 24. Six of the seven observed redds had bull trout either on, actively constructing or in very close proximity to the redd. Three of the seven redds had a pair, one male/one female, associated with the redd (Table 1). Pictures of all seven identified bull trout redds are included in the Appendix A.

**Table 1. East Fork Wallowa River bull trout redd data.**

Date	Survey Location	Redd #	Redd Dimension	Live bull trout				Survey Conditions
				<6 in.	<12 in.	<14 in.	>14 in.	
9/1/2019	EFW, mouth to barrier	n/a	n/a	n/a	n/a	n/a	n/a	Sunny, calm
9/3/2019	EFW, mouth to barrier	1	80cm x 120cm	n/a	n/a	n/a	1	Sunny, calm
9/11/2019	EFW, mouth to barrier	2	60cm x 85cm	n/a	n/a	n/a	1	Partly cloudy, calm
9/11/2019	EFW, mouth to barrier	3	30cm x 70cm	n/a	n/a	n/a	n/a	Partly cloudy, calm
9/16/2019	EFW, mouth to barrier	4	75cm x 100cm	n/a	n/a	1	1	Overcast, light wind
9/16/2019	EFW, mouth to barrier	5	85cm x 110cm	n/a	n/a	n/a	2	Overcast, light wind
9/16/2019	EFW, mouth to barrier	6	80cm x 105cm	n/a	n/a	n/a	2	Overcast, light wind
9/26/2019	EFW, mouth to barrier	n/a	n/a	n/a	n/a	n/a	n/a	Overcast, light wind
10/3/2019	EFW, mouth to barrier	n/a	n/a	n/a	n/a	n/a	n/a	Overcast, light wind
10/10/2019	EFW, mouth to barrier	n/a	n/a	n/a	n/a	n/a	n/a	Sunny, calm
10/17/2019	EFW, mouth to barrier	n/a	n/a	n/a	n/a	n/a	n/a	Partly cloudy, calm
10/24/2019	EFW, mouth to barrier	7	35cm x 65 cm	n/a	1	n/a	n/a	Sunny, calm
10/31/2019	EFW, mouth to barrier	n/a	n/a	n/a	n/a	n/a	n/a	Partly cloudy, shelf ice on banks



**Figure 2. GPS marked locations (red dots, n=7) of bull trout redds within the East Fork Wallowa River**

All seven bull trout redds were in the upper portion of available habitat below the barrier, with the uppermost redd ~ 20 meters below the impassible falls. Redds in 2019 visually persisted for an average of 36 days, with the longest time a redd remained visible being 51 days, and the shortest 17 days. The fish observed in close proximity of the newly identified redd during the October 24 survey was labeled as a probable brook trout (*Salvelinus fontinalis*). This observation was purely visual and as such cannot not be empirically verified. No brook trout were definitively observed during any 2019 East Wallowa River redd surveys.

Due to construction of the permanent tailrace barrier at the outlet of the Wallowa Falls tailrace channel, the generating unit at the Wallowa Falls powerhouse was turned off from May 29 – September 11, 2019. No water being diverted from the East Fork Wallowa into the flow line and into the generating unit meant that natural flows in the East Fork were higher than normal at the start of the bull trout spawn season in 2019.

It was decided that that the unit would be turned back on in early September after construction activities had finished. Prior to the generating unit coming online on September 11, a biologist was stationed near the three bull trout redds that had been previously constructed so as to ensure that water remained flowing over the top of these redds as flows receded within the East Fork. The unit was turned on and stepped up. All prescribed ramp rates were followed during unit start-up. During this time, the biologist on-site near previously constructed redds was in direct communication with hydro control operators as they ramped the unit up.

This same process was repeated on September 26. The unit had tripped on September 19 due to a malfunctioning sensor. The sensor was replaced and the unit resumed generation on September



26. As noted in the procedure above, a biologist was on-site monitoring water levels over previously dug bull trout redds as the unit was ramped up on the 26th and water receded in the East Fork.

At any time during these two unit ramp up activities, if it became apparent that a previously constructed redd had the potential of desiccation, the biologist was to immediately contact hydro control and terminate the ramp up. All identified redds remained comfortably watered up during all unit start-up procedures in 2019.

Flows during the survey period never deviated below the prescribed minimum instream flow as measured at the United States Geological Survey gage site.

Given length of redd persistence within the East Fork Wallowa observed for the first three seasons of these surveys (average time of 29 days, 2017-2019), in 2020 it is anticipated bull trout redd surveys will occur on a bi-weekly basis during the months of October and September.

## **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**

## **2019 Bull Trout Redd Photo Documentation**

**Redd #1**



**Redd #2**





**Redd #3**



**Redd #4**





**Redd #5**





**Redd #6**



**Redd #7**



## **Appendix D**

### **Noxious Weed Control Plan Annual Report**



# **2019 Noxious Weed Control Plan Annual Report**

Wallowa Falls Hydroelectric Project

FERC Project No. 308



*Prepared by:*



December 2019

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# 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 2005a) and Record of Decision (ROD) (October 2005b).
- 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 2005a) and Record of Decision (ROD) (October 2005b). 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. 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. This status report will only apply to the Project Boundary as described in Section 2.0 and shown in Appendix A:

- 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 A 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 A.

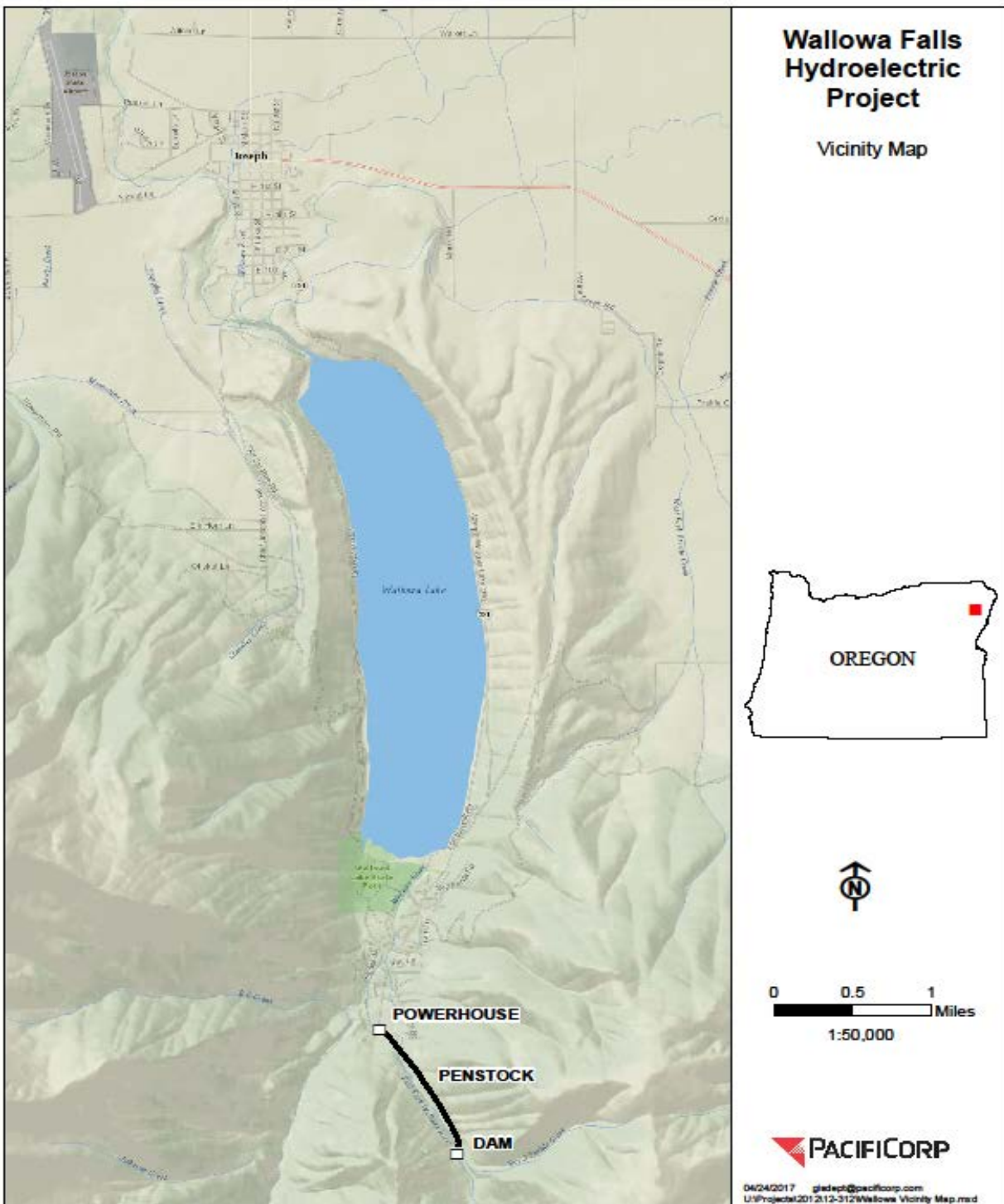
**High Priority:** areas with frequent or continued soil disturbance, frequent or constant exposure to weed seed vectors, or is known to have existing noxious weeds. These areas include the campground, forebay area, and portions of the WWNF trail within the Project Boundary.

**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.). In 2019 the new tailrace location was included High Priority Noxious area due to the 2019 construction and expected exposure to weed seed vectors.

**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 April 2019. The laws are as follows and PacifiCorp complied with these regulations and guidelines for all noxious weed monitoring and management in 2019:

### 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 2019:

- 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 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 2019):

**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 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.

**B listed Weed:** A weed of economic importance which is regionally abundant, but which may have limited distribution in some counties.

Recommended action: Limited to intensive control at the state, county or regional level as determined on a site specific, case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the primary control method.

**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 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 2019 NWCP monitoring:

**Table 1: 2019 Oregon State and Wallowa County Listed Noxious Weeds**

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



**Table 1: 2019 Listed Oregon and Wallowa County Listed Noxious Weeds (continued)**

<b>Common Name <sup>2,3</sup></b>	<b>Scientific Name<sup>1,2</sup></b>	<b>Oregon State Category<sup>2</sup></b>	<b>Wallowa County Category<sup>3</sup></b>
European water chestnut	<i>Trapa natans</i>	A	
False Brome	<i>Brachypodium sylvaticum</i>	B	
Field Bindweed*	<i>Convolvulus arvensis</i>	B	B
Five-angled Dodder	<i>Cuscuta pentagona</i>	B	
Floating Primrose Willow	<i>Ludwigia peploides</i>	B (T)	
Flowering Rush	<i>Butomus umbellatus</i>	A (T)	
French Broom	<i>Genista monspessulana</i>	B	
Garden yellow loosestrife	<i>Lysimachia vulgaris</i>	A (T)	
Garlic Mustard	<i>Alliaria petiolata</i>	B (T)	A (T)
Giant hogweed	<i>Heracleum mantegazzianum</i>	A (T)	
Giant Knotweed	<i>Polygonum sachalinense</i>	B	A
Goatsrue	<i>Galega officinalis</i>	A (T)	
Gorse	<i>Ulex europaeus</i>	B (T)	
Hairy whitetop *	<i>Lepidium pubescens</i>	B	A (T)
Halogeton	<i>Halogeton glomeratus</i>	B	
Herb Robert	<i>Geranium robertianum</i>	B	
Himalayan knotweed	<i>Polygonum polystachum</i>	B	
Hoary Alyssum (False Hoary Alyssum) *	<i>Berteroa incana</i>	A (T)	A (T)
Hoary cress whitetop *	<i>Lepidium draba</i>	B	A (T)
Houndstongue **	<i>Cynoglossum officinale</i>	B	B
Hydrilla	<i>Hydrilla verticillata</i>	A	
Iberian star-thistle	<i>Centaurea iberica</i>	A (T)	A
Indigo bush	<i>Amorpha fruticosa</i>	B	
Italian Thistle	<i>Cardus pycnocephalus</i>	B	A (T)
Japanese dodder	<i>Cuscuta japonica</i>	A	
Japanese knotweed*	<i>Polygonum cuspidatum</i>	B	(T)
Johnsongrass	<i>Sorghum halepense</i>	B	
Jointed goatgrass*	<i>Aegilops cylindrica</i>	B	B (T)
Jubata grass	<i>Cortaderia jubata</i>	B	
King devil hawkweed	<i>Pilosella piloselloides</i>	A	
Kochia *	<i>Kochia scoparia</i>	B	B
Kudzu	<i>Pueraria lobata</i>	A(T)	
Large-flower Primrose Willow	<i>Ludwigia grandiflora</i>	B (T)	
Leafy Spurge*	<i>Euphorbia esula</i>	B(T)	A (T)
Lens podded whitetop *	<i>Cardaria chalapensis</i>	B	
Lesser celandine	<i>Ranunculus ficaria</i>	B	
Long-Spine sandbur	<i>Cenchrus longispinus</i>		B
Matgrass	<i>Nardus stricta</i>	A (T)	

