Low Impact Hydropower Institute
2022 Recertification Application

Pelton Round Butte
Hydroelectric Project
(FERC No. 2030)

Table of Contents

Table of Figures

Table of Tables

Acronyms

ACOE	United States Army Corps of Engineers
BiOp	Biological Opinion
BLM	Bureau of Land Management
CFS	Cubic Feet Per Second
COID	Central Oregon Irrigation District
CRMP	Cultural Resources Working Group
CRWG	Cultural Resources Working Group
CTWS	Confederated Tribes of the Warm Springs
CTWS-BNR	Confederated Tribes of the Warm Springs -Bureau of Natural Resources
CTWS-WCB	Confederated Tribes of the Warm Spring – Water Control Board
DLT	Deschutes Land Trust
DMax	Average daily maximum (temperature)
DRC	Deschutes River Conservancy
DO	Dissolved Oxygen
DOMP	Dissolved Oxygen Management Plan
DVWD	Deschutes Valley Water District
ECU	Evolutionary Significant Unit
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
IRMP	Integrated Resource Management Plan
LEP	Law Enforcement Plan
LIHI	Low Impact Hydropower Institute
LTLF	Long term low flow
MCR	Middle Columbia River
MSL	Mean Sea Level
NF	National Forest
NGO	Non-governmental organization

NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPGMP	Nuisance Phytoplankton Growth Management Plan
NUID	North Unit Irrigation District
ODA	Oregon Department of Agriculture
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
OID	Ochoco Irrigation District
OPRD	Oregon Parks and Recreation Department
PGE	Portland General Electric
PHMP	pH Monitoring Plan
PIT	Passive Integrated Transponder
PME	Protection, Mitigation and Enhancement
RRIP	Recreational Resources Implementation Plan
RRWG	Recreational Resources Working Group
SHPO	State Historic Preservation Office
SMP	Shoreline Management Plan
SMWG	Shoreline Management Working Group
SRP	Stress Relief Pond
SWW	Selective Water Withdrawal
TDG	Total Dissolved Gas
TES	Threatened, Endangered or Sensitive
TMA	Travel Management Area
TMP	Temperature Management Plan
TSID	Three Sisters Irrigation District
TRMP	Terrestrial Resources Management Plan
TRWG	Terrestrial Resources Working Group
UDWC	Upper Deschutes Watershed Council
USFWS	U.S. Fish and Wildlife Service

USFS	U.S. Forest Service
USGS	U.S. Geological Survey
WCB	Water Control Board
WPT	Without Project Temperature
WQMP	Water Quality Monitoring Plan
WQMMP	Water Quality Monitoring and Management Plan
WSPE	Warm Springs Power Enterprises

Site Description

The Pelton Round Butte Hydroelectric Project (Project), Federal Energy Regulatory Commission (FERC) License No. 2030, is owned and operated jointly by Portland General Electric and the Confederated Tribes of the Warm Springs of Oregon (Applicants). The Project consists of the Round Butte Dam, Pelton Dam and Reregulating Dam, located on the Deschutes River in Jefferson County, Oregon. The Project is the largest hydroelectric project completely within Oregon's boundaries. The Project was completed in 1964 and includes three dams situated along a 20-mile stretch in the Deschutes River canyon. For more than forty years, PGE and the CTWS have co-managed the Pelton Round Butte project, with the Warm Springs Power Enterprises (WSPE) managing the Tribes' participation in the Project.

The Deschutes River is located in central Oregon and provides much of the drainage on the east side of the Cascade Range. The Deschutes is unique in that it flows south to north, with its headwaters at Little Lava Lake and its mouth at the confluence with the Columbia River. The Deschutes basin drains an area of approximately 10,400 square miles (6,650,000 acres), which is nearly 11 percent of the state.

The Project sits within the Deschutes River canyon but Lake Billy Chinook, one of the outstanding features of the Project, is formed by the confluence of the Crooked, Metolius and Deschutes rivers. There are many remarkable features formed by and within the boundaries of the Project, including cultural resources, exceptional fishing opportunities and miles of recreational trails, as well as Wild and Scenic River designation above and below the Project. The river is 170 miles long and basin boundaries include the Cascade Mountains to the west, the Ochoco Mountains to the east and the Columbia River to the north.

Project Description

The Project impounds approximately nine miles of the Deschutes River, seven miles of the Crooked River and thirteen miles of the Metolius River. The Project boundary encompasses approximately 14,300 acres with nearly 10,800 acres of that land being undeveloped uplands managed for wildlife habitat. The majority of all Project lands are administered by the U.S. Forest Service (USFS), the Bureau of Land Management (BLM) and the Confederated Tribes of the Warm Springs of Oregon (CWTS). Other property owners include Portland General Electric (PGE), the State of Oregon and private landowners. Considering only shoreline along the Project's three impoundments, 55% is publicly owned, 30% is owned by the Tribes, 5% is jointly owned by the Applicants and 10% is owned by private individuals, other than the Applicants. There are three dams on the Crooked River and four dams on the Deschutes River, all upstream of Pelton Round Butte. There are no dams downstream of the Project on the Deschutes River.

