FINAL

Fish Salvage Plan for the Wallowa Falls Hydroelectric Project Tailrace

(FERC No. P-308)

April 19, 2017

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

Table of Contents

1.0 INTRODUCTION

The Federal Energy Regulatory Commission (FERC) issued a new operating license for the Wallowa Falls Hydroelectric Project (Project) 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 Plan and the information contained within, along with the necessary implementation schedule, fulfill Article 411 of the FERC license as well as actions necessary to protect and preserve fishery resources within the Project area.

2.0 STUDY AREA

The Project is located on the East Fork Wallowa River approximately 11 miles outside of the City of Joseph in Northeastern Oregon. The Project (Figure 2.0-1) reservoir/forebay lies over 1,600 meters (m) above mean sea level (msl) and is approximately 0.2 surface acres (0.08 ha) in size and averages 5 feet (1.5 m) 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.

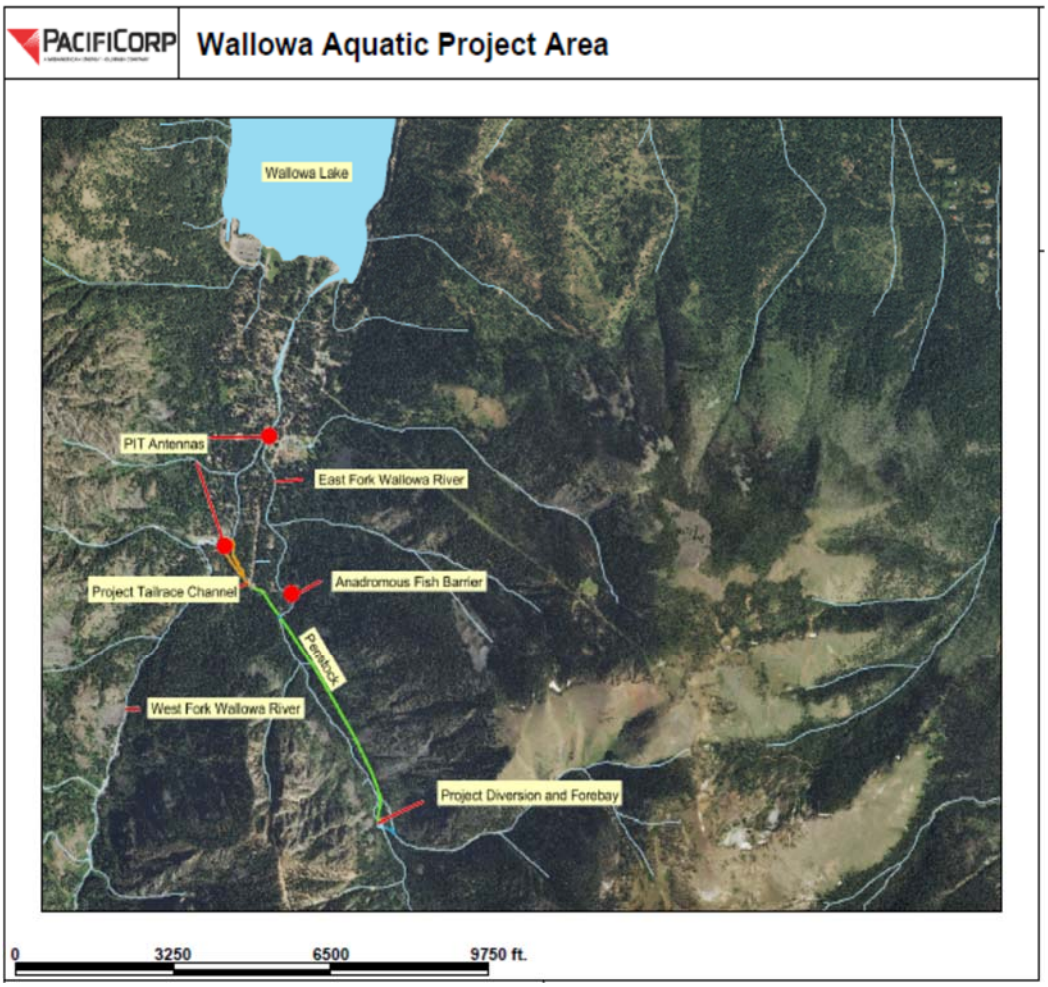

Figure 2.0.1 Wallowa Falls Hydroelectric Project.

3.0 METHODS

Project tailrace fish salvages will be conducted in the period prior to commissioning of the permanent tailrace fish barrier, and discontinued upon commissioning of the permanent barrier, scheduled for year four of the FERC license. Project tailrace fish salvages will only occur under three scenarios. 1) Immediately after installation of the temporary tailrace fish barrier installed August 1 – November 15, 2) during planned maintenance outages (i.e. forebay flushing) when the headgate is closed, and 3) If the unit trips (unplanned outages) and the headgate closes outside of the August 1 – November 15 time period.

Representatives of the United States Fish and Wildlife Service (USFWS) and the Oregon Department of Fish and Wildlife (ODFW) shall be notified 48 hours in advance of every planned unit trip, and no more than 24 hours after any emergency unit trip with subsequent headgate closure. All pertinent fish handling permits will be obtained annually from USFWS and ODFW for the life of these project operations.

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

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

Salvage activities will begin in the fenced area immediately downstream of the turbine discharge and proceed in a downstream manner until all areas of the tailrace have been thoroughly fished. All captured fish will be 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 shall take all appropriate steps to minimize the amount and duration of handling. The operations shall maintain 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 will be 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 will comply 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."