**Table 1: 2019 Listed Oregon and Wallowa County Listed Noxious Weeds (continued)**

<b>Common Name <sup>2,3</sup></b>	<b>Scientific Name<sup>1,2</sup></b>	<b>Oregon State Category<sup>2</sup></b>	<b>Wallowa County Category<sup>3</sup></b>
Meadow Hawkweed <sup>**</sup>	<i>Hieracium pratense</i>	B (T)	B (T)
Mouse-ear hawkweed	<i>Pilosella pilosella</i>	A (T)	
Meadow Knapweed <sup>**</sup>	<i>Centaurea pratensis</i>	B	A (T)
Mediterranean Sage	<i>Salvia aethiopis</i>	B	A (T)
Medusahead Rye <sup>*</sup>	<i>Taeniatherum canput-medusae</i>	B	B (T)
Milk thistle	<i>Silybum marianum</i>	B	
Musk thistle	<i>Carduus nutans</i>	B	A (T)
Myrtle Spurge	<i>Euphorbia myrsinites</i>	B	A (T)
Oblong spurge	<i>Euphorbia oblongata</i>	A (T)	
Old man's beard	<i>Clematis vitalba</i>	B	
Orange Hawkweed <sup>*</sup>	<i>Pilosella aurantiacum</i>	A (T)	A (T)
Oregano	<i>Origanum vulgare</i>		A (T)
Ovate goatgrass	<i>Aegilops ovata</i>	A	
Oxeye Daisy <sup>*</sup>	<i>Leucanthemum vulgare</i>		B
Parrot's feather	<i>Myriophyllum aquaticum</i>	B	
Paterson's curse	<i>Echium plantagineum</i>	A (T)	
Perennial peavine	<i>Lathyrus latifolius</i>	B	
Perennial Pepperweed <sup>*</sup>	<i>Lepidium latifolium</i>	B (T)	A(T)
Pheasanteye (Blooddrop) <sup>*</sup>	<i>Adonis aestivalis</i>	B (T)	
Plumeless Thistle <sup>*</sup>	<i>Carduus acanthoides</i>	A (T)	A
Poison Hemlock <sup>*</sup>	<i>Conium maculatum</i>	B	B
Policeman's Helmet	<i>Impatiens glandulifera</i>	B	
Portuguese broom	<i>Cytisus striatus</i>	B(T)	
Puncturevine <sup>*</sup>	<i>Tribulus terrestris</i>	B	A
Purple Loosestrife <sup>*</sup>	<i>Lythrum salicaria</i>	B	A
Purple nutsedge	<i>Cyperus rotundus</i>	A	
Purple Star-thistle	<i>Centaurea calcitrapa</i>	A (T)	T
Ragweed	<i>Ambrosia artemisifolia</i>	B	
Ravennagrass	<i>Saccharum ravennae</i>	A (T)	A
Reed Canarygrass (Ribbon grass)	<i>Phalaris arundinaceae</i> var. <i>Picta</i>	B (T)	B
Rose campion	<i>Lychnis coronaria</i>		A
Rush Skeletonweed <sup>*</sup>	<i>Chondrilla juncea</i>	B(T)	B (T)
Russian Knapweed <sup>*</sup>	<i>Acroptilon repens</i>	B	A (T)
Saltcedar <sup>*</sup>	<i>Tamarix ramoissima</i>	B (T)	
Salt meadow cordgrass	<i>Spartina patens</i>	A (T)	
Scotch Broom <sup>*</sup>	<i>Cytisus scoparius</i>	B	A(T)
Scotch Thistle <sup>*</sup>	<i>Onopordium acanthium</i>	B	B (T)
Shiny leaf geranium	<i>Geranium lucidum</i>	B	

**Table 1: 2019 Listed Oregon and Wallowa County Listed Noxious Weeds (continued)**

<b>Common Name <sup>2,3</sup></b>	<b>Scientific Name<sup>1,2</sup></b>	<b>Oregon State Category<sup>2</sup></b>	<b>Wallowa County Category<sup>3</sup></b>
South American waterweed	<i>Egeria densa</i>	B	
Silverleaf nightshade	<i>Solanum elaeagnifolium</i>	A	
Slender flowered thistle	<i>Cardus tenuiflorus</i>	B	
Small broomrape	<i>Orobranche minor</i>	B	
Smooth Cordgrass	<i>Spartina alterniflora</i>	A (T)	
Smooth distaff thistle	<i>Carthamus baeticus</i>	A	
Smoothseed alfalfa (Dodder)	<i>Cuscuta approximata</i>	B	
Spotted Knapweed**	<i>Centaurea maculosa</i>	B (T)	A (T)
Spurge laurel	<i>Daphne Laureola</i>	B	
Squarrose knapweed	<i>Centaurea virgata</i>	A (T)	
St. Johnswort*	<i>Hypericum perforatum</i>	B	
Sulfur Cinquefoil*	<i>Potentilla recta</i>	B	B (T)
Swainsonpea	<i>Sphaerophysa salsula</i>	B	
Sweetbriar Rose*	<i>Rosa rubiginosa</i>		B
Syrian bean-caper	<i>Zygophyllum fabago</i>	A	
Tall Buttercup*	<i>Ranunculus acris</i>		B
Tansy Ragwort*	<i>Senecio jacobaea</i>	B (T)	A (T)
Tuarian thistle	<i>Onopordum tauricum</i>	A(T)	
Tree of Heaven*	<i>Ailanthus altissima</i>	B	
Velvetleaf	<i>Abutilon theophrasti</i>	B	
Ventenata (North Africa grass)*	<i>Ventenata dubia</i>	B	B
Water soldier	<i>Stratiotes aloides</i>	A	
Waterprimrose	<i>Ludwigia hexapetala</i>	B (T)	
Wetted Thistle*	<i>Cardus crispis</i>	A (T)	A (T)
West Indian sponge Plant	<i>Limnobium laevigatum</i>	A	
White bryonia (white bryony)	<i>Byronia alba</i>	A	A
White Champion	<i>Silene latifolia</i>		B
Wooly distaff thistle	<i>Carthamus lanatus</i>	A (T)	
Yellow archangel	<i>Lamium galeobdolon</i>	B	
Yellow flag iris*	<i>Iris pseudocorus</i>	B	A (T)
Yellow floating heart	<i>Nymphoides peltata</i>	A (T)	
Yellow hawkweed*	<i>Pilosella floribundum</i>	A (T)	
Yellow nutsedge	<i>Cyperus esculentus</i>	B	
Yellow starthistle*	<i>Centuarea solstialis</i>	B	A
Yellow toadflax*	<i>Linaria vulgaris</i>	B	B
Yellowtuft	<i>Alyssum coriscan</i>	A(T)	

**\*Noxious weeds are known to exist within Wallowa County <sup>1, 2</sup>**

**\*\*Noxious weeds are known to exist within the Project Boundary (Bio-Resources 2019)**

<sup>1</sup> Natural Resources Conservation Service 2018 <sup>2</sup> Oregon Department of Agriculture 2019

<sup>3</sup> Wallowa County 2019

## 4.0 2019 Monitoring and Management

The following is description of noxious weed monitoring, control and other management strategies that occurred in 2019 within the Project Boundary.

### 4.1 Prevention

The construction of the tailrace reroute and royal purple pipe extension began in 2019. PacifiCorp contracted with Kendrick Moholt (Bio-Resources, Inc.) to oversee the construction monitoring for compliance; therefore he was also able to evaluate the area for noxious weeds prior to ground disturbance. Construction began on June 1 and no known noxious weeds were located within the construction limits.

### 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 16, 2019 and included all high and medium priority noxious weed areas. A record of the each noxious weed infestation has been documented on Invasive Plant Inventory Forms are provided in Appendix B. The table below provides a list of the noxious weeds location and status.

**Table 2: Noxious Weeds Located in 2019 within the Project Boundary.**

Common Name	Scientific Name	Oregon State Category	Wallowa County Category	Location
Canada thistle	<i>Cirsium arvense</i>	B	B	Campground
Bull thistle	<i>Cirsium vulgare</i>	B	None	Campground
Houndstongue	<i>Cynoglossum officinale</i>	B	B	Campground
Common Burdock	<i>Arctium minus</i>	None	B	Campground
Spotted knapweed	<i>Centaurea maculosa</i>	B (T)	A (T)	Campground/road
Meadow hawkweed	<i>Hieracium caespitosum</i>	B(T)	B (T)	Trail

### 4.3 Control Methods

Kendrick Moholt supervised the spray operation to control noxious weeds within the Project Boundary on July 17, 2019. Treatment consisted of spraying with Milestone® herbicide, mixed with a surfactant and a marking dye. The Herbicide Application Form 2510 is provided in Appendix B.

The campground and surrounding areas were treated with very targeted and minimal applications using only backpack sprayer spot application on individual plants. The target species were Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), houndstongue (*Cynoglossum officinale*) and burdock (*Arctium minus*).

An area near the entrance to the campground and on the east side of the county road (near the trail head and horse rails) was sprayed with backpack spray rigs in areas where small trees and other desirable vegetation was present, and by ATV mounted sprayers to control spotted knapweed (*Centaurea maculosa*). In 2017 this area had a heavy oxeye daisy (*Leucanthemum vulgare*, formerly *Chrysanthemum leucanthemum*) infestation, which seems to have been mostly controlled by that two year's efforts. The knapweed infestation in this area has also been reduced.

Three locations along the access trail, including the area near the dam, were sprayed to control meadow hawkweed (*Hieracium caespitosum*). Special care was taken to avoid any areas with potential for rare plants. The two known populations of meadow hawkweed appear to be decreasing greatly in size. However, disturbance from this year's construction is likely to provide excellent habitat for seed germination in the next growing year. Surveys and control efforts are recommended. A third population first located and treated in 2017, at the base of the access trail just west of the point where the ATV trail branches from the foot trail, also appears to have been controlled. Canada thistle and bull thistle were also treated along the trail by spot application. It should be stressed; additional surveys and treatment will be necessary for noxious weed species in the 2020 growing season due to construction disturbance in 2019.

#### **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 2018 areas of ground disturbance that require revegetation and/or revegetation success monitoring. The 2019 construction at the forebay and tailrace realignment will be monitored into meet this criteria in 2020.

## **5.0 2020 Monitoring and Management**

The construction of the tailrace reroute and royal purple pipe extension began in 2019 and will be completed in 2020. The royal purple pipe extension is currently within a high priority portion of the current Noxious Weed Monitoring Area. The portion of the new tailrace reroute has been included in the high priority area in the Noxious Weed Monitoring Area (Appendix A). Appendix provides map of the proposed construction limits for both projects.

The 2020 noxious weed monitoring will include all high and medium priority areas within the Project Boundary (Appendix A) and noxious weed control will occur as needed. The USFS made



the following recommendations that will be incorporated into the 2020 noxious weed monitoring and management:

- Photo points of noxious weeds treatment sites will established and taken at each Noxious Weed Monitoring surveys to document the changes over time.
- Implement manual control, where possible, to minimize the use of chemical

## 6.0 References

Bio-Resources, Inc. 2019. Wallowa Falls Hydroelectric Project Special Status Plant and Noxious Weed Management. August 2019.

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

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Oregon Department of Agriculture. 2019. Noxious Weed Policy and Classification System 2019.

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United States Forest Service. 1990. Land and Resource Management Plan Wallowa-Whitman National Forest, as amended. United States Forest Service. URL: [http://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5260139.pdf](http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5260139.pdf). (September 24, 2013).

United States Forest Service. 2005a. Pacific Northwest Region Invasive Plant Program Preventing and Managing Invasive Plants Final Environmental Impact Statement. United States Forest Service April 2005. URL: [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprd3812803.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3812803.pdf). (April 20, 2017)

United States Forest Service. 2005b. Pacific Northwest Region Invasive Plant Program Preventing and Managing Invasive Plants Record of Decision. United States Forest Service October 2005. URL: [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5302164.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5302164.pdf) (April 20, 2017).

United States Forest Service. 2010a. Wallowa-Whitman National Forest Invasive Plants Treatment Project Final Environmental Impact Statement. United States Forest Service. March 2010. URL: <http://www.fs.usda.gov/detail/wallowawhitman/landmanagement/planning/?cid=stelprdb5192845> (September 24, 2013).

United States Forest Service. 2010b. Wallowa-Whitman National Forest Invasive Plants Treatment Project Record of Decision. United States Forest Service April 2010. URL: <http://www.fs.usda.gov/detail/wallowa-whitman/landmanagement/planning/?cid=stelprdb5192845> (September 24, 2013).

Wallowa County. 2019. 2019 Noxious Plant List. URL: <https://co.wallowa.or.us/public-works/vegetation/2017-noxious-plant-list/> (April 16, 2019).