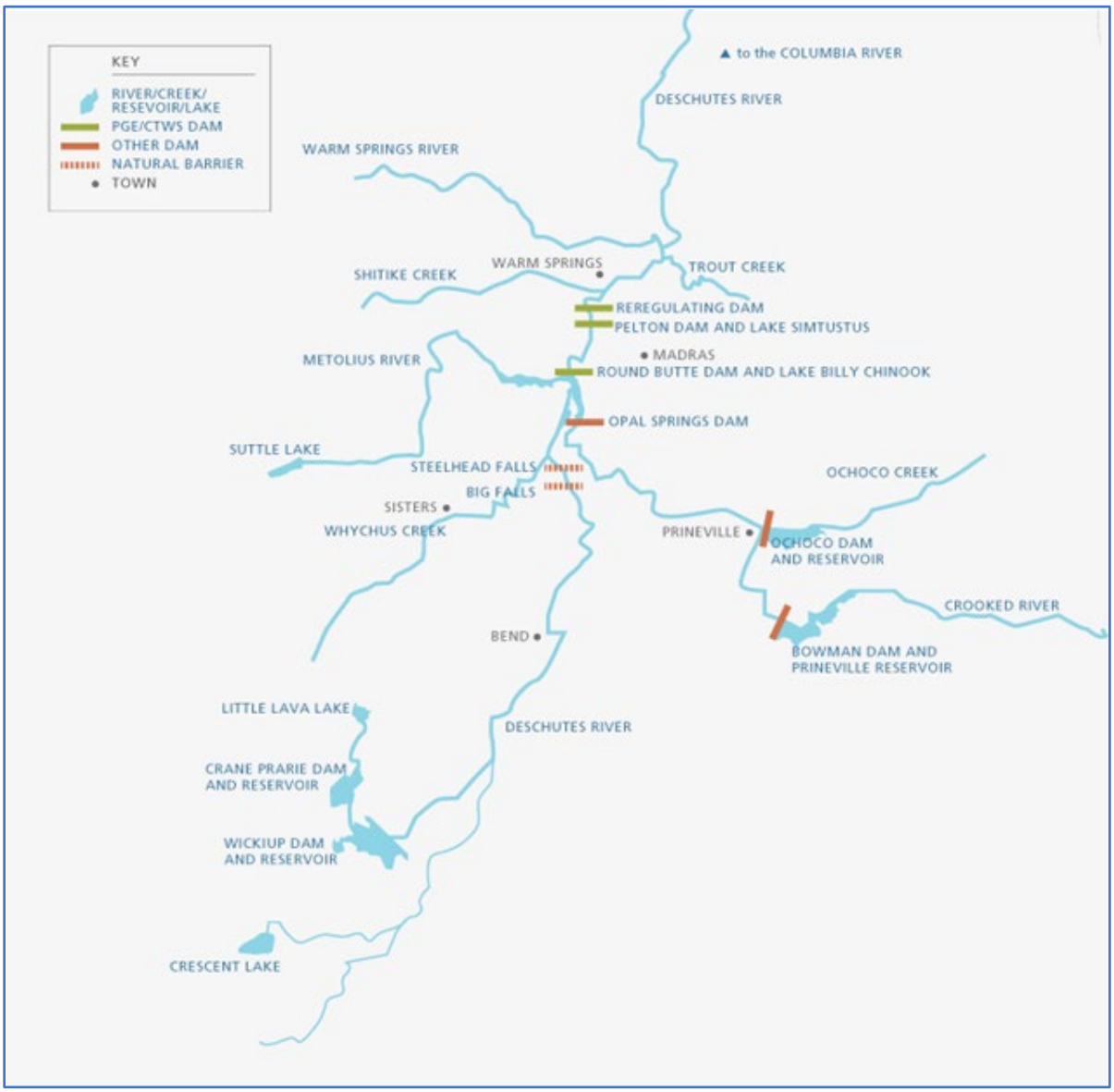

Figure 1. Pelton Round Butte with dams indicated upriver of the Project. There are no dams downstream of the Project, between the Project and the mouth of the Deschutes.

Project Facilities

Figure 2. Aerial photo of Pelton Round Butte development with each dam and appurtenant structure labeled.

Round Butte Dam

The Round Butte Development primarily consists of a 1,382 foot long, 440-foot-high compacted rock-filled embankment dam; a reservoir (Lake Billy Chinook) with gross storage capacity of 535,000 acre-feet at the normal maximum water surface elevation of 1,945 mean sea level (msl); a powerhouse containing one 112.5 MW turbine generating unit with a capacity of 86.25 MW and two 129.9 MW turbines generating units with a total generating capacity of 346.1 MW; three 2,800-foot-long, 230-kilovolt (kV) transmission lines extending from the powerhouse to the Round Butte switchyard; a fish hatchery (Round Butte Hatchery) located adjacent to the dam; and appurtenant facilities.

Figure 3. Aerial photo of Round Butte Dam

Pelton Dam

The Pelton Development consists primarily of a 636 foot long, 204-foot-high concrete arch dam with a crest elevation of 1,585 feet msl; a seven mile long, 540-acre reservoir (Lake Simtustus) with a gross storage capacity of 31,000 acre-feet at normal maximum water surface elevation of 1,580 feet msl; a powerhouse with three turbine generating units. One turbine has a capacity of 45 MW, the second and third turbines each have a capacity of 32.4 MW, for a total installed capacity of 109.8 MW; a 7.9 mile-long, 230-kV transmission line extending from the powerhouse to the Round Butte switchyard; and appurtenant structures.

Figure 4. Aerial photo of Pelton Dam

Reregulation Dam

The Reregulating Development consists primarily of a 1,067 foot long, 88 foot high rock-filled embankment dam with a spillway crest elevation of 1,402 feet msl; a 2.5 mile long, 190 acre reservoir with a gross storage capacity of 3,500 acre-feet and a useable storage capacity of 3,270 acre-feet at a normal maximum water surface elevation of 1,435 feet msl; a non-operating three-mile-long fishway, extending from the tailrace, upstream to the forebay of the Pelton Dam; a powerhouse containing one pit bulb-type turbine generating unit with a generator capacity of 18.9 MW; a 200 foot long, 6.9 kV primary transmission line extending from the generator to the step-up transformer located adjacent to the powerhouse; and appurtenant structures.

Figure 5. Aerial photo of Reregulation Dam

Figure 6. Pelton adult fish trap; outside view showing fish transport truck.

Figure 7. Pelton adult fish trap with view of jump pool.

Project Operations

The Settlement Agreement (2004) and new license (2005) provided for the Licensees to institute a state-of-the-art program of controls for Project operations. These controls allow the Licensees to operate Round Butte and Pelton dams for peak energy and load production, while operating the Reregulating Development to match Project outflows with daily average inflows. In addition, there are numerous implementation committees and working groups with whom the Licensees work to provide oversight on the Project (Table 1).

Table 1. Implementation Committees

COMMITTEE	MEETING FREQUECY	REPRESENTATION
Fish Committee	Every other month	Licensees, NOAA Fisheries, USFWS, USFS, BIA, BLM, CTWS-BNR, CTWS-WCB, ODFW, ODEQ, NGO representative
Recreation Resources Working Group (RRWG)	Semi-annual meeting	Licensees, USFS, BIA, BLM, CTWS-BNR, ODFW, OPRD
Terrestrial Resources Working Group (TRWG)	Semi-annual meeting	Licensees, USFWS, USFS, BIA, BLM, CTWS-BNR, ODFW
Shoreline Management Working Group (SMWG)	Annual meeting	Licensees, USFS, BIA, BLM, CTWS-BNR, ODFW, OPRD, Jefferson County
Cultural Resources Working Group (CRWG)	Annual meeting	Licensees, SHPO, OPRD, CTWS-BNR, BLM, USFS
Coordinating Committee	Annual meeting	Licensees, OWRD, USFWS, NGO, ODFW, USFS, ODEQ, Jefferson County, NOAA
Pelton Fund Governing Board	Annual meeting	Licensees, CTWS-BNR, CTWS-WCB, USFWS or BLM, NOAA Fisheries, BIA, ODFW, ODEQ, OWRD, NGO

The Round Butte and Pelton developments are operated as peaking and load-following facilities, typically generating between the hours of 6 a.m. and 11 p.m. daily. One notable exception is that in the springtime, we increase generation during nighttime hours to improve fish collection efficiency at the SWW. More details about these operations are reported in the Downstream Migration Section. Lake Billy Chinook provides seasonal storage. During the winter months the elevation can be drawn down to 1,935 ft msl. In the summer months it can be drawn down to 1,944 ft msl. The reservoir is typically refilled during the months of April and May. During the summer, the reservoir is held at the highest practicable level with a relatively stable pool elevation that does not fluctuate more than one foot below the normal maximum pool elevation of 1,945 feet msl. The surface elevation of Lake Simtustus usually fluctuates less than 0.75 feet per day.

Through its reservoir storage, the Reregulating Development redistributes upstream peaking flows into more steady around-the-clock flows. Flow releases are controlled to maintain an average daily flow in the Deschutes River, downstream of the Reregulating Dam, that approximates the average daily inflow to the Project. The Reregulating Reservoir surface elevation can fluctuate as much as 27 feet (between 1,435 feet msl and 1,408 feet msl) daily; however, typical fluctuations are about fifteen feet daily. The turbine and spillway gates

automatically respond to river stage measurements recorded at a U.S. Geological Survey (USGS) gage (No. 14092500) located just below the Reregulating Dam.

The Project is operated to provide flow releases below the Reregulating Development that equal or exceed the allowed minimum flow, which is defined according to a schedule of target flows that range from 3,500 cfs to 4,571 cfs, depending on the month. These target flows must be met as long as Project inflows exceed the target flows and the established provision to allow for refilling of Lake Billy Chinook under low flow conditions is not in effect. Fluctuations in the river below the Reregulating Dam are limited to 0.1 foot per hour and 0.4 feet per day, except from May 15 to October 15, when fluctuations are limited to 0.05 feet per hour and 0.2 feet per day.

Facility Information Table

All applicable information identified in the table below must be summarized in the table and detailed in the application narrative for an application to be considered complete. If the information is provided in the application narrative, please identify in the table the application section where the information can be found. Alternative formats, including the Excel Table 1.b, are acceptable if all information is provided.