4.0 REPORTING

All dates and times of fish salvage activities, as well as pertinent biological information concerning captured and handled fish will be reported annually to the appropriate agencies and the FERC as part of the Operation Compliance Monitoring Report per Article 408(2) of the license. Reports will include occurrences of bull trout capture or incidental mortality during tailrace fish salvage activities. Reporting requirements per Article 411 and 412 of the operating license will be followed.

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

AGENCY COMMENTS

AGENCY	COMMENT	UTILITY RESPONSE
ODFW	Plan stipulates Temporary Fish Barrier to be in place August 15 – November 15, whereas condition 2(b) of the 401 water quality certification stipulates August 1 – November 15.	Comment noted, Plan reflects change.
ODFW	The Department recommends the Fish Salvage Plan be modified to clarify when the tailrace will be dewatered versus when it will remain watered. Please note that Article 411 specifies that "*salvaging fish from the tailrace barrier [should occur]* ***within two hours*** *of the installation of any temporary fish passage barrier…*" (emphasis added). The Department recommends that the timeframe in which salvage will be conducted following installation of the temporary tailrace barrier is added to the Fish Salvage Plan.	Comment noted, Plan reflects change.
ODFW	The Fish Salvage Plan should specify how fish salvage operations will differ during planned and unplanned outages. For instance, the 2nd paragraph of Section 3.0 (Methods) states that "Thus a fish salvage event is only triggered if the unit trips, along with a subsequent headgate closure, for longer than 60 minutes in duration. Outages or unit trips lasting less than one hour in duration, or 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 these two scenarios is sufficient for fish survival until the unit is brought back online and full flow once again commences." In the event of an unplanned outage or unit trip, it is unclear how PacifiCorp will determine that the outage will last 60 minutes or longer. Given the unexpected nature of such an event, ODFW recommends that action is initiated and appropriate personnel mobilized immediately after PacifiCorp learns of the event, in order to ensure a timely and appropriate response and minimize the risk to fish in the tailrace. The Department recommends that the Fish Salvage Plan specify the guidelines that will be used to determine the duration of any "unplanned" event. If PacifiCorp cannot determine the duration of unplanned outages affecting the tailrace with certainty, then the Fish Salvage Plan should indicate the protocols that will be initiated immediately upon discovery of such an outage.	Comment noted, Plan reflects change.

ODFW	The Fish Salvage Plan should also include the procedures or protocols to be implemented to deploy the "on-call qualified biologist" to respond to the unplanned outage, ensuring that the biologist will be able to be on-site within the specified 60-minute time frame, considering the remoteness of the Wallowa Falls Project from PacifiCorp offices.	Comment noted, Plan reflects change.
ODFW	For planned fish salvage events, the Department recommends that the Plan include more specificity. The Plan should specify that action will be taken to reduce the risk of prolonged holding of bull trout, as noted in the BO, condition 2(d). The plan should state that planned salvage events will be conducted when stream temperatures are at or below 15°C, as noted in the BO, condition 2(b), which may require planned salvage to be conducted early in the morning to avoid high temperatures during the summer months. Planned salvage events will require a Scientific Take Permit (STP) from the Department and the plan should specify that an STP will be obtained annually when planned salvage events are expected to occur.	Comment noted, Plan reflects change.
ODFW	We noticed was use of using straight DC current, where we would expect the use of pulsed-DC current. Did you mean pulsed DC? If not, we note that straight DC would result in lower chances of injury but also lower capture efficiency – which may not be as suitable for a salvage situation.	We did indeed mean straight DC current. Given the presence of sensitive ESA listed species in the area, the propensity for injury from pulsed DC current, and recommendations from the NOAA fisheries electrofishing guidelines which stipulates the use of straight DC current, PacifiCorp believes un-pulsed straight DC current is the most responsible and prudent action. Also, given the extremely small size of the tailrace discharge stream at Wallowa Falls and the action of electrofishing in a downstream manner which in essence pushes fish downstream out of the tailrace, PacifiCorp doesn't believe collection efficiency to be an issue at this location during these actions. To date, all fish salvage activities when an electrofisher was utilized incorporated straight DC current, and currently no fish have ever been found dessicated and uncaptured when the tailrace was walked after all water had receded.

USFS	Please clarify the timeliness and response time of the on-call qualified biologist to physically rescue stranded fish from the tailrace channel in the event of a unit trip. It's unclear if PacifiCorp has a full time biologist stationed near the project site that could respond in a timely manner.	Comment noted and Plan updated to reflect qualified biologist will be on-site within 60 minutes of an unplanned unit trip.
USFS	Please state what actions will be taken to minimize or eliminate public interaction or interference with stranded fish during unplanned outages from the time of dewatering to the time qualified staff arrive onsite to initiate a salvage.	No interim actions prior to construction of the permanent fish barrier will be taken to keep the public from the tailrace discharge stream. PacifiCorp is relying on the public following rules and regulations as put forth in the Oregon Department of Fish and Wildlife fishing regulations handbook which expressly stipulates no fishing or harassment of any kind of bull trout. ODFW's fishing rules and regulations handbook also explicitly states acceptable and unacceptable methods for the public to capture fish.
USFS	The plan suggests "...the amount of water available within the tailrace channel during these two scenarios is sufficient for fish survival until the unit is brought back online and full flow once again commences" (2nd paragraph of Section 3.0 Methods). Please clarify if the amount of water is sufficient to minimize potential recreational user interferences to stranded fish and if any other preventative measures may be considered to reduce the risk.	The amount of water is definitely sufficient for smaller fish to evade predators in the interstitial spaces of cobble and boulders. For larger fish, again PacifiCorp is relying on the public to follow rules and regulations as put forth in the ODFW fishing regulations handbook which expressly stipulates no fishing or harassment of any kind of bull trout. ODFW's fishing rules and regulations handbook also explicitly states acceptable and unacceptable methods for the public to capture fish.