## **Appendix A**

### **Noxious Weed Monitoring Area**

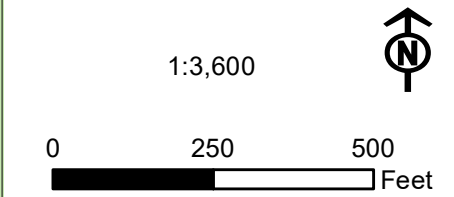
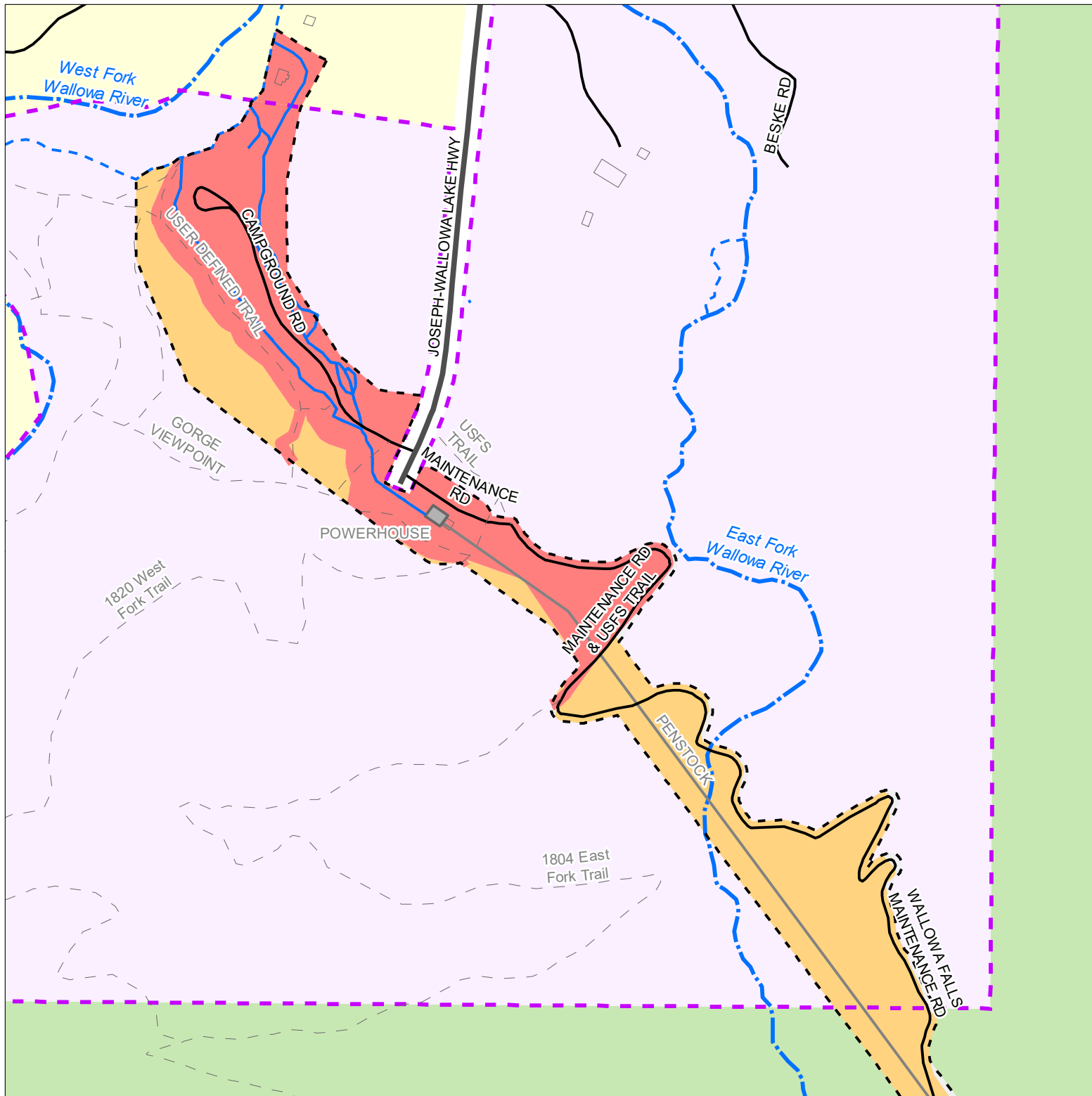
# Wallowa Falls Hydroelectric Project

## Noxious Weed Monitoring Area

Page 1 of 3

### Legend

- Trail
- Road
- Highway
- Facility
- Penstock
- FERC Boundary
- Priority Noxious Weed Areas**
  - High
  - Medium
  - Low
- Land Ownership**
  - PacifiCorp
  - USFS
  - Private















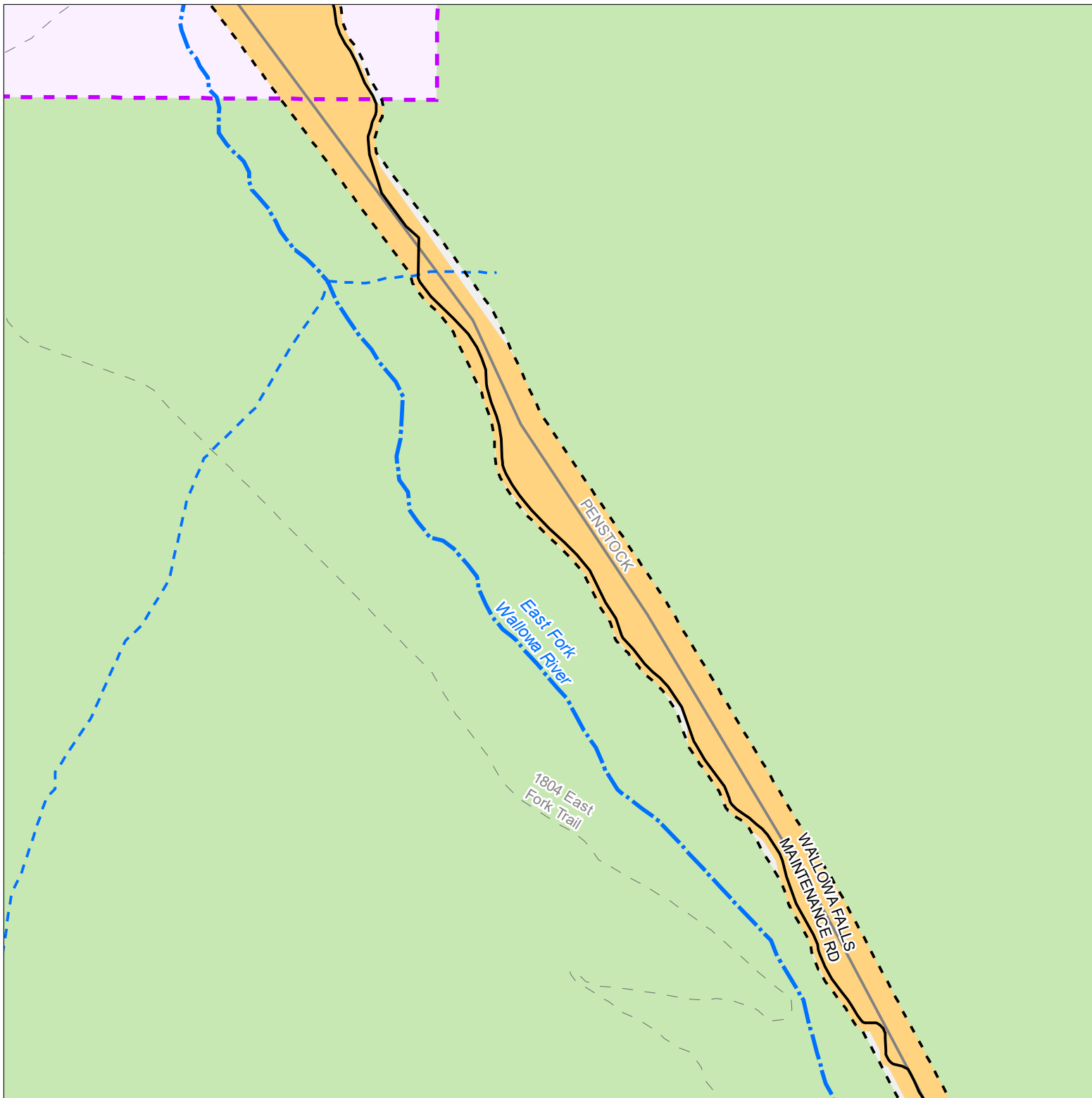
# Wallowa Falls Hydroelectric Project

## Noxious Weed Monitoring Area

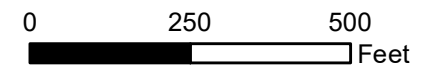
Page 2 of 3

### Legend

-  Trail
-  Road
-  Highway
-  Facility
-  Penstock
-  FERC Boundary
- Priority Noxious Weed Areas**
  -  High
  -  Medium
  -  Low
- Land Ownership**
  -  PacifiCorp
  -  USFS
  -  Private



1:3,600





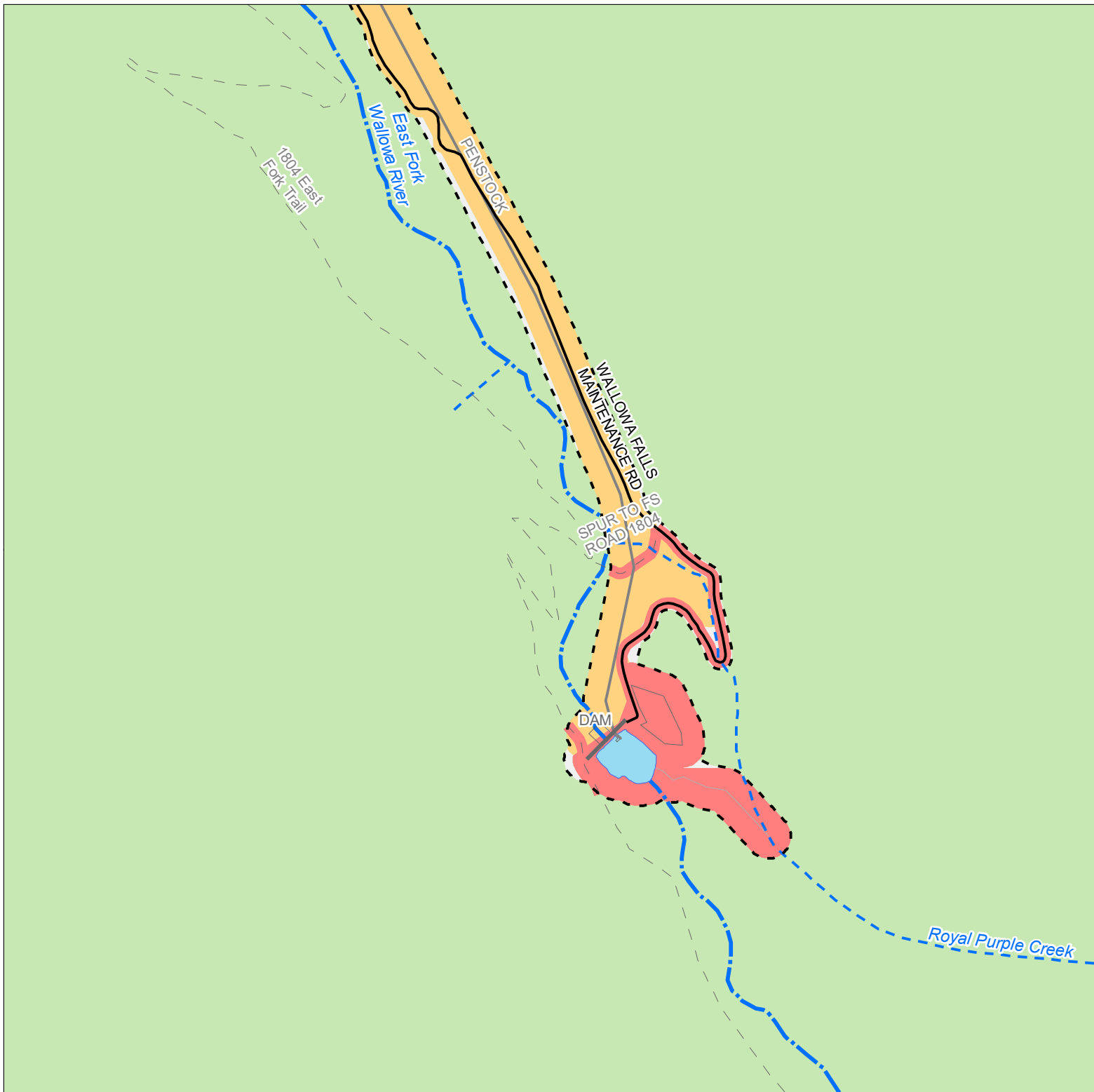
# Wallowa Falls Hydroelectric Project

## Noxious Weed Monitoring Area

Page 3 of 3

### 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



11/07/2019 gisdept@pacifiCorp.com  
U:\Projects\2012\12-312\Noxious Weed Monitoring  
Area Map.mxd