Table 2. Facility Information

Item	***Information Requested***	***Response (include references to further details)***
Name of the Facility	Facility name (use FERC project name or other legal name)	Pelton Round Butte Hydroelectric Project; P-2030
Reason for applying for LIHI Certification	1. To participate in state RPS program 2. To participate in voluntary REC market (e.g., Green-e) 3. To satisfy a direct energy buyer's purchasing requirement 4. To satisfy the facility's own corporate sustainability goals 5. For the facility's corporate marketing purposes 6. Other (describe)	(Select and describe only applicable reasons) 1. ☐ State Program: Click or tap here to enter text. 2. ☒ 3. ☐ 4. ☒ 5. ☐ 6. ☐ describe:
	If applicable, amount of annual generation (MWh and % of total generation) for which RECs are currently received or are expected to be received upon LIHI Certification	Amount of MWh participating: 1,444,076 MW 30% of total MWh generated
Location	River name (USGS proper name)	Deschutes River Crooked River Metolius River

Item	*Information Requested*	*Response (include references to further details)*
	Watershed name - Select region, click on the area of interest until the 8-digit HUC number appears. Then identify watershed name and HUC-8 number from the map at: https://water.usgs.gov/wsc/map_index.html	Upper Deschutes: 17070301 Lower Deschutes: 17070306
	Nearest town(s), county(ies), and state(s) to dam	Madras, Jefferson County, Oregon
	River mile of dam above mouth	Round Butte Dam 110.4 Pelton Dam 103.4 Reregulating Dam 100.1
	Geographic latitude and longitude of dam	Round Butte: 44.605555°N / 121.277314°W Pelton: 44.694365°N / 121.231218°W Regulating: 44.724098°N / 121.24781°W
Facility Owner	Application contact names	Nancy Doran Megan Hill
	Facility owner company and authorized owner representative name. **For recertifications: If ownership has changed since last certification, provide the effective date of the change.**	Chris Bozzini Portland General Electric (PGE) Cathy Ehli Warm Springs Power Enterprises (WSPE)
	FERC licensee company name (if different from owner)	Portland General Electric Warm Springs Power Enterprises
Regulatory Status	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of exemption	P-2030 License issued: June 21, 2005 License expires: 2055
	FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", "non-jurisdictional")	Major
	Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.	401 certificate, Department of Environmental Quality, issued June 24, 2022 401 certificate, Confederated Tribes of the Warm Springs, issued June 25, 2022.

Item	*Information Requested*	*Response (include references to further details)*
	Hyperlinks to key electronic records on FERC e-Library website or other publicly accessible data repositories[1]	License: https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20050621-3052&optimized=false Settlement agreement: https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20040804-0156&optimized=false https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20040804-0157&optimized=false 401 Certifications: https://www.oregon.gov/deq/FilterDocs/PRB2030conditions.pdf The 401 certification from the CTWS-WCB can be found in Appendix A2 to the FERC License (like above).
Powerhouse	Date of initial operation (past or future for pre-operational applications) Total installed capacity (MW) **For recertifications: Indicate if installed capacity has changed since last certification**	Capacity history, per FERC Order, dated March 8, 2018, is: (i) 368,170 kW effective June 1, 2005; (ii) 372,000 kW, effective January 1, 2012; (iii) 408,557 kW effective November 1, 2013; and (iv) 445,114 kW effective June 23, 2014.

1 For example, the FERC license or exemption, recent FERC Orders, Water Quality Certificates, Endangered Species Act documents, Special Use Permits from the U.S. Forest Service, 3rd-party agreements about water or land management, grants of right-of-way, U.S. Army Corps of Engineers permits, and other regulatory documents. If extensive, the list of hyperlinks can be provided separately in the application.

Item	*Information Requested*	*Response (include references to further details)*
	Average annual generation (MWh) and period of record used **For recertifications: Indicate if average annual generation has changed since last certification**	**Pelton:** 2014 422,527 2015 397,848 2016 400,644 2017 445,061 2018 276,396 2019 378,661 2020 343,167 2021 327,805 **AVERAGE: 374,014** **Round Butte:** 2014 992,595 2015 919,902 2016 931,167 2017 1,035,602 2018 634,169 2019 872,125 2020 772,713 2021 750,665 **AVERAGE: 863,617** **Reregulating:** 2014 88,813 2015 83,917 2016 97,974 2017 74,045 2018 59,570 2019 62,454 2020 60,503 2021 59,069 **AVERAGE: 73,293**
	Mode of operation (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.) **For recertifications: Indicate if mode of operation has changed since last certification**	Modified Run-of-river; No change since last certification

Item	*Information Requested*	*Response (include references to further details)*
	Number, type, and size of turbine/generators, including maximum and minimum hydraulic capacity and maximum and minimum output of each turbine and generator unit	**Round Butte** – Francis turbine; three (3) generating units: Unit 1: Generator Capacity 112,500 kW, Turbine Capacity 86,250 kW Min/Max: 125 cfs/4500 cfs Unit 2: Generator Capacity 129,960 kW, Turbine Capacity 118,907 kW Min/Max: 125 cfs/4875 cfs Unit 3: Generator Capacity 129,960 kW, Turbine Capacity 118,907 kW Min/Max: 125 cfs/4875 cfs **Pelton** – Francis turbine; three (3) generating units: Unit 1: Generator Capacity 45,000 kW, Turbine Capacity 37,350 kW Unit 2: Generator Capacity 32,400 kW, Turbine Capacity 37,350 kW Unit 3: Generator Capacity 32,400 kW, Turbine Capacity 37,350 kW Min/Max on all Pelton turbines is: 1350 cfs/3700 cfs **Reregulating Dam** - Pit bulb turbine; one unit: Generator Capacity: 18,900 kW, Turbine capacity: 20,250 kW Min/Max: 1408 cfs/6700 cfs

Item	*Information Requested*	*Response (include references to further details)*
	Trash rack clear spacing (inches) for each trash rack	**Round Butte**: 5 ½ inches on trash rack. The SWW screens all flow to the Round Butte trash rack and has a maximum gap of 1/8" on the top structure and ¼" on the bottom structure. **Pelton:** 3-5/8 inches **Reregulatin**g: 5-7/16 inches
	Approach water velocity (ft/s) at each intake if known	Unknown
	Dates and types of major equipment upgrades **For recertifications: Indicate only those since last certification**	No major equipment upgrades since last certification; prior upgrades included rewinds for all turbines: Round Butte Unit 1: 8/2012, 112.5 MW Round Butte Unit 2: 1/2015, No increase Round Butte Unit 3: 1/2014, No increase
	Dates, purpose, and type of any recent operational changes **For recertifications: Indicate only those since last certification**	Starting in 2017, to maximize juvenile fish passage, we have operated Round Butte at a minimum of 4,500 CFS between the hours of 9 p.m. and 4 a.m., between March 15 and June 15, to the extent possible while maintaining compliance with all flow related condition of the PRB License. See Criterion D for more details.
	Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments	N/A
Dam or Diversion	Date of original dam or diversion construction and description and dates of subsequent dam or diversion structure modifications	**Dam Date** — **Completion** Round Butte — December 1964 Pelton — June 1958 Reregulating — June 1958 Reregulating Powerhouse — 1982

Item	*Information Requested*	*Response (include references to further details)*
	Dam or diversion structure length, height including separately the height of any flashboards, inflatable dams, etc. and describe seasonal operation of flashboards and the like	Round Butte Dam: 1382 feet long 440 feet high Pelton Dam: 636 feet long 204 feet high Reregulating Dam: 1067 feet long 88 feet high There are no flashboards or inflatable dams.
	Spillway maximum hydraulic capacity	Round Butte: 21,180 cfs @ 1945.0 Pelton: 26,000 cfs @1580.0 Re-Reg: 27,000 cfs @1435.0
	Length and type of each penstock and water conveyance structure between the impoundment and powerhouse	**Round Butte:** Approximately 1,500 ft long, 23 ft diameter steel-lined concrete power tunnel. **Pelton:** Three ~130 ft long, 16 ft diameter steel penstock. **Reregulating:** 23 ft long, 32 ft diameter penstock
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	Power generation
Conduit Facilities Only	Date of conduit construction and primary purpose of conduit	N/A
	Source water	N/A
	Receiving water and location of discharge	N/A
Impoundment and Watershed	Authorized maximum and minimum impoundment water surface elevations **For recertifications: Indicate if these values have changed since last certification**	**Lake Billy Chinook** 1944-1,945 feet msl 6/15-9/15 1925 feet msl 9/16-5/14 **Lake Simtustus** 1,576-1580 feet msl 6/1-8/31 1573-1580 feet msl 9/1-5/31 **Reregulating Reservoir** 1414-1435 feet msl year-round