**Appendix B**  
**Invasive Plant Inventory Form and**  
**Herbicide Application (2510) Forms**

# Invasive Plant Inventory Form

## General Site Information

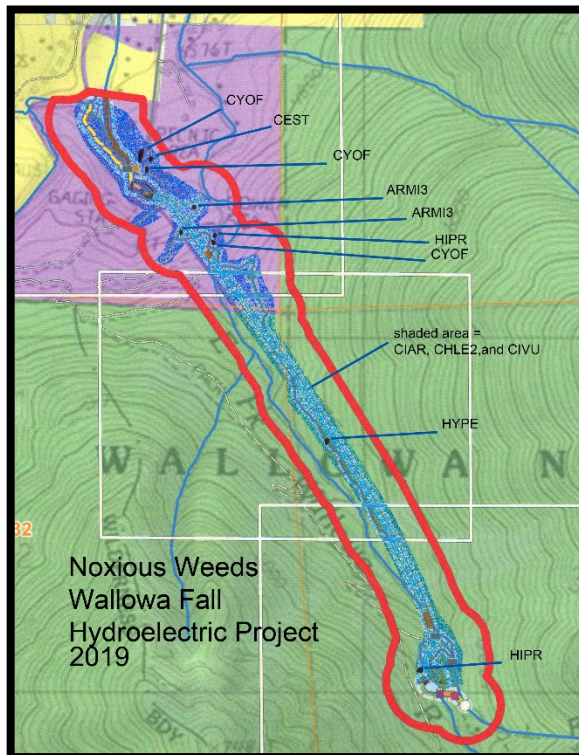
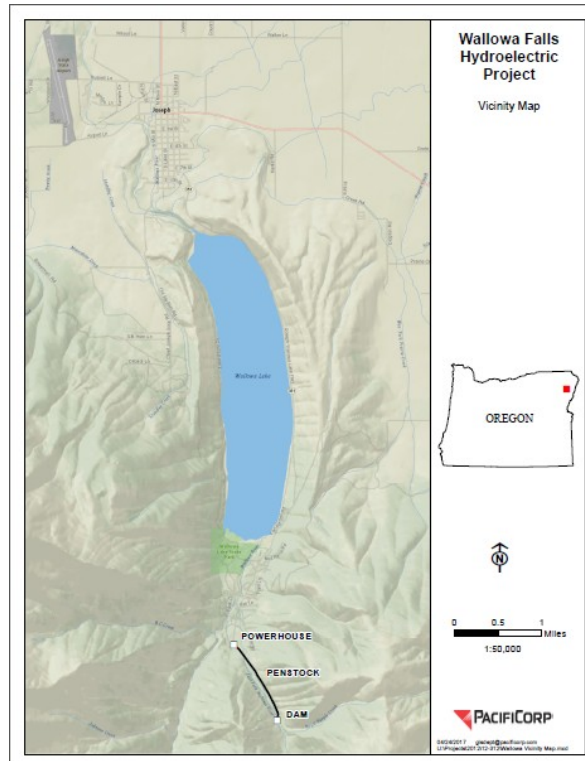
<b>Site Name:</b> Wallowa Falls Hydroelectric Project		<b>Date:</b> July 16, 2018	
Photo Point (GPS):		Ownership/District: USFS, WWNF, Eagle Cap and PacifiCorp	
Photo Name:		<b>Examiner:</b> Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial:	<b>Elevation:</b> 4700'-5800'	<b>GPS Coordinates:</b> 0483259 E 5012652N to 0484159E 5011062N	<b>Datum:</b> UTM (NAD 27) Zone 11
Wildlife Biologist:			
EDRR: __Y__N	<b>GPS File Name:</b>	Other Observations:	
<b>Access:</b> Road__ Trail <u>X</u> River__ Other campground			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>33</u> NW¼ of NW¼, SW¼ of NW¼, NW¼ of SW¼, SE¼ of SW¼			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>29</u> SW ¼			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>32</u> NE¼ of NE¼			

## Site Data Information

<b>Target Species Code:</b> CIVU		<b>Common Name:</b> Bull Thistle	
<b>Scientific Name:</b> <i>Cirsium vulgare</i>		<b>Phenology:</b> R__ B__ FL <u>X</u> S	
<b>Distribution:</b> C Lumped__ Linear__ SE Scattered even__ SP Scattered Patchy <u>X</u> Continuous__			
<b>Total Acres:</b> 26	<b>Percent Infested:</b> <1%	<b>Infested Acres:</b> ~0.15	
% Cover or Count (weeds): ~50		Understory Cover % (all): 40-90%	
Potential to Spread: High__ Med <u>x</u> Low__		<b>Distance to Water:</b> >30m	
<b>Water Type:</b> Perennial__ Ephemeral__		<b>System:</b> Lake__ River__ Spring__ Stream	
Soil Types: sandy loam		Slope % aspect: 2-20%, Aspect variable	
Other Species on Site:			

## Comments

## Map of Site



# Invasive Plant Inventory Form

## General Site Information

<b>Site Name:</b> Wallowa Falls Hydroelectric Project		<b>Date:</b> 16 July 2019	
Photo Point (GPS):		Ownership/District: USFS, WWNF, Eagle Cap and PacifiCorp	
Photo Name:		<b>Examiner:</b> Kendrick Moholt, Bio-Resources, Inc.	
<b>Botanist Initial:</b>	<b>Elevation:</b> 4700'- 5800'	<b>GPS Coordinates:</b> 0483259 E 5012652N to 0484159E 5011062N	<b>Datum:</b> UTM (NAD 27) Zone 11
<b>Wildlife Biologist:</b>			
EDRR: __Y__N	<b>GPS File Name:</b>	Other Observations:	
<b>Access:</b> Road__ Trail <u>X</u> River__ Other campground			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>33</u> NW <sup>1</sup> / <sub>4</sub> of NW <sup>1</sup> / <sub>4</sub> , SW <sup>1</sup> / <sub>4</sub> of NW <sup>1</sup> / <sub>4</sub> , NW <sup>1</sup> / <sub>4</sub> of SW <sup>1</sup> / <sub>4</sub> , SE <sup>1</sup> / <sub>4</sub> of SW <sup>1</sup> / <sub>4</sub>			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>29</u> SW <sup>1</sup> / <sub>4</sub>			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>32</u> NE <sup>1</sup> / <sub>4</sub> of NE <sup>1</sup> / <sub>4</sub>			

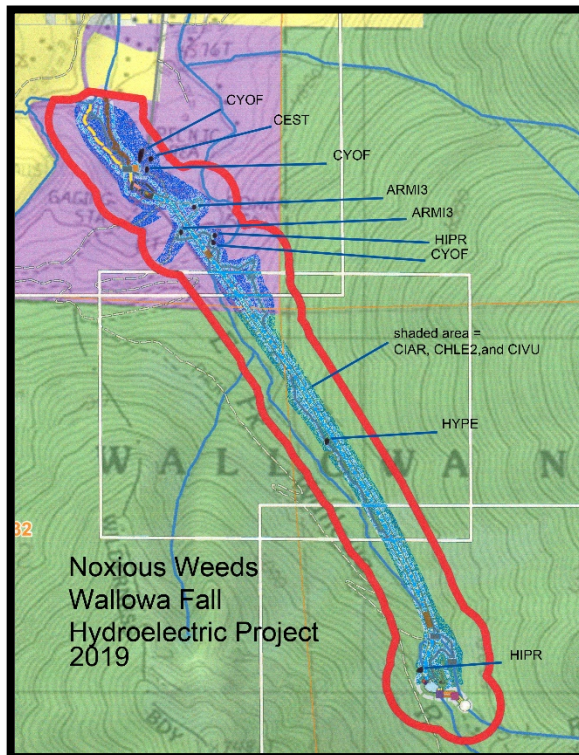
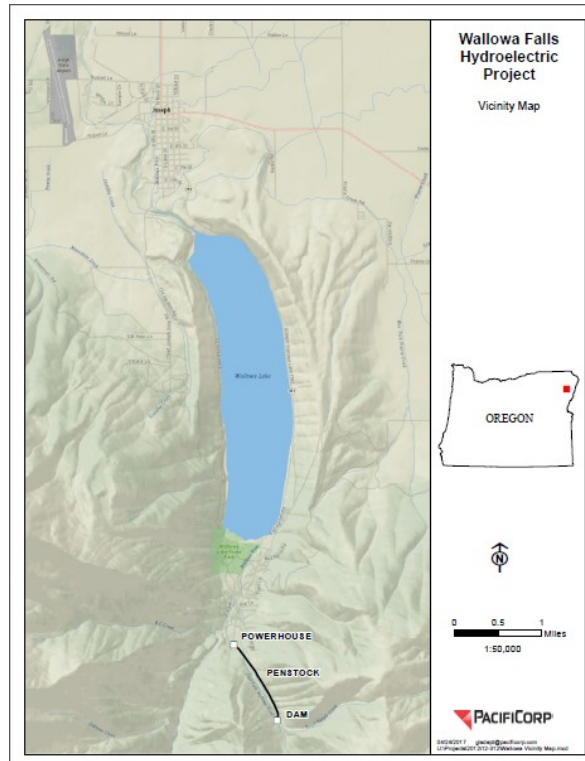
## Site Data Information

<b>Target Species Code:</b> CIAV		<b>Common Name:</b> Canada Thistle	
<b>Scientific Name:</b> <i>Cirsium arvense</i>		<b>Phenology:</b> R__ B__ FL <u>X</u> S	
<b>Distribution:</b> C Lumped__ Linear__ SE Scattered even__ SP Scattered Patchy <u>X</u> Continuous__			
<b>Total Acres:</b> 26	<b>Percent Infested:</b> <1%	<b>Infested Acres:</b> ~0.3	
% Cover or Count (weeds): ~1000		Understory Cover % (all): 40-90%	
Potential to Spread: High__ Med <u>x</u> Low__		<b>Distance to Water:</b> >30m	
<b>Water Type:</b> Perennial__ Ephemeral__		<b>System:</b> Lake__ River__ Spring__ Stream	
Soil Types: sandy loam		Slope % aspect: 2-20%, Aspect variable	
Other Species on Site:			

## Comments



## Map of Site



# Invasive Plant Inventory Form

## General Site Information

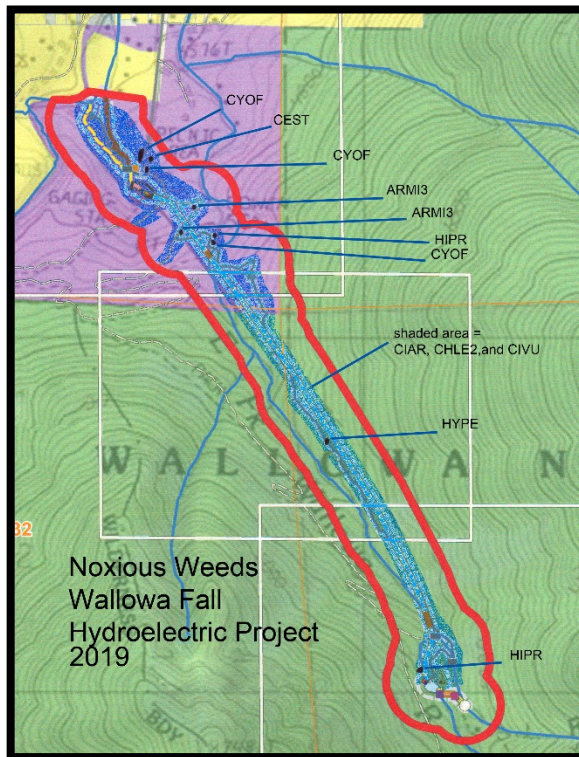
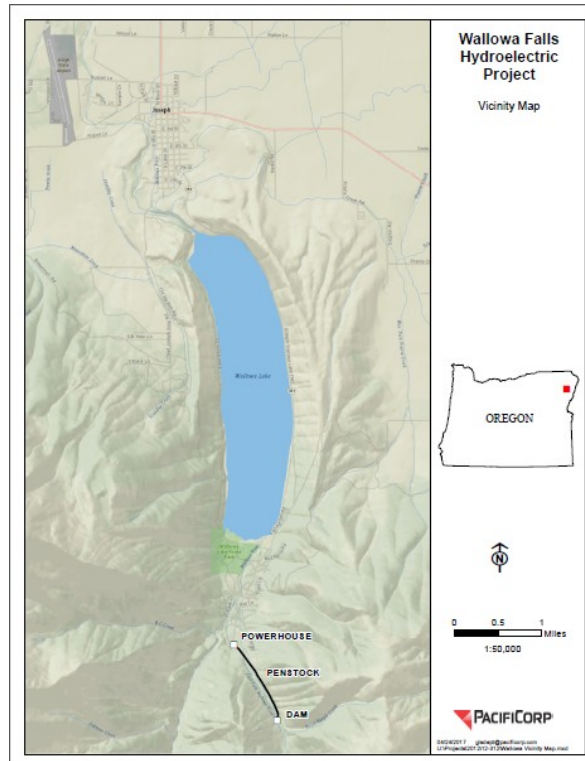
<b>Site Name:</b> Wallowa Falls Hydroelectric Project		<b>Date:</b> 16 July 2019	
Photo Point (GPS):		Ownership: PacifiCorp	
Photo Name:		<b>Examiner:</b> Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial:	<b>Elevation:</b> 4700'- 5000'	<b>GPS Coordinates:</b> 0483488E 5012298N and 0483529E 5012336N	<b>Datum:</b> UTM (NAD 27) Zone 11
Wildlife Biologist:			
EDRR: __Y__N	<b>GPS File Name:</b>	Other Observations:	
<b>Access:</b> Road__ Trail <u>X</u> River__ Other Campground			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>29</u> ¼ sec: <u>SE</u> of ¼ sec: <u>SE</u>			

## Site Data Information

<b>Target Species Code:</b> ARMI3		<b>Common Name:</b> Common Burdock	
<b>Scientific Name:</b> <i>Arctium minus</i>		<b>Phenology:</b> R__ B__ FL <u>X</u> S	
<b>Distribution:</b> C Lumped__ Linear__ SE Scattered even__ SP Scattered Patchy <u>X</u> Continuous__			
<b>Total Acres:</b> 26	<b>Percent Infested:</b> <1%	<b>Infested Acres:</b> ~0.1	
% Cover or Count (weeds): ~5		Understory Cover % (all): 60-90%	
Potential to Spread: High__ Med <u>x</u> Low__		<b>Distance to Water:</b> >30m	
<b>Water Type:</b> Perennial__ Ephemeral__		<b>System:</b> Lake__ River__ Spring__ Stream	
Soil Types: sandy loam		Slope % aspect: 2-10%, Aspect variable	
Other Species on Site:			