Item	*Information Requested*	*Response (include references to further details)*
	Normal operating elevations and normal fluctuation range **For recertifications: Indicate if these values have changed since last certification**	No changes since last certification. Lake Billy Chinook 1944-1945 Lake Simtustus 1576.5-1577.5 Reregulating Res. 1417.0-1435.0
	Gross storage volume and surface area at full pool **For recertifications: Indicate if these values have changed since last certification**	No changes since last certification. Lake Billy Chinook 535,000 AF Lake Simtustus 31,000 AF Reregulating Res. 3,500 AF
	Usable storage volume and surface area **For recertifications: Indicate if these values have changed since last certification**	Lake Billy Chinook 535,000 AF (285,000AF) Lake Simtustus 31,000 AF Reregulating Reservoir 3,500 AF
	Describe requirements related to impoundment inflow and outflow, elevation restrictions (e.g., fluctuation limits, seasonality) up/down ramping and refill rate restrictions.	Project outflow normally must be +/- 10% of inflow, see criterion A for detailed description.
	Upstream dams by name, ownership (including if owned by an affiliate of the applicant's company) and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage. **ADDED Y/N FOR FISH PASSAGE**	**<u>Deschutes River</u>** 1. Crane Prairie Dam (**N**) – Bureau of Reclamation; RM 238 2. Wickiup Dam (**N**) – Bureau of Reclamation; RM 226 3. North Canal Dam (**N**) – Central Oregon Irrigation District; RM 166.2 4. Haystack Dam (**N**) – Bureau of Reclamation; off-channel storage **<u>Crooked River</u>** 1. Bowman Dam (**N**) – Bureau of Reclamation; RM 70 2. Ochoco Dam (**N**) – Bureau of Reclamation; RM 11 on Ochoco Creek 3. Opal Springs Dam (p-5891) (**Y**) – Deschutes Valley Water District; RM 7.2

Item	*Information Requested*	*Response (include references to further details)*
	Downstream dams by name, ownership (including if owned by an affiliate of the applicant's company), river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage	No downstream dams
	Operating agreements with upstream or downstream facilities that affect water availability and facility operation	None
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control. Indicate locations and acres of flowage rights versus fee-owned property.	The project occupies a total of approximately 8,300 acres, including approximately 2,480 acres on private lands owned by the Licensees and other non-governmental entities, 5,805 acres of land owned by the Tribes, USFS and BLM and 138 acres of land owned by the State of Oregon. The surface area, at full pool, of the reservoirs are as follows: Lake Billy Chinook: 4,000 acres Lake Simtustus: 540 acres Reregulating Reservoir: 190 acres
Hydrologic Setting	Average annual flow at the dam, and period of record used	The average annual flow at the Madras gage (14092500), immediately downstream of the Project, from 2010 to 2021 was 4,612 CFS

Item	*Information Requested*	*Response (include references to further details)*
	Average monthly flows and period of record used	The average annual flow at the Madras gage (14092500) from 2010 to 2021 for each month is: January 4672 cfs February 5055 cfs March 5450 cfs April 5364 cfs May 4405 cfs June 4132 cfs July 3960 cfs August 3886 cfs Sept. 3951 cfs October 4307 cfs Nov. 4507 cfs Dec. 4762 cfs
	Location and name of closest stream gaging stations above and below the facility	USGS 14076500 Deschutes River near Culver, OR (above the facility) Compliance point (below the facility) USGS 14092500 DESCHUTES RIVER NEAR MADRAS, OR
	Watershed area at the dam (in square miles). Identify if this value is prorated from gage locations and provide the basis for proration calculation.	2,705 square miles as measured at the upstream USGS gage located about 8.7 river miles upstream
	Other facility specific hydrologic information (e.g., average hydrograph)	Refer to Criterion A
Designated Zones of Effect	Numbers and names of each zone of effect (e.g., "Zone 1: Impoundment")	Zone 1 – Lake Billy Chinook Zone 2 – Lake Simtustus Zone 3 – Reregulating Reservoir Zone 4 – Lower Deschutes River at USGS Madras stream gage 14092500

Item	*Information Requested*	*Response (include references to further details)*
	River mile of upstream and downstream limits of each zone of effect (e.g., "Zone 1 Impoundment: RM 6.3 - 5.1")	ZoE 1: Deschutes arm Upstream RM 121.4 Downstream RM 112.4 ZoE 1: Crooked arm Upstream RM 6.5 Downstream RM 112.4 ZoE 1: Metolius arm Upstream RM 12.5 Downstream RM 112.4 ZoE 2: Simtustus Upstream RM 112.4 Downstream RM 104.6 ZoE 3: Reregulating Res/Dam Upstream RM 104.6 Downstream RM 101.9 ZoE 4: USGS Gaging Station Upstream RM 101.9 Downstream RM 101.8
Pre-Operational Facilities Only		
Expected operational date	Date generation is expected to begin	N/A
Dam, diversion structure or conduit modification	Description of modifications made to a pre-existing conduit, dam or diversion structure needed to accommodate facility generation. This includes installation of flashboards or raising the flashboard height. Date the modification is expected to be completed	N/A
Change in water flow regime	Description of any change in impoundment levels, water flows or operations required for new generation	N/A

Standards Matrix

At the Project, there are four Zones of Effect (ZoE); Lake Billy Chinook, Lake Simtustus, the Reregulation Reservoir and the lower Deschutes River at USGS Madras stream gage 14092500. See Figure 6, below, for the extent of each zone.

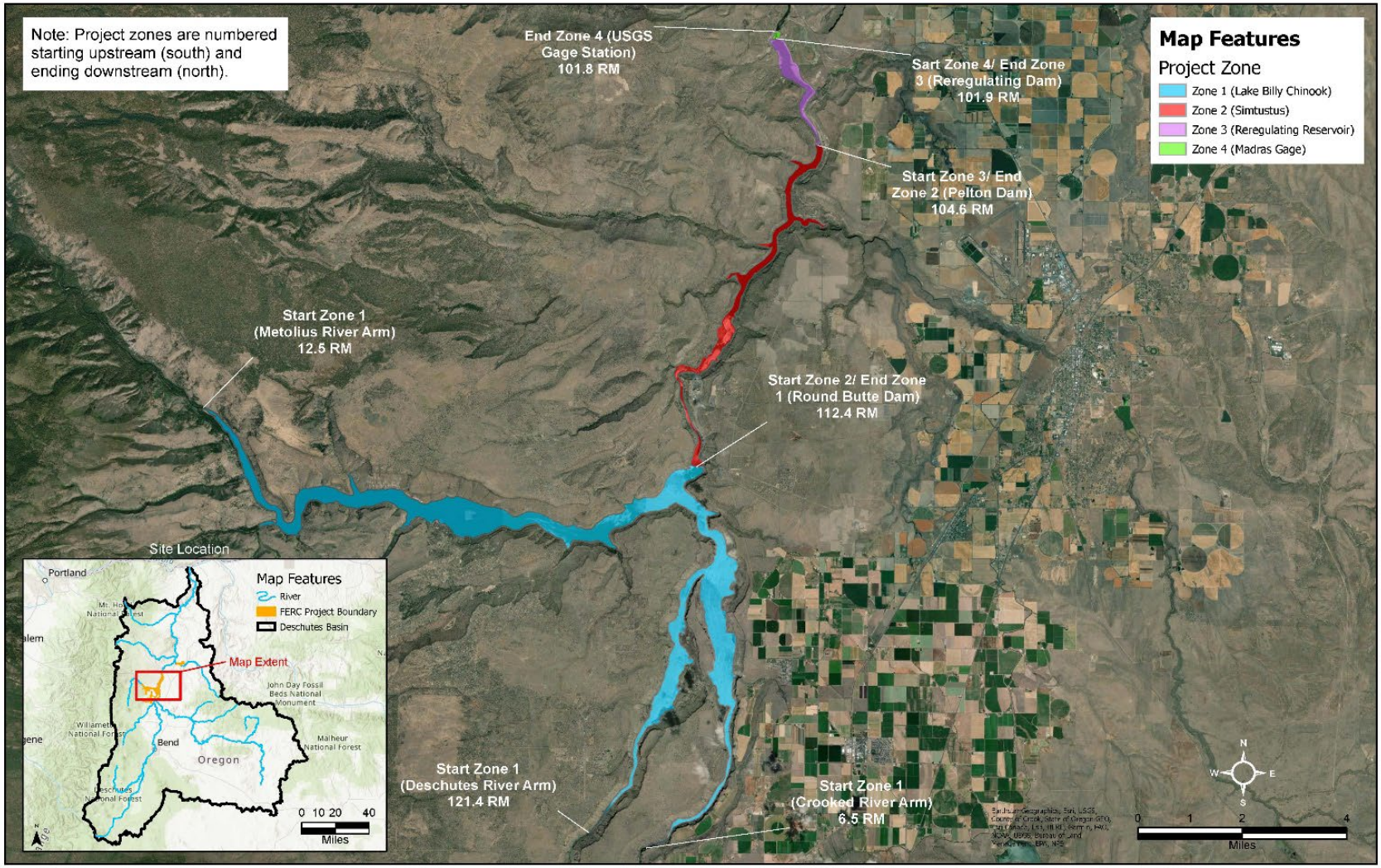

Figure 8. Map illustrating beginning and end of each Zone of Effect (ZoE)

Zone of Effect 1 – Lake Billy Chinook

	Criterion	*Alternative Standards Applied*				
		1	*2*	*3*	*4*	*Plus*
A	Ecological Flow Regimes		*X*			
B	Water Quality		*X*			
C	Upstream Fish Passage	*X*				
D	Downstream Fish Passage			*X*		*X*
E	Watershed and Shoreline Protection		*X*			*X*
F	Threatened and Endangered Species Protection			*X*		
G	Cultural and Historic Resources Protection		*X*			
H	Recreational Resources		*X*			

Zone of Effect 2 – Lake Simtustus

	Criterion	*Alternative Standards Applied*				
		1	*2*	*3*	*4*	*Plus*
A	Ecological Flow Regimes		*X*			
B	Water Quality		*X*			
C	Upstream Fish Passage		*X*			
D	Downstream Fish Passage		*X*			
E	Watershed and Shoreline Protection		*X*			
F	Threatened and Endangered Species Protection			*X*		
G	Cultural and Historic Resources Protection		*X*			
H	Recreational Resources		*X*			

Zone of Effect 3 – Reregulating Reservoir

	Criterion	*Alternative Standards Applied*				
		1	*2*	*3*	*4*	*Plus*
A	Ecological Flow Regimes		*X*			
B	Water Quality		*X*			
C	Upstream Fish Passage		*X*			
D	Downstream Fish Passage		*X*			
E	Watershed and Shoreline Protection		*X*			
F	Threatened and Endangered Species Protection			*X*		
G	Cultural and Historic Resources Protection		*X*			
H	Recreational Resources		*X*			

Zone of Effect 4 - Lower Deschutes River at USGS Madras stream gage 14092500

	Criterion	*Alternative Standards Applied*				
		1	*2*	*3*	*4*	*Plus*
A	**Ecological Flow Regimes**		***X***			
B	**Water Quality**		***X***			
C	**Upstream Fish Passage**		***X***			
D	**Downstream Fish Passage**	***X***				
E	**Watershed and Shoreline Protection**			***X***		
F	**Threatened and Endangered Species Protection**			***X***		
G	**Cultural and Historic Resources Protection**		***X***			
H	**Recreational Resources**	***X***				

Supporting Information

Ecological Flow Standards

Required regardless of standard selected:

1. **Identify any deviations that have occurred in the past ten years; if none have occurred, state so. If deviations have occurred, identify the date, duration, cause, and the measures taken to minimize re-occurrence. Links to FERC notifications and responses should be included.**

See Table 3 for a list of the deviations that have occurred between January 1, 2012, and December 31, 2021. No deviations occurred in 2014, 2015, 2016, 2020 or 2021. All deviations were reported to FERC, generally within 10 days. Under limited circumstances immediate reporting is not required. In these instances, it is acceptable to notify FERC via the Annual Operations Report, after agency consultation, by June 1. Additionally, all flow deviations, fish incidents and extraordinary conditions are discussed annually with the Coordinating Committee. The Coordinating Committee consists of X. The presentation from this meeting is attached to the Annual Operations Report filings. There have been no flow related incidents which triggered the Fish Emergency Clause under Article 412(d). However, there have been fish injury and mortality events that required reporting under Article 405. Those are listed in Table 4.

Table 3. Flow deviations from 2012 to 2021

Date	Approximate Duration	Event	Cause	Corrective Action	ZOE	Links to documentation
5/01 /12	10 minutes	Deviation from lower river set point	Runner blade restoring cable malfunction	Cable replacement	4	Notification to FERC Response from FERC
7/19/12	2 to 3 minutes	Deviation from lower river set point	Governor lock-up condition prevented automatic start up	System alarmed	4	Notification to FERC Response from FERC
7/4/13	10 minutes	Deviation from lower river set point	Incorrect lower river set point entered	PLC changes to prevent mis-entry	4	Notification to FERC Response from FERC
9/30/13	12 hours	Exception from state change limit	Rapid increase in upper basin flow	No change, allowable under these natural circumstances	4	Notification to FERC Response from FERC
6/6/17	41 minutes	Lake Simtustus dropped below license elevation limit	Unclear communication between local operators and BAO/merchant	Compliance and procedure training. Alarm timing changed to allow response time prior to reaching limits.	2	Notification to FERC Response from FERC
1/5/18	7 minutes	Lower river set point deviation	Loss of control signal during equipment replacement	Training, work control review process revision, alarm changes	4	Notification to FERC Response from FERC
4/8/19	24 hours	Exception from state change	Rapid increase in upper basin stream flow	No change, allowable under these natural	4	Annual Project Operations Report to FERC

		limit		circumstances		
8/10/19	30 minutes	Lower river set point deviation	Faulty limit switch prevented SCADA from closing spill gate after tripping due to lightning storm	Limit switch repaired	4	Annual Project Operations Report to FERC

Table 4. Fish incidents from 2012 to 2021

Date	Event	Cause	Corrective Action	ZOE	Links to documentation
4/8/2014	Dead fish found on top of exclusion net over fish holding raceway	Exclusion net was protruding into the fishway, leading to the holding raceway, and fish got stranded on top of the net	Modifications made to net attachment points; staff briefed about procedure and importance of proper installation of net	1	Report of April 8, 2014 fish incident Letter from FERC
5/3/2014	Dead fish found among debris on top of fish separator bars located within the headworks of the fish transfer facility	Debris passed under the debris boom and inner debris skirt, then through the SWW intake channels, where it accumulated on and blocked the medium fish separator	Debris was removed and monitoring was increased. Staff were briefed and required to increase monitoring efforts during times of increased debris accumulation	1	Report of May 3, 2014 fish incident Letter from FERC
8/24-25/2014	Spill at Pelton, reduces water clarity downstream	Lightning strike that resulted in loss of a transmission line	Transmission line repaired and power restored	4	Report of Aug 25, 2014 fish incident Letter from FERC