## Comments

# Map of Site



# Invasive Plant Inventory Form

## General Site Information

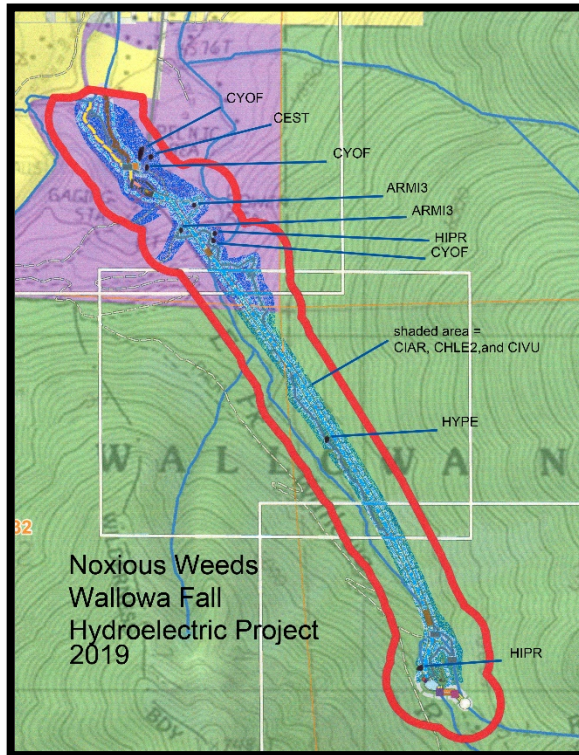
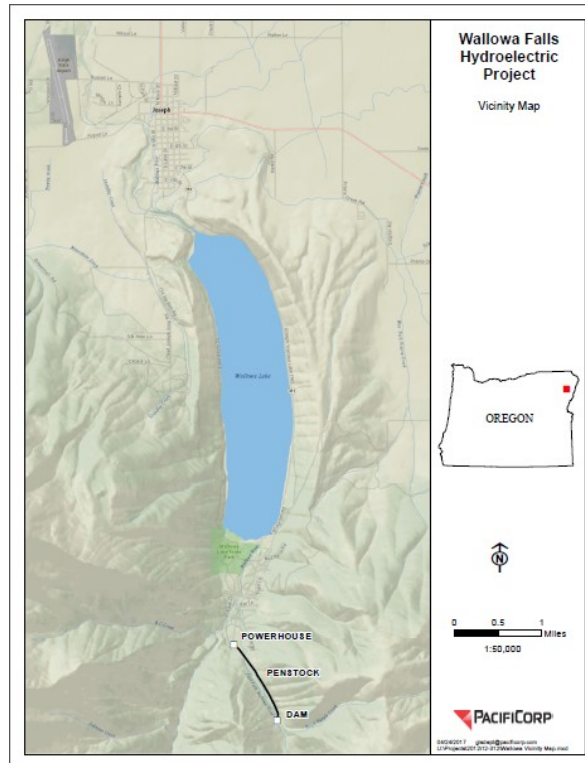
<b>Site Name:</b> Wallowa Falls Hydroelectric Project		<b>Date:</b> 16 July 2019	
Photo Point (GPS):		Ownership: PacifiCorp	
Photo Name:		<b>Examiner:</b> Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial:	<b>Elevation:</b> 4700'- 5000'	<b>GPS Coordinates:</b> 0483297 5012651N and 0483577E 5012260N	<b>Datum:</b> UTM (NAD 27) Zone 11
Wildlife Biologist:			
EDRR: __Y__N	<b>GPS File Name:</b>	Other Observations:	
<b>Access:</b> Road__ Trail <u>X</u> River__ Other_____#			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>29</u> ¼ sec: <u>NW</u> of ¼ sec: <u>SE</u>			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>29</u> ¼ sec: <u>SE</u> of ¼ sec: <u>SE</u>			

## Site Data Information

<b>Target Species Code:</b> CYOF		<b>Common Name:</b> Houndstongue	
<b>Scientific Name:</b> <i>Cynoglossum officinale</i>		<b>Phenology:</b> R__ B__ FL <u>X</u> S	
<b>Distribution:</b> CLumped__ Linear__ SEScattered even____ SPScattered Patchy <u>X</u> Continuous_____			
<b>Total Acres:</b> 26	<b>Percent Infested:</b> <1%	<b>Infested Acres:</b> ~0.15	
% Cover or Count (weeds): ~60		Understory Cover % (all): 40-90%	
Potential to Spread: High <u>x</u> Med__ Low__		<b>Distance to Water:</b> >30m	
<b>Water Type:</b> Perennial__ Ephemeral__		<b>System:</b> Lake__ River__ Spring__ Stream	
Soil Types: sandy loam		Slope % aspect: 2-10%, Aspect variable	
Other Species on Site:			

## Comments

# Map of Site





# Invasive Plant Inventory Form

## General Site Information

<b>Site Name:</b> Wallowa Falls Hydroelectric Project		<b>Date:</b> 16 July 2019	
Photo Point (GPS):		Ownership/District: USFS, WWNF, Eagle Cap and PacifiCorp	
Photo Name:		<b>Examiner:</b> Kendrick Moholt, Bio-Resources, Inc.	
<b>Botanist Initial:</b>	<b>Elevation:</b> 4700'- 5800'	<b>GPS Coordinates:</b>	<b>Datum:</b> UTM (NAD 27) Zone 11
<b>Wildlife Biologist:</b>		0484195E 5011062N (USFS) 0484223E 5011018N (PacifiCorp)	
EDRR: __Y__N	<b>GPS File Name:</b>	Other Observations:	
<b>Access:</b> Road__ Trail <u>X</u> River__ Other____#			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>33</u> ¼ <b>sec:</b> <u>SE</u> (USFS)			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>29</u> ¼ <b>sec:</b> <u>SE</u> of ¼ <b>sec:</b> <u>SE</u> (PacifiCorp)			

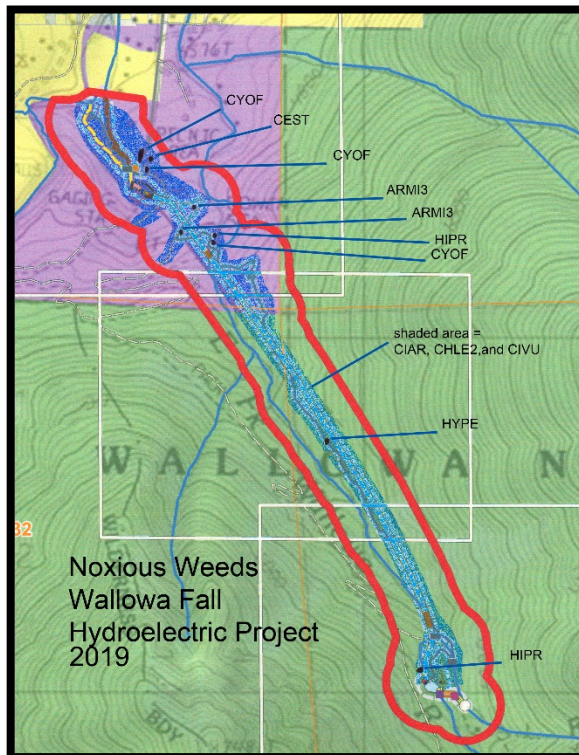
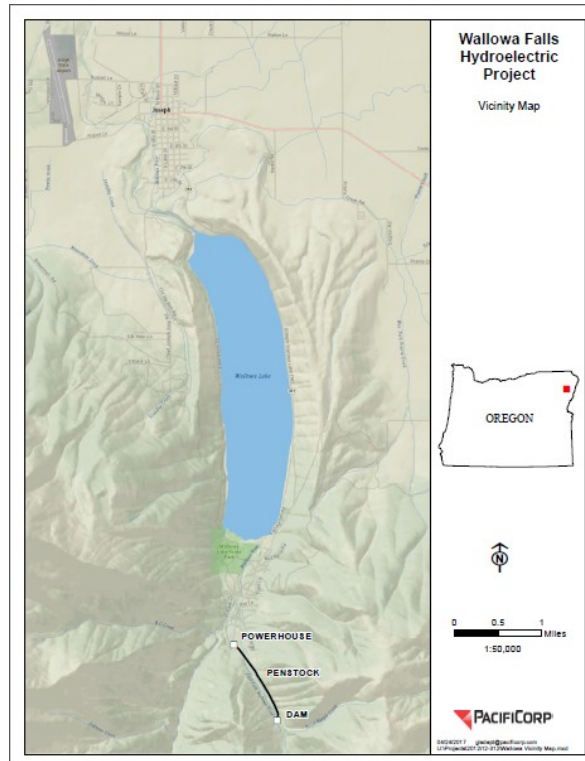
## Site Data Information

<b>Target Species Code:</b> HIPR		<b>Common Name:</b> meadow hawkweed	
<b>Scientific Name:</b> <i>Hieracium caespitosum</i> (Synonym: <i>Hieracium pratense</i> )		<b>Phenology:</b> R__ B__ FL <u>X</u> S	
<b>Distribution:</b> C Lumped__ Linear__ SE Scattered even____ SP Scattered Patchy <u>X</u> Continuous____			
<b>Total Acres:</b> 26	<b>Percent Infested:</b> <1%	<b>Infested Acres:</b> ~0.15	
% Cover or Count (weeds): <1% (~60 plants)		Understory Cover % (all): 40-90%	
Potential to Spread: High <u>x</u> Med__ Low____		<b>Distance to Water:</b> >30m	
<b>Water Type:</b> Perennial__ Ephemeral____		<b>System:</b> 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



# Invasive Plant Inventory Form

## General Site Information

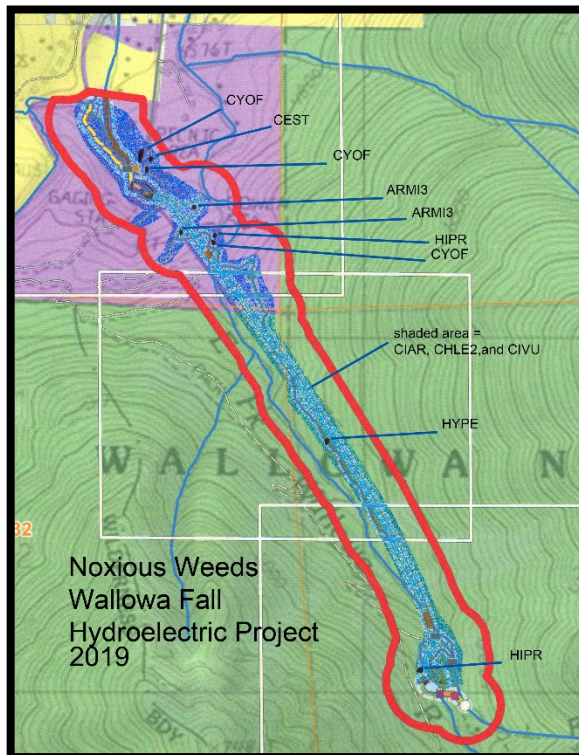
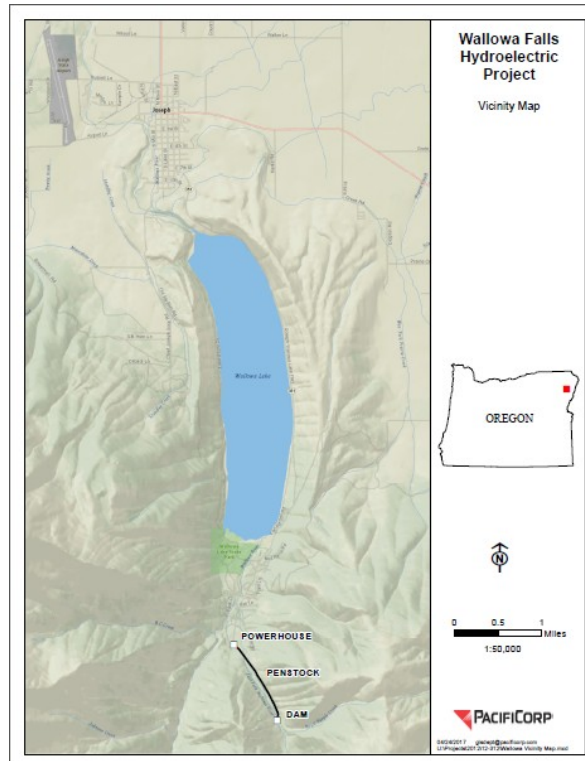
<b>Site Name:</b> Wallowa Falls Hydroelectric Project		<b>Date:</b> 16 July 2019	
Photo Point (GPS):		Ownership/District: USFS, WWNF, Eagle Cap and PacifiCorp	
Photo Name:		<b>Examiner:</b> Kendrick Moholt, Bio-Resources, Inc.	
<b>Botanist Initial:</b>	<b>Elevation:</b> 4700'- 5800'	<b>GPS Coordinates:</b> 0483259 E 5012652N to 0484159E 5011062N	<b>Datum:</b> UTM (NAD 27) Zone 11
<b>Wildlife Biologist:</b>			
EDRR: __Y__N	<b>GPS File Name:</b>	Other Observations:	
<b>Access:</b> Road__ Trail <u>X</u> River__ Other campground			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>33</u> NW <sup>1</sup> / <sub>4</sub> of NW <sup>1</sup> / <sub>4</sub> , SW <sup>1</sup> / <sub>4</sub> of NW <sup>1</sup> / <sub>4</sub> , NW <sup>1</sup> / <sub>4</sub> of SW <sup>1</sup> / <sub>4</sub> , SE <sup>1</sup> / <sub>4</sub> of SW <sup>1</sup> / <sub>4</sub>			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>29</u> SW <sup>1</sup> / <sub>4</sub>			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>32</u> NE <sup>1</sup> / <sub>4</sub> of NE <sup>1</sup> / <sub>4</sub>			

## Site Data Information

<b>Target Species Code:</b> CHLE2		<b>Common Name:</b> Oxeye Daisy	
<b>Scientific Name:</b> <i>Leucanthemum vulgare</i> (Synonym- <i>Chrysanthemum leucanthemum</i> )		<b>Phenology:</b> R__ B__ FL <u>X</u> S	
<b>Distribution:</b> CLumped__ Linear__ SE Scattered even__ SP Scattered Patchy <u>X</u> Continuous__			
<b>Total Acres:</b> 26	<b>Percent Infested:</b> <1%	<b>Infested Acres:</b> ~0.3	
% Cover or Count (weeds): ~1000		Understory Cover % (all): 40-90%	
Potential to Spread: High__ Med <u>x</u> Low__		<b>Distance to Water:</b> >30m	
<b>Water Type:</b> Perennial__ Ephemeral__		<b>System:</b> Lake__ River__ Spring__ Stream	
Soil Types: sandy loam		Slope % aspect: 2-20%, Aspect variable	
Other Species on Site:			

## Comments

# Map of Site



# Invasive Plant Inventory Form

## General Site Information

<b>Site Name:</b> Wallowa Falls Hydroelectric Project		<b>Date:</b> 16 July 2019	
Photo Point (GPS):		Ownership: PacifiCorp	
Photo Name:		<b>Examiner:</b> Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial:	<b>Elevation:</b> 4700'- 5000'	<b>GPS Coordinates:</b> 0483409E 5012480N	<b>Datum:</b> UTM (NAD 27) Zone 11
Wildlife Biologist:			
EDRR: __Y__N	<b>GPS File Name:</b>	Other Observations:	
<b>Access:</b> Road <u>X</u> Trail <u>  </u> River <u>  </u> Other Campground			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>29</u> ¼ sec: <u>NW</u> of ¼ sec: <u>SE</u>			

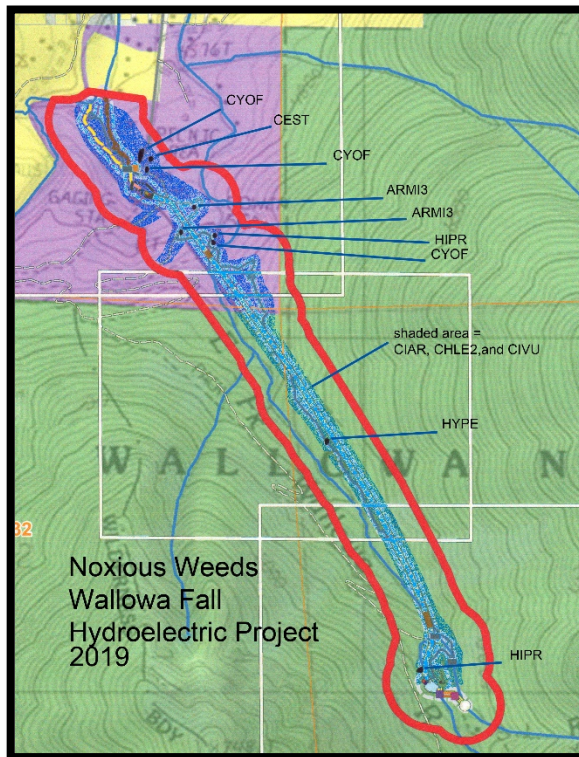
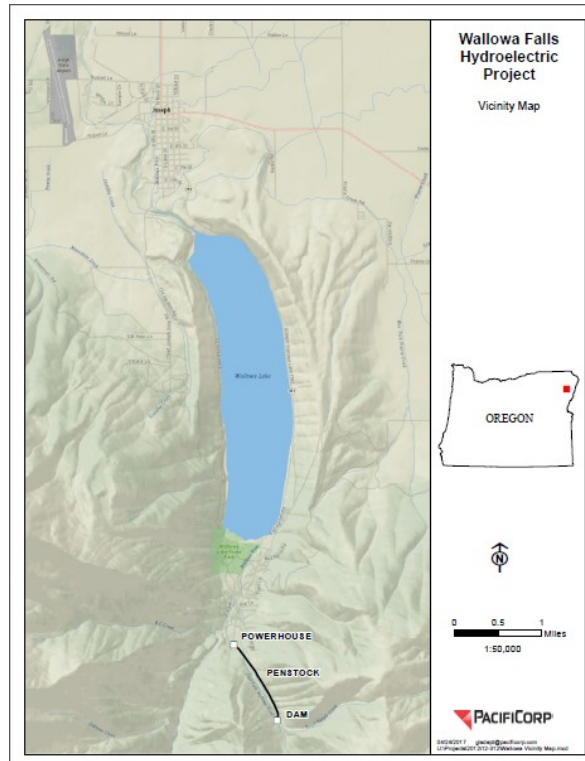
## Site Data Information

<b>Target Species Code:</b> CEST		<b>Common Name:</b> Spotted Knapweed	
<b>Scientific Name:</b> <i>Centaurea stoebe</i> Synonym ( <i>Centaurea maculosa</i> )		<b>Phenology:</b> R__ B__ FL <u>X</u> S	
<b>Distribution:</b> C Lumped__ Linear__ SE Scattered even__ S P Scattered Patchy <u>X</u> Continuous__			
<b>Total Acres:</b> 26	<b>Percent Infested:</b> <1%	<b>Infested Acres:</b> ~0.25	
% Cover or Count (weeds): dozens		Understory Cover % (all): 40-90%	
Potential to Spread: High <u>x</u> Med__ Low__		<b>Distance to Water:</b> >30m	
<b>Water Type:</b> Perennial__ Ephemeral__		<b>System:</b> Lake__ River__ Spring__ Stream	
Soil Types: sandy loam		Slope % aspect: 2-10%, Aspect variable	
Other Species on Site:			

## Comments



# Map of Site





# Invasive Plant Inventory Form

## General Site Information

<b>Site Name:</b> Wallowa Falls Hydroelectric Project		<b>Date:</b> 16 July 2019	
Photo Point (GPS):		Ownership/District: USFS, WWNF, Eagle Cap	
Photo Name:		<b>Examiner:</b> Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial:	<b>Elevation:</b> 5500'	<b>GPS Coordinates:</b> 0484018E 5011521N	<b>Datum:</b> UTM (NAD 27) Zone 11
Wildlife Biologist:			
EDRR: __Y__N	<b>GPS File Name:</b>	Other Observations:	
<b>Access:</b> Road__ Trail <u>X</u> River__ Other_____#			
<b>Township:</b> <u>3S</u> <b>Range:</b> <u>45E</u> <b>Section:</b> <u>33</u> ¼ sec: <u>NW</u>			

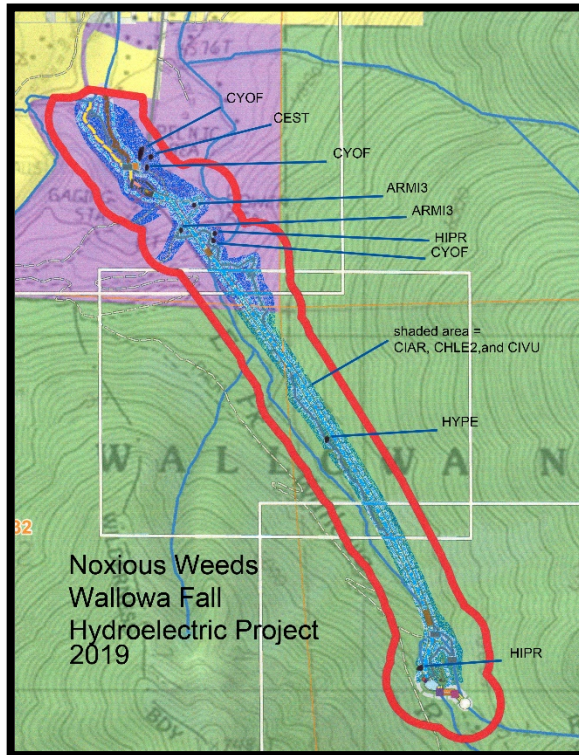
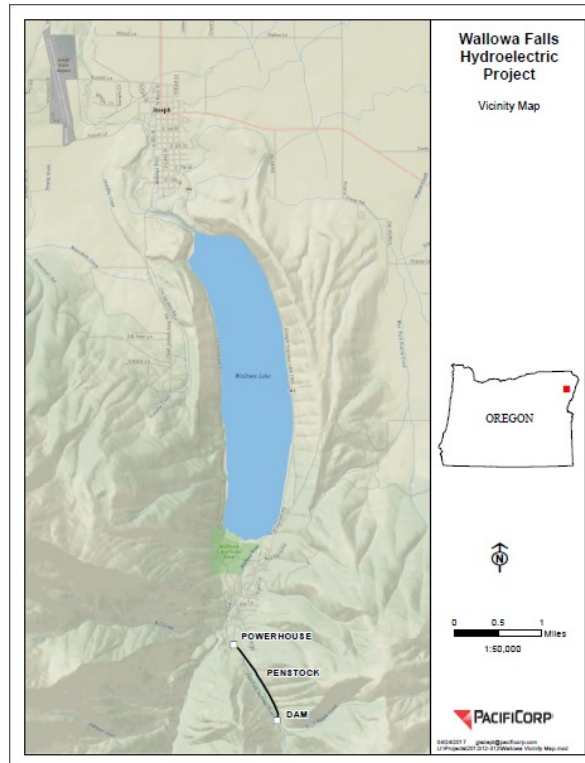
## Site Data Information

<b>Target Species Code:</b> HIPE		<b>Common Name:</b> St. John's Wort	
<b>Scientific Name:</b> <i>Hypericum perforatum</i>		<b>Phenology:</b> R__ B__ FL <u>X</u> S	
<b>Distribution:</b> C Lumped__ Linear__ SE Scattered even____ S P Scattered Patchy <u>X</u> Continuous_____			
<b>Total Acres:</b> 26	<b>Percent Infested:</b> <1%	<b>Infested Acres:</b> ~0.1	
% Cover or Count (weeds): ~50		Understory Cover % (all): 90%	
Potential to Spread: High__ Med__ Low <u>X</u>		<b>Distance to Water:</b> >30m	
<b>Water Type:</b> Perennial__ Ephemeral__		<b>System:</b> 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



## 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

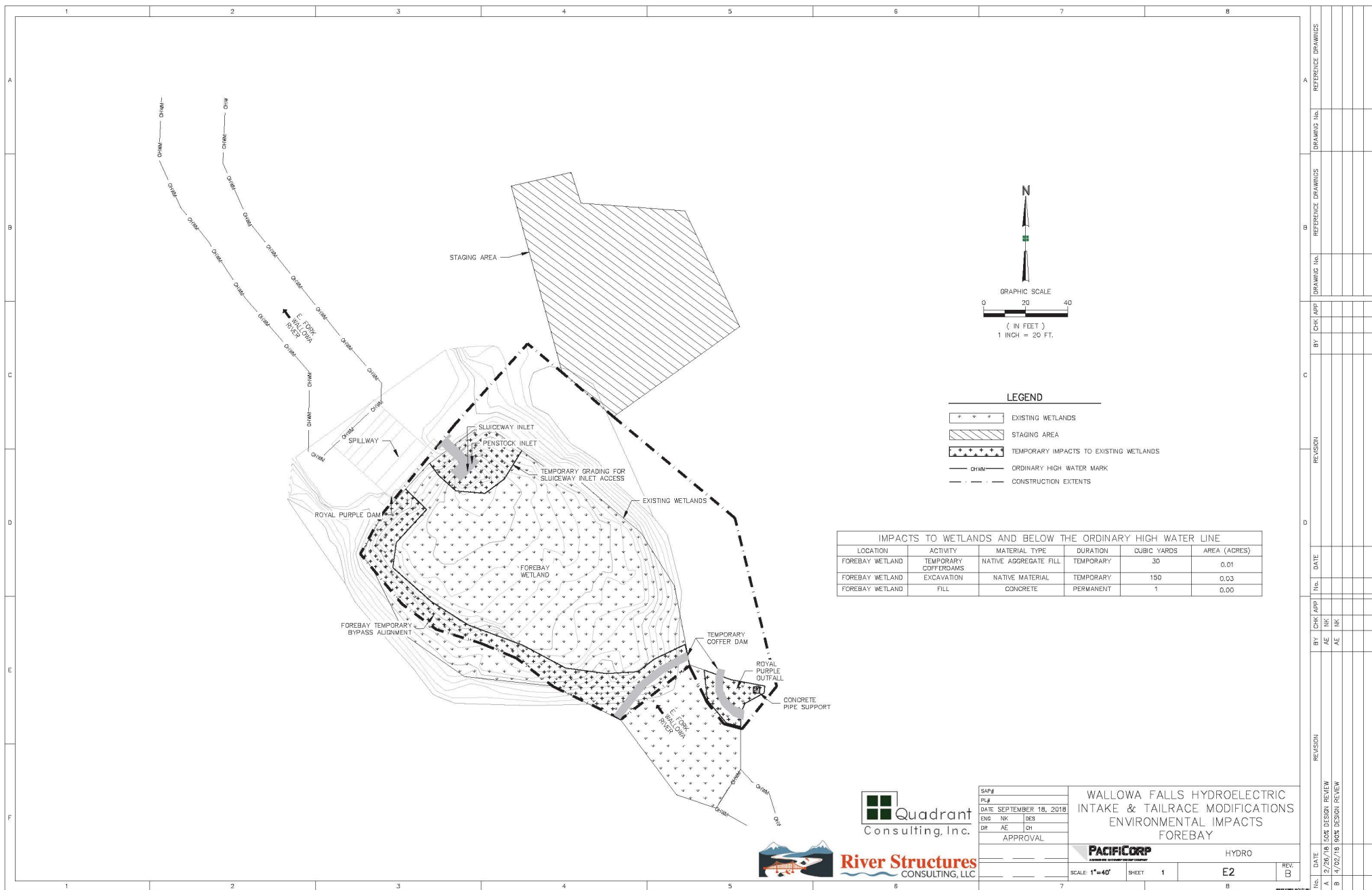
INFESTATION_ID	Species Name	% Infested	Infested Area Treat	Phenology
TBD	Meadow Hawkweed <i>Hieracium caespitosum</i>	<1%	0.05 ac USFS (spot app) 0.10 ac PacifiCorp (spot app)	Flowering
TBD	Bull Thistle <i>Cirsium vulgare</i>	<1%	0.10 ac USFS (spot app) 0.05 ac PacifiCorp (spot app)	Flowering
TBD	Canada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