2/18/2015	Dead fish observed immediately following maintenance	South fish channel gate did not fully close during maintenance and fish were impinged	Revised procedure to ensure visual verification that gates close fully and eliminate surface flows through SWW during maintenance.	1	Report of Feb 18, 2015 fish incident Letter from FERC
5/31/2015	Power disturbance at SWW headworks and associated fish passage facilities causing dewatering	Lightning strike	SWW and fish passage facilities were restarted and returned to normal operation	1	Report of May 31, 2015 fish incident Letter from FERC
6/15/2015	Two spring Chinook found dead in pump chamber when pump was removed for maintenance	There was a gap between the pumping and main chamber	A cover was installed over the water pump to prevent fish from being able to access this location in the future and additional training was provided to staff		Report of June 15, 2015 fish incident Letter from FERC
6/7/2016	Dead fish observed near the upstream end of ladder where water supply is split to supply Round Butte Hatchery	Fish were stranded in the ladder when the water supply was turned off	This has never happened before so no known cause was determined	1	Report of June 7, 2016 fish incident No letter received from FERC
4/30/2017	Fish jumped out of sorting trough	Divider was not properly positioned	Fish will be held in holding raceways or other tanks	4	Report of April 30, 2017 fish incident No letter received from FERC
1/25/2019	Round Butte Hatchery fish found dead at	The hopper at the trap was not lowered to the	Maintenance to be avoided when fish are present in hopper; when maintenance		Report of Jan 25, 2019 fish incident No letter received from

	the Pelton adult trap	correct level after maintenance was performed	is conducted, biologist will be present to make sure hopper is left in correct position; evaluate the feasibility of an indicator placed on the hopper to show it's at the correct level		FERC
5/7/2019	Increased number of fish mortalities noticed at the SWW in a four- day period	Possible debris blockage in the fish transfer pipe and an increase in pump operation as a result	The SWW was shut down to reset the pump to its normal operation level and flush debris out of the pipe. An alarm was added, as well as a flushing routine as part of normal maintenance		Report of May 7, 2019 fish incident No letter received from FERC
6/26/2019	Power outage at juvenile fish capture facility associated with SWW/FTF; resulted in fish mortalities	The switchyard was undergoing system upgrades and during the course of the work, power was lost	Coordinated maintenance to avoid future power outages; daily job briefings held, as well as weekly communications meetings	1	Report of June 26, 019 fish incident No letter received from FERC
2/10/2021	Fish trapped in hopper well	Boards between the brail and hopper pool failed	Boards were replaced with steel and additional maintenance was performed	4	Report of Feb 10, 2021 fish incident No letter received from FERC
4/18/2021	Decrease in flow through transfer pump and over headworks	Debris build-up	Remove debris and check facility operation every two hours on day of incident	1	Report of April 18, 2021 fish incident No letter received from FERC
11/1/2021	Failure of spillway exclusion net	RCA filed with FERC dam safety	Removal of failed net; modify design of replacement net to be installed 11/2022	1	Report of Nov 1, 2021 fish incident No letter received from FERC

2. **Identify how flows and water levels are monitored and explain how compliance with requirements is demonstrated.**

Flow and Water Level Monitoring

Flow and water level monitoring is recorded by a system of ten gages in rivers upstream of the project, the three reservoirs and the project outflow. Further details on gage maintenance, calibration and calculations can be found in the Operations Compliance Plan.

Demonstration of Compliance

The Pelton Round Butte Project Operation Compliance Plan, which was developed as a condition of the new license, describes how the Licensees will comply with the operational requirements of this license, including the flow-related requirements outlined above. The plan includes:

- a provision to monitor compliance with the stage change, gaging, inflow estimation, minimum flow, reservoir refill, reservoir level and long-term low flow (LTLF) requirements specified in License Articles 409 through 414.
- a description of the exact location of all gages and/or measuring devices that would be used to monitor compliance, the method of calibration for each gage and/or measuring device, the frequency of recording for each gage and/or measuring device, and a monitoring schedule.
- provisions to notify the fisheries Services, 401 Certification agencies, FERC and others promptly (within 48 hours) after the Licensees become aware of any deviation from operational requirements related to flows and reservoir levels.
- a provision to maintain a log of Project operation.
- provisions for issuance of an Annual Project Operations Report and incident reports documenting any events where the operation of the Project deviated from the operational requirements of this license.
- a provision for an annual Project review meeting with the Coordinating Committee defined in the Settlement Agreement.
- identification of a Licensee staff member to serve as an operations compliance monitor with the responsibility for coordinating and ensuring the implementation of the Operations Compliance Plan and serving as a point of contact for compliance inquiry purposes.

3. **Describe any enforceable agreements with upstream or downstream facilities that regulate inflow or outflow at the facility (see Section 4.1.1, as these "regulated reaches" may need to be designated as separate Zones of Effect).**

There are no enforceable agreements with upstream or downstream facilities regulating flows at Pelton Round Butte.

ZOE 1, 2, 3 and 4: Lake Billy Chinook, Lake Simtustus, Reregulating Reservoir and lower Deschutes River at USGS Madras stream gage 14092500: Criterion A-2

A	2	Agency Recommendation (see Appendix A for definition): • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Explain how the recommendation relates to formal agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation, and enhancement (including instream flows, ramping, and peaking rate conditions, and seasonal and episodic instream flow variations).

- **Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective).**

One of the main drivers of flow through Pelton Round Butte are the target flows. These flows are based on recommendations from the State of Oregon and Confederated Tribes of Warm Springs.

The State of Oregon recommended flows are known as State Certified Water Right Flows, which are based on the Oregon Wild and Scenic River Act flow requirements or Diack Flows. Diack Flows resulted from Diack v. City of Portland, 759 P.2d 1070 (1998). Diack Flows for the lower Deschutes River were determined by the Oregon Water Resources Department (OWRD) in coordination with Oregon Parks and Recreation Department (OPRD) and the Oregon Department of Fish and Wildlife (ODFW). These flows were based on flow needs for the fish identified in the instream water right, review of river guide logbooks, angler information and other information available for natural, scenic, and recreational values. The State Certified Water Right Flows were adopted as the scenic waterway flow on the basis that they would meet fish needs between the Project and the Warm Springs River, and when added to the flows from the Warm Springs River, would meet recreational flow needs below the Warm Springs River (3/22/01 Letter from J. Zarnowitz, ODFW, available upon request).

Additionally, the Confederated Tribes of Warm Springs recommended target flows for the lower Deschutes River. As described in the Evaluation and Findings Report on the Application for Certification Pursuant to Section 401 of the Federal Clean Water Act (CTWS 2002; available

upon request), with certain exceptions, the Tribal Environmental Office recommended that the Water Control Board adopt Q-80 flows based on the entire period of record for the Madras Gage (1925 to 1999). Those flows are shown in Table 4. As described in Section 9.2.6.7 of the Evaluations and Findings report (CTWS 2002), the Q80 flows were recommended because:

1. "These flow levels have been present historically (1924-1999) at least 80% of the time and therefore must inherently provide sufficient flows for the ecosystem, as it presently exists.
2. These flows vary on a month-to-month basis providing for a flow regime that mimics the natural hydrograph in the lower river.
3. These flows are higher than mandated by the existing license.
4. These flow levels are only slightly less than the average flows for the Deschutes River below the Reregulating Dam.
5. These flows will allow for the ODFW instream flows to be met at the Moody gauge at the mouth of the Deschutes River as called for in the 1991 water right certificate.
6. These flows allow for higher minimum summer flows thereby protecting water temperatures for the anadromous fishes."