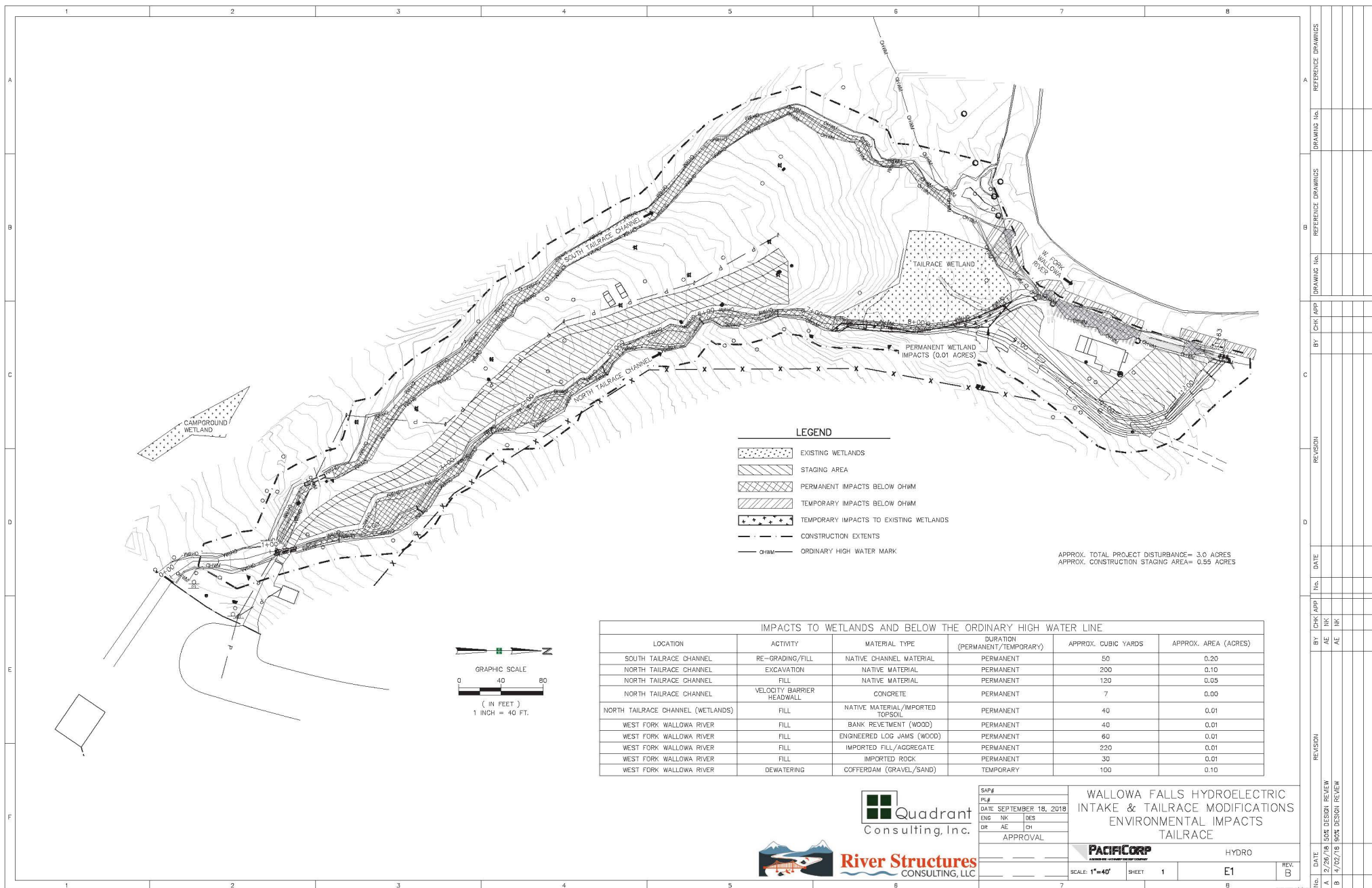
### DailyLog

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
17 July 2019	1.5	0700	1500	80°F	1-3	NW	clear	30	>30m
Calibrated Volume	UOM	Volume Applied		UOM		Mix (oz/gal)		Diluent	
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		

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

**Appendix C**  
**Tailrace reroute and Royal Purple**  
**Pipe extension construction limits**







## **Appendix E**

### **2019 Construction Photos**



Photo 1 – Cofferdam at Wallowa Falls Intake



Photo 2 – New Intake Platform





Photo 3 – Completed intake structure and bollards on dam catwalk



Photo 4 – Penstock wye downstream of Wallowa dam





Photo 5 - Foundations for new Eagle Cap Wilderness trailhead sign.



Photo 6 – New gate on maintenance road





Photo 7 – Recoated penstock



Photo 8 – Royal Purple diversion pipe extension





Photo 9 – Cofferdam at tailrace outfall/fish barrier location



Photo 10 – Fish barrier rebar forms and concrete placement





Photo 11 – Cofferdam and log revetment installation



Photo 12 – Completed revetment with revegetation on the West Fork Wallowa River





Photo 13 – Trail access to cabin and tailrace culvert



Photo 14 – Tailrace and velocity barrier looking downstream



Photo 15 – Velocity barrier looking upstream

## **Appendix F**

### **Agency Comments**

AGENCY	COMMENT	UTILITY RESPONSE
<p>U.S. Fish and Wildlife Service and Oregon Department of Fish and Wildlife</p>	<p>Appendix A: Forebay flushing report – In DEQ’s Clean Water Act, 401 Certification Conditions dated March 31, 2016, it states Reporting: PacifiCorp shall file a Turbidity Monitoring Report with DEQ within 60 days of completing forebay flushing activities. The report shall summarize dates of the activity, the duration of the event, flushing methods, estimates streamflow, and turbidity monitoring results. The report shall also provide a brief narrative describing visual turbidity observations, bedload movement, sediment dispersal, and any negative environmental impacts identified during the sediment flushing event. Was this monitoring conducted? If yes, the Service recommends including in the report, if not, the Service recommends that it is conducted in future years. It appears from the report that the flushing was successful in 2019. If this is true, the Service recommends a short sentence to be added that includes in information.</p>	<p>The recommend narrative content has been added to Section 3.0 of the report.</p>
<p>U.S. Fish and Wildlife Service</p>	<p>Turbidity Data – Thank you for including a map and for the photos of the sediment flush showing sediment below the forebay. In addition, the Service requests photos of stream turbidity prior to 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.</p>	<p>To clarify, the photos included in Appendix A - Wallowa Falls Forebay Flushing Report are <u>all</u> within the project forebay, upstream of the dam. Per the 401 Water Quality Certification and the final Turbidity Monitoring Plan, turbidity will be monitored continuously using datasondes that record hourly values. Datasondes are to be left in place for a minimum of 5 days. There is no way to know when there are low or high turbidity readings until datasondes are removed from the stream and data is downloaded, so corresponding photos is not possible.</p>

AGENCY	COMMENT	UTILITY RESPONSE
U.S. Fish and Wildlife Service and Oregon Department of Environmental Quality and Oregon Department of Fish and Wildlife	Turbidity Data – The Service recommends that you report flows during turbidity monitoring timeframe, similar to 2018 report, as well as include information on graph on page 1, as data in a new column on table 1 turbidity. Thanks you for using two datasondes in both the upper and lower locations to insure representative data. The Service recommends you continue to do this in the future.	Table 1 in Appendix A - Wallowa Falls Forebay Flushing Report has been revised to include stream flows, as measured at the USGS gage, during the forebay flushing event.
U.S. Fish and Wildlife Service	Redd Monitoring Report – Great job on this red monitoring effort! It is exciting to learn that fluvial/adfluvial bull trout are spawning in the East Fork Wallowa River.	Comment noted.
U.S. Fish and Wildlife Service	Redd Monitoring Report and BO – What were the flows during red surveys? Please add a brief summary.	Flows have been added to Appendix C – Bull Trout Redd Monitoring Report
U.S. Fish and Wildlife Service	Redd Monitoring Report and BO Photo documentation of redds – Did this occur? If so please include. If not, Please state reason.	Photos were taken and are now included in the appendices to the Redd Monitoring Report.
U.S. Fish and Wildlife Service and Oregon Department of Fish and Wildlife	The photo on the front of the Redd Monitoring Report shows a bull trout redd with at least two fish on the redd at the edge of the water. This is an example where red monitoring post unit trip would be important to determine if the redd may be dewatered, the redd depth appears shallow, not made in a deep pool area. What year was this photo Taken?	Photo was taken on September 16, 2019 and is of redd #4. Redd was monitored directly by a biologist on-site during the unit ramp up of September 26. At no time did any portion of the redd de-watered during ramp up activities.



AGENCY	COMMENT	UTILITY RESPONSE
U.S. Fish and Wildlife Service and Oregon Department of Fish and Wildlife	Please include a summary on brook trout presence during surveys. Was the mention of a probable brook trout staging during the October 24 survey, the only brook trout observed during survey? It is unclear from the report.	Information added to body of Report
U.S. Fish and Wildlife Service	Redd Monitoring Report – Data displayed in Figure 2 – The Service recommends PacifiCorp number and date [for] the bull trout redds on the GIS map. This will clarify for the reader where and when these bull trout redds were first documented.	Comment noted. Date of redd construction included within the body of the Report.
U.S. Fish and Wildlife Service and Oregon Department of Environmental Quality U.S. Forest Service Oregon Department of Fish and Wildlife	Include construction activities completed in 2019 and plans for 2020 in this report.	Section 8.0 Implementation Projects and Appendix E – 2019 Construction Photos has been added to the Report.
U.S. Fish and Wildlife Service	The Service BO for the License - Term and Condition 3 states that <i>a pollution control plan be prepared by the contractor</i> . Was this prepared and if not, why?	Although a single document titled “pollution prevention plan” was not prepared, there were multiple documents and permits, including the Erosion and Sediment Control Plan, Dewatering and Water Management Plans, Forest Service Site Specific Plans, concrete management submittals, etc. which documented pollution prevention protocols and requirements. In addition to documents, PacifiCorp’s Environmental Compliance Manager conducted a pre-job training to cover all environmental requirements and permit conditions, including chemical management, spill kits, secondary containment and spill reporting, with the contractor. There was also a full-time third-party environmental inspector onsite for the duration of the 2019 construction season.

AGENCY	COMMENT	UTILITY RESPONSE
Oregon Department of Environmental Quality	Please note the Condition 1(e) of the DEQ Section 401 Water Quality Certification for the project, PacifiCorp will revise the Operations Compliance Monitoring Plan to include operations and monitoring procedures for the tailrace realignment channel, tailrace barrier and modified forebay flow release valve within 3 months of the completion of these facilities. Revisions to the plan will be subject to the same review and approval requirements as the original plan.	The Operations and Compliance Monitoring Plan will be revised within 3 months of construction completion in 2020.
Oregon Department of Fish and Wildlife	<u>Section 2.1.2 Ramping</u> PacifiCorp reports a series of unplanned outages that occurred following the completion ... The report states that a bull trout redd survey was performed on September 26, 2019, to confirm “all identified redds were in deep pools and would not be impacted by reducing rover stage in the bypassed reach from starting generation. Please verify that no newly constructed redds were observed between September 19 and September 26, 2019, while the unit was offline.	The language in Section 2.1.2 of the report was revised to clarify that a redd survey was conducted to confirm that all redds were in deep “enough” pools to not be impacted by starting generation.  No new redds were observed between September 19 and September 26, 2019.
Oregon Department of Fish and Wildlife	<u>Section 3.0 Forebay Flushing</u> The report states that Agency Stakeholders declined the offer for a pre-flush coordination conference call. However, my records indicated that we did have a pre-flush call on May 21, 2019 , at 2:30 pm. John Dadoly from Oregon DEQ and Adrian Cuzick from the US Forest Service participated in the call, in addition to you and I.	Correction made in Section 3.0 of the report and in the Forebay Flushing Report.



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

La Grande Field Office

3502 Highway 30

La Grande, Oregon 97850

Phone: (541) 962-8584 FAX: (541) 962-8581

Reply To: 7445.006

File Name: Wallowa Falls Hydro Project –FWS Comments to Operation Compliance Monitoring Plan Report – November 2019

TS Number: 20-87

TAILS: 13420-2011-CPA-0040

Doc Type: Final

DEC 10 2019

Briana Weatherly  
PacifiCorp Energy  
825 NE Multnomah Suite 1500  
Portland, OR 97232

Subject: U.S. Fish and Wildlife Service Letter with Comments to PacifiCorp for Wallowa Falls Hydroelectric Relicense Project (FERC No. 308- (FWS reference 13420-2011-CPA-0040) – Draft Operation Compliance Monitoring Plan Report - November 2019.

Dear Ms. Weatherly,

This letter provides the Fish and Wildlife Service's (Service) comments to PacifiCorp for Wallowa Falls Hydroelectric Relicense Project, Draft Operation Compliance Monitoring Plan (OCMP) Report –November 2019; Wallowa County, Oregon. PacifiCorp submitted the draft OCMP Report to the stakeholders, including the Service, for the Project via email on November 21, 2019.

The Service appreciates your coordination with us and the other stakeholders on the OCMP Report. If you have any questions regarding this letter, please contact Gretchen Sausen at 541-962-8584.

### Comments:

#### *Draft Operation Compliance Monitoring Plan Report – November 2019*

1. Appendix A: Forebay flushing report – In DEQ's Clean Water Act, 401 Certification Conditions dated March 31, 2016, it states Reporting: *PacifiCorp shall file a Turbidity Monitoring Report with DEQ within 60 days of completing forebay flushing activities. The report shall summarize dates of the activity, the duration of the event, flushing methods, estimated streamflow, and turbidity monitoring results. The report shall also provide a brief narrative describing visual turbidity observations, bedload movement, sediment dispersal, and any negative environmental impacts identified during the sediment flushing event.* Was this monitoring conducted? If yes, the Service recommends including in the report, if not, the Service recommends that it is conducted in future years. It appears from the report that the flushing was successful in 2019. If this is true, the Service recommends a short sentence be added that includes this information.

2. Turbidity Data – Thank you for including a map and for the photos of the sediment flush showing sediment below the forebay. In addition, the Service requests photos of stream turbidity prior to flush, during high turbidity readings, and post-flush showing low readings, to better interpret the numerical data at both the upstream fore bay and downstream turbidity monitoring locations.
3. Turbidity Data – The Service recommends that you report flows during turbidity monitoring timeframe, similar to 2018 report, as well as include this information on graph on page 1, and as data in a new column on table 1 turbidity. Thank you for using two datasodes in both the upper and lower locations to insure representative data. The Service recommends you continue to do this in future years.
4. Redd Monitoring Report – Great job on this redd monitoring effort! It is exciting to learn that fluvial/adfluvial bull trout are spawning in East Fork Wallowa River.
5. There are a few things missing from the term and condition for redd monitoring. Please insure that our terms and conditions are implemented and reported.
6. Redd Monitoring Report and BO – What were the flows during redd surveys? Please add a brief summary.
7. Redd Monitoring Report and BO Photo documentation of redds – Did this occur? If so please include. If not, please state the reason.
8. The photo on the front of the Redd Monitoring Report shows a bull trout redd with at least two fish on the redd at the edge of water. This is the example where redd monitoring post unit trip would be important to determine if the redd may be dewatered, the redd depth appears shallow, not made in a deep pool area. What year was this photo taken?
9. Please include a summary on brook trout presence during surveys. Was the mention of a probable brook trout staging during the October 24 survey, the only brook trout observed during surveys? It is unclear from the report.
10. Redd Monitoring Report – Data displayed in Figure 2 – The Service recommends PacifiCorp number and date the bull trout redds on the GIS map. This will clarify for the reader where and when these bull trout redds were first documented.
11. The Service recommends that you include construction activities completed in 2019 and plans for 2020 in this report.
12. The Service BO for License - Term and Condition 3 states that *a pollution control plan be prepared by the contractor*. Was this prepared and if not, why?
13. As a reminder for reporting in 2020, in the BO for the project, term and condition 3xi. states that: *PacifiCorp shall by December 31 of the year construction complete, submit a monitoring report to the Service with results of implementation and post implementation monitoring of the project.*

Sincerely,



Marisa Meyer  
Field Supervisor

cc:

Elizabeth Ozier-Moats, Oregon Department of Fish and Wildlife (ODFW), La Grande, Oregon

Ms. Briana Weatherly

3

Ken Homolka, ODFW, Salem, Oregon.

Matt Cutlip, FERC, Portland, Oregon

Adrian Cuzick, U.S. Forest Service, Baker City, Oregon

Kristen Bonanno, US. Forest Service, Portland, Oregon

John Dadoly, Oregon DEQ, Pendleton, Oregon

Mary Grainey, Oregon Water Resources, Salem, Oregon

Gretchen Sausen, Fish and Wildlife Service, La Grande, Oregon





# Oregon

Kate Brown, Governor

## Department of Environmental Quality

Eastern Region - Pendleton Office

800 SE Emigrant Ave, Suite 330

Pendleton, OR 97801

Phone: (541) 276-4063

Fax: (541) 278-0168

Relay Service: 711

December 10, 2019

Briana Weatherly  
Environmental Compliance Manager  
PacifiCorp  
825 NE Multnomah, Suite 1800  
Portland, OR 97232

RE: Project No. P-308-Wallowa Falls Hydroelectric Project  
Oregon Department of Environmental Quality Comments on *Draft 2019 Annual Operational Compliance Report, November 2019*

Dear Ms. Weatherly:

DEQ has reviewed the *Draft 2019 Annual Operational Compliance Report* submitted on November 21, 2019 and has the following comments:

1. Please add flow data to the turbidity graph presented in Attachment 1 of the draft report. This addition makes the graph more useful by supplying flow context to the turbidity data. I believe this was included in the 2018 report.
2. Please include a summary of construction activities performed in 2019 and planned work for 2020. For instance, the draft report makes no mention of the tailrace re-route construction activities.
3. As a reminder, please note that Condition 1(e) of the DEQ Section 401 Water Quality Certification for the project, PacifiCorp will revise the Operations Compliance Monitoring Plan to include operations and monitoring procedures for the tailrace realignment channel, tailrace barrier and modified forebay flow release valve within 3 months of the completion of these facilities. Revisions to the plan will be subject to the same review and approval requirements as the original plan.

If you have any questions regarding these comments please contact me at 541-278-4616.

Sincerely,

John P. Dadoly  
WQ Basin Coordinator  
Oregon DEQ, Pendleton

Cc: Marilyn Fonseca, DEQ, HQ





# Oregon

Kate Brown, Governor

## Department of Fish and Wildlife

East Region  
107 20<sup>th</sup> Street  
La Grande, OR 97850  
(541) 963-2138  
FAX (541) 963-6670



December 23, 2019

Briana Weatherly  
PacifiCorp  
825 NE Multnomah Street  
Portland, OR 97232

**VIA ELECTRONIC MAIL**

Subject: Wallowa Falls Hydroelectric Project (P-308)  
Operation Compliance Monitoring Plan Report

Dear Ms. Weatherly,

Oregon Department of Fish and Wildlife ("Department" or "ODFW") received the Wallowa Falls Hydroelectric Project (Project) Operation Compliance Monitoring Plan (OCMP) Report via email on November 21, 2019. The Department appreciates the opportunity to review this report and provide the following comments.

### Section 2.1.2 Ramping

PacifiCorp reports a series of unplanned outages that occurred following completion of the intake replacement and tailrace realignment that resulted in implementation of the Down-Ramping Plan. PacifiCorp contacted the agencies for agreement on flows following repairs, which would occur during bull trout spawning. On September 19, 2019, PacifiCorp requested and the agencies approved an 8-hour outage on September 26, 2019, to make the necessary repairs. However, the unit tripped off-line later that evening of September 19. The unit remained offline from September 19 to September 26, 2019, when the previously planned emergency repair was performed. The report states that a bull trout redd survey was performed on September 26, 2019, to confirm "all identified redds were in deep pools and would not be impacted by reducing river stage in the bypassed reach from starting generation." Please also verify that no newly constructed redds were observed between September 19 and September 26, 2019, while the unit was offline.

### Section 3.0 Forebay Flushing

The report states that Agency stakeholders declined the offer of a pre-flush coordination conference call. However, my records indicate that we did have a pre-flush call on May 21, 2019, at 2:30 pm. John Dadoly from Oregon DEQ and Adrian Cuzick from the US Forest Service participated in the call, in addition to you and me.

### Section 7.0 Deviations and Unanticipated Events

Photo 7.1 of the Royal Purple flow line is referenced, but is not included. Please include any photos that show the effects of the erosion/slope failure event on Royal Purple Creek.

#### Appendix A: Forebay Flushing Report

The report states that Agency stakeholders declined the offer of a pre-flush coordination conference call. However, my records indicate that we did have a pre-flush call on May 21, 2019, at 2:30 pm.

Oregon DEQ Water Quality Certification Condition 5(c) states *“PacifiCorp shall file a Turbidity Monitoring Report with DEQ within 60 days of completing forebay sediment flushing activities. The report shall summarize: dates of the activity, the duration of the event, flushing methods, estimated streamflow, and turbidity monitoring results. The report shall also provide a brief narrative describing visual turbidity observations, bedload movement, sediment dispersal, and any negative environmental impacts identified during the sediment flushing event.”* According to the Water Quality Certification Condition, estimated streamflow and visual turbidity observations are supposed to be reported in addition to the other items that were included in the draft OCMP report. However, I note that these reporting requirements were not captured in the Turbidity Monitoring Plan for Forebay Flushing, dated June 2, 2017. Please include these reporting requirements from the 401 Water Quality Certification Condition 5(c) in future reports and consider whether the Turbidity Monitoring Plan for Forebay Flushing should be revised to include all DEQ reporting requirements.

It appears that the forebay flushing was successful in mobilizing sediment and transporting it downstream. The success should be briefly discussed in the OCMP report. Future OCMP reports should also discuss the success or failure of forebay flushing efforts.

ODFW appreciates the use of back up monitoring equipment to ensure that malfunctions experienced in the past were not a problem. Please continue this practice in future years.

To allow for interpretation of the turbidity data, please include flow data, so turbidity variation due to stream flow unrelated to forebay flushing (such as precipitation) can be ascertained. This was included in last year’s OCMP report, but not in this year’s. Please include flow in the final OCMP report and in future reports.

#### Appendix C: Bull Trout Redd Monitoring Report

The report indicates that seven Bull Trout redd surveys were performed from early September through the end of October. ODFW appreciates the extra effort of PacifiCorp to provide additional data which will increase the understanding of Bull Trout in the East Fork Bypassed Reach.

For the photo on the title page of the report, please add a figure title, including the date the photo was taken and the approximate location or redd number. This photo shows a redd with a fish on the redd at the edge of the water. Is this an example of the depth of water over the redds that was observed prior to the ramping activities on September 26, 2019? If so, this redd does not appear to be in a “deep pool” as was explained during the call with PacifiCorp on September 19, 2019, and is discussed in section 2.1.2, page 6, of the OCMP Report. Please explain the origin of this photo or describe the conditions which constitute the setting depicted as a “deep pool,” such as the depth of the water over the redd.

By inclusion of the US Fish and Wildlife Service (USFWS) Biological Opinion Terms and Conditions, the FERC License requires specific data to be collected during the Bull Trout redd monitoring (Condition 4a) including presence of brook trout, flows during redd counts, and photo documentation of all redds. The information required by USFWS should be included in the final 2019 Bull Trout Redd Monitoring report and in future reports.

Please include in the final OCMP Report a summary of construction activities completed in 2019, including construction timing, any reporting requirements and any deviations or modifications to initial construction plans. Please also include planned work for 2020, including expected timelines.

The Department appreciates the opportunity to comment on the OCMP Report. Please feel free to contact me if you have any questions or concerns (541-962-1832 or [elizabeth.a.osiermoats@state.or.us](mailto:elizabeth.a.osiermoats@state.or.us)).

Sincerely,

A handwritten signature in dark ink, reading "Elizabeth A. O. Moats". The signature is written in a cursive, flowing style.

Elizabeth A. O. Moats  
East Region Hydropower Coordinator

C (electronic):  
Ken Homolka – ODFW  
John Dadoly – ODEQ  
Gretchen Sausen – USFWS  
Adrian Cuzick – USFS

**REMEMBER SAIL WHEN READING EMAIL \*\***

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<b>Links</b>	Does this message contain links? <b>Yes</b> Check links before clicking them or removing BLOCKED in the browser.
<b>Cybersecurity risk assessment: <b>Medium</b></b>	

RE: Project No. P-308 Wallowa Falls Hydroelectric Project  
USDA Forest Service Comments on *Draft 2019 Annual Operational Compliance Report, November 2019*

Dear Ms. Weatherly,

The USDA Forest Service has reviewed the *Draft 2019 Annual Operational Compliance Report* submitted on November 21, 2019 and has the following comments:

1. We concur with the other agency stakeholders, please add flow data to the turbidity graph presented in Attachment 1 of the draft report. This would be useful by supplying flow to the turbidity data.
2. Please include a summary of construction activities performed in 2019 and planned work for 2020.

If you have any questions regarding these comments please feel free to contact me at (541)523-1340. Thank you again for allowing us to review *Draft 2019 Annual Operational Compliance Report, November 2019*.

Sincerely,  
Adrian Cuzick



**Adrian Cuzick**  
**NEPA Planner**

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Briana, the Oregon Water Resources Department does not have any comments on the Draft 2019 Annual Operational Compliance Report. Thank you for the opportunity to comment. -  
- Mary

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