These recommendations, as well as the target flows in the Pelton Round Butte license, are shown in Table 4. In all cases, the more conservative recommendation for a given month was adopted into the License. Specifically, the Project is operated to provide flow releases below the Reregulating Development that equal or exceed the allowed minimum flow, which is defined according to the schedule of "target flows" shown in Table 4, as long as Project inflows exceed the target flows and the established provision to allow for refilling of Lake Billy Chinook under low flow conditions is not in effect. Specific protocols can be found in Article 412 of the License and the Operations Compliance Plan.

Table 5. Recommended target flows from the State of Oregon (Diack flows) and the Confederated Tribes of Warm Springs, as well as the target flows within the License.

	Diack Flows	Tribes Water Control Board	PRB License
January	4,500	4,263	4,500
February	4,500	4,267	4,500
March	4,500	4,571	4,571
April	4,000	4,170	4,170
May	4,000	3,721	4,000
June	4,000	3,686	4,000
July	4,000	3,540	4,000
August	3,500	3,446	3,500
September	3,800	3,431	3,800
October	3,800	3,521	3,800
November	3,800	4,049	4,049
December	4,500	4,225	4,500

- **Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.**

  Diack Flows for the lower Deschutes River were determined by the Oregon Water Resources Department (OWRD) in coordination with Oregon Parks and Recreation Department (OPRD) and the Oregon Department of Fish and Wildlife (ODFW). These flows were based on flow needs for the fish identified in the instream water right, review of river guide logbooks, angler information and other information available for natural, scenic, and recreational values. The State Certified Water Right Flows were adopted as the scenic waterway flow on the basis that they would meet fish needs between the Project and the Warm Springs River, and when added to the flows from the Warm Springs River, would meet recreational flow needs below the Warm Springs River (3/22/01 Letter from J. Zarnowitz, ODFW, available upon request).

  The WCB based their target flow recommendation on the Q-80 flows for the period of record, 1925 to 1999. The Q-80 flow refers to a flow value at which 80% of the recorded flows are equal to or greater than flows for that month. The most comprehensive description of the basis of these flows can be found in the Evaluation and Findings Report on the Application for Certification Pursuant to Section 401 of the Federal Clean Water Act (CTWS 2002). This report is available from the Licensees upon request.

- **Explain how the recommendation relates to formal agency management goals and objectives for fish and wildlife.**

  Oregon Department of Fish and Wildlife's goals for the Deschutes River are best articulated in the Lower Deschutes River Subbasin Management Plan (ODFW 1997). This plan outlines many specific objectives for the lower Deschutes River, most directly related to ecological flows; the plan describes objectives to improve the quality and quantity of aquatic and riparian habitat and establish and maintain instream water rights on all streams in the lower Deschutes River subbasin which exhibit fish and wildlife values. These objectives are supported by these agency recommendations as described below in the discussion of the scientific information supporting them.

The Confederated Tribes of Warm Springs' fisheries department has five high-level goals:

1. Protect and enhance fisheries habitat on the reservation and within the ceded territories to improve carrying capacity of culturally significant aquatic species. Ensure a properly functioning watershed.
2. Monitor natural production of anadromous and resident fish populations on reservation streams and tribally managed conservation areas throughout the ceded

territories. Provide technical support for external organizations and agencies monitoring projects in the ceded territories and usual and accustomed locations.

3. Enhance and supplement populations of Chinook salmon and steelhead trout in streams within the reservation and in coordination with state and federal agencies on streams within the ceded territories and usual and accustomed locations.
4. Improve tribal resource management capabilities through participation of interagency committees, local watershed councils and soil and water conservation districts. Provide increased communication with reservation fish and wildlife committees, and support at policy forums with CRITFC, CBFWA, NPCC and Federal Executive meetings.
5. Provide educational outreach opportunities for tribal members interested in the natural resources field after high school graduation. Provide cross training opportunities for natural resource staff.

These goals are well supported throughout the Pelton Round Butte License, but the ecological flows discussed here are most closely tied to goals one and two. As described in the next question, these flows were designed to support fisheries and habitat. A comprehensive flow monitoring program is also undertaken by the Licensees which is tied directly to goal two.

- **Explain how the recommendation provides fish and wildlife protection, mitigation, and enhancement (including instream flows, ramping, and peaking rate conditions, and seasonal and episodic instream flow variations).**

ZOE 1, 2 and 3

Drawdown and fluctuation limits (except under extraordinary conditions) for Lake Billy Chinook, Lake Simtustus, and the Reregulating Reservoir are as shown in Table 5. As noted, these drawdown and fluctuation limits represent a reduction in the allowable maximum seasonal drawdown of Lake Billy Chinook and daily drawdown of the Reregulating Reservoir, compared to the original FERC license for the Project.

Table 6. Seasonal drawdown and fluctuation limits for project reservoirs.

Reservoir	**Operating Water Surface Elevation (feet)**	
	Minimum Summer	**Winter**
Lake Billy Chinook	1,944 (May 15* to Sept 15)	1,925 (Sept 16 to May 14)
Lake Simtustus	1,576 (June 1 to Aug 31)	1,573 (Sept 1 to May 31)
Reregulating Reservoir	1,414 (year-round)	1,414 (year-round)

*As provided in License Article 412, in years when the refill allowance is less than 150 cfs, the refill date is June 15.

In typical years, the two reservoirs with active fisheries, Lake Simtustus and Lake Billy Chinook, only experience minor fluctuations. Lake Billy Chinook and Lake Simtustus generally experience seasonal fluctuations of less than three feet. These relatively stable conditions are supportive of

the fisheries. In contrast, the Reregulating Reservoir experiences large daily fluctuations of up to 27 feet; however typical fluctuations are about 15 feet daily. The Reregulating Reservoir is small (2.5 miles long) and exists to ensure lower Deschutes River flows approximate inflows, allowing the Project to operate as a modified run-of-river system and ensure ecological flows for the lower Deschutes River. In addition, we conduct biennial erosion monitoring surveys along all three reservoir shorelines and erosion mitigation measures at Project-related erosion sites within the reservoirs, which are determined to be significantly affecting terrestrial habitat, fish habitat, water quality or cultural resources, as well as Project-related erosion causing, or likely to cause, a significant loss of shoreline on CTWS Reservation land. There is also a provision in the Shoreline Erosion Plan to trigger additional surveys following any rapid deviations in reservoir levels; this provision has never been triggered.

ZoE 4

There are several provisions of the License which manage flows in the lower Deschutes to be protective of fish and wildlife. These include the target flows discussed above, limits to stage changes, as well as run-of-river provisions and fall Chinook flow augmentation measures described here. The project is required to hold river flows downstream of the Reregulating Development to within plus or minus ten percent of the measured Project inflow, except under specific conditions listed in Article 412(c). As described in Article 409, stage change limits (ramping) is tightly controlled to minimize impact to lower river habitat and fisheries. Additionally, in cases where inflows fall below 3,000, between September 16 and November 15, there is a provision whereby the Licensees will augment lower Deschutes River flows to support fall Chinook spawning (details in Article 412(b)). Collectively, these measures provide fish and wildlife protection, mitigation, and enhancement.

The Bureau of Indian Affairs commissioned several studies during re-licensing to ensure “that adequate protection and utilization of the lower river trust resources is provided” by the new License, including:

- Lower Deschutes River, Photographs 1961-1967 and 2001-2002, River Change Over a 41-Year Time Span (Aney 2003)
- Pelton Round Butte Hydroelectric Project, Instream Flow Report (Entrix 2003)
- Lower Deschutes River Flow Study, Observations, Recommendations, and Conclusions (Newton 2002), and
- Pelton Round Butte Hydroelectric Project: Lower Deschutes River Fish Ecosystem Integration Report (Entrix 2003)

Additionally, relevant to all ZoEs, the License requires us to evaluate Project flows against long- term low flow (LTLF) triggers annually and include the results in the annual operations reports, which are filed with FERC by June 1 each year. Every ten years, the Licensees are required to conduct a ten-year review of the Long-Term Low Flow Trigger Plan to address the following issues:

- Significant advances in forecasting or interpretation of climate signals—to be evaluated through a literature search and consultation with a state climatologist.
- Possible long-term flow trends that do not meet the LTLF trigger criteria but might indicate a change in the hydrologic regime—to be evaluated by graphically tracking average inflows as a function of time; occurrence of a possible trend would require a time-series of a difference-of-means test that considers sample size, statistical significance, and confidence limits.
- Implementation issues—to be identified through consultation or processing of inflow data.

The most recent ten-year review of the Long-Term Low Flow Trigger Plan was conducted in 2020. The review included consultation with three regional climatologists to advise on climate conditions and advances in forecasting tools that may aid in the evaluation of secondary LTLF indicators. Researchers included Dr. Larry O'Neill, director of OCS; Dr. Erica Fleishman, director of OCCRI; Dr. David Rupp, research scientist with OCCRI; and Dr. Guillaume Mauger, research scientist with CIG. The ten-year LTLF Review concluded:

> "The Project inflows and outflows have exhibited annual to multi-year (~5–10 year) variability in response to normal meteorological conditions, and they have maintained a near-static trend over longer periods. The annual average inflows have remained above the primary and seasonal LTLF indicator thresholds during all years since Project relicensing. As such, the LTLF consultation provision has not been activated. Given the static long-term trends and significant uncertainty in present climate forecasting and modeling, the primary and seasonal indicators continue to remain appropriate criteria for the LTLF Plan.
>
> Applicability of the secondary LTLF indicators, however, may require reconsideration due to the general inconsistency found between streamflow and climate indices. As indicated by the regional climatologists, the Deschutes River watershed has a complicated hydrologic system, in which groundwater flows account for a large proportion of the water budget and which limits the effectiveness of typical climate-driven runoff models. Continued use of the WSOR projections would appear to be the most effective means of anticipating summer stream flows, while recognizing their potential limitations. Longer-term modeling suggests a useful perspective of possible conditions some decades into the future, chiefly the seasonal shift to earlier snowmelt and runoff, which could eventually affect long-term low flows to a degree that may motivate a re-evaluation of LTLF indicators."

Water Quality

Required regardless of standard selected:

1. Specify the state's water quality classification and designated uses for the river at the facility or for each zone if they differ. For instance, "*The impoundment is a Class B water*

designated as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation".

The beneficial use designations for the ZoEs are listed in Table 6 and are in Table 130A in OAR 340-041-0130 .

Table 7. Beneficial uses for each ZoE

Beneficial Use	**ZoE 1 - 3**	**ZoE 4**
Public domestic water supply	X	X
Private domestic water supply	X	X
Industrial water supply	X	X
Irrigation	X	X
Livestock watering	X	X
Fish & aquatic life	X	X
Wildlife & hunting	X	X
Fishing	X	X
Boating	X	X
Water contact recreation	X	X
Aesthetic quality	X	X
Hydropower	X	

- Provide a link to the state's most recent final Clean Water Act Section 303(d) impaired waters list, the Section 305(b) integrated water quality report; and lists of other stressed waters (if applicable) and indicate the page(s) therein that apply to facility waters or state that the facility waters are not included on any list. The Crooked River and Deschutes River, upstream of the Project, are listed as impaired, as is the Deschutes River downstream of the Project. The state has not indicated to the Licensees that Pelton Round Butte is responsible (in whole or part) for the impairment.
- The 303(d) Impaired Water List and 305(b) status report: 2018/2020 Integrated Report (approved by U.S. EPA on November 12, 2020) can be accessed using an

- Interactive story map Oregon's 2022 Integrated Report (arcgis.com)
- Interactive web map Oregon 2022 Integrated Report - Final (arcgis.com)
- Online searchable database 2022 Final Integrated Report (state.or.us)
- ArcGIS Assessment Geodatabase Department of Environmental Quality : EPA Approved Integrated Report : Water Quality : State of Oregon

Links to these sites are also available at DEQ's EPA Approved Integrated Report website: Department of Environmental Quality : EPA Approved Integrated Report : Water Quality : State of Oregon

Lake Billy Chinook, Lake Simtustus, Reregulating Reservoir and Lower Deschutes River - ZoE 1, 2, 3 and 4

Criterion	*Standard*	*Instructions*
B	2	Agency Recommendation: • Provide a copy of the most recent Water Quality Certificate and any subsequent amendments, including the date(s) of issuance. If more than 10 years old, provide documentation that the certification terms and conditions remain valid and in effect for the facility (e.g., a letter or email from the agency). • Identify any other agency recommendations related to water quality and explain their scientific or technical basis. • Describe all compliance activities related to water quality and any agency recommendations for the facility, including on-going monitoring, and how those are integrated into facility operations.

- ***Provide a copy of the most recent Water Quality Certificate and any subsequent amendments, including the date(s) of issuance. If more than ten years old, provide documentation that the certification terms and conditions remain valid and in effect for the facility (e.g., a letter or email from the agency).***

In support of the license application, and as required by Section 401 of the federal Clean Water Act, PGE and CTWS requested water quality certifications from the Oregon Department of Environmental Quality (DEQ) and the CTWS's Water Control Board (WCB) for the Project's discharges to the Deschutes River. DEQ and the WCB issued separate certifications, with separate conditions, on June 24, 2002.

- DEQ §401 Certification: https://www.oregon.gov/deq/FilterDocs/PRB2030conditions.pdf
- WCB §401 Certification: See Attachment A

Both certifications required PGE and the CTWS to develop a water quality management and monitoring plan (WQMMP) to implement the certifications' adaptive management requirements. In July 2004, DEQ and the WCB approved a single WQMMP to implement both certifications. The WQMMP consists of four management plans: Water Temperature Management Plan (TMP), Dissolved Oxygen Management Plan (DOMP), pH Management Plan (PHMP), and Nuisance Phytoplankton Growth Management Plan (NPGMP). As stated in emails from DEQ and WCB, both certifications and the WQMMP remain in effect for the facility (Attachment B).

Adaptive management provisions were included in conditions C.7 and D.6 in DEQ's certification, Section 1.B in WCB's certification, and in the WQMMP. Adaptive management is a critical component of the WQMMP because the SWW had not been constructed at the time the WQMMP was written, and its impacts on water quality and currents were unknown. Additionally, the WQMMP acknowledges that "Because the operation of the selective withdrawal facility has the potential to affect numerous water quality parameters, as well as fish passage success, changes in the operation of the selective withdrawal facility must consider all possible impacts, not merely a single water quality parameter."[2] Adaptive management allows the Applicants to implement specific measures to mitigate the Project's impact on a water-quality criterion or on fish passage, monitor and evaluate the measures, and then adjust the measures to better meet water-quality and fish-passage goals.

In 2004, two years after the certifications were issued, Oregon substantially revised its water quality standards, particularly with respect to the temperature and dissolved oxygen criteria that apply to the river downstream of the Project (Table 8). These changes were summarized by ODEQ in their Amicus Curiae Brief on Summary Judgement: "These standards included for the first time thorough designations of fish use and spawning periods for salmon and steelhead trout. After that standards revision, the bull trout temperature criteria were no longer applied to the Deschutes River below the Project, and as a consequence, the applicable temperature criteria for the Project were higher and the non-spawning dissolved oxygen criteria were lower. New standards included a spawning criterion for salmon and steelhead from October 15 through June 15 of each year. The temperature in the non-spawning period (June 16 through October 14) is now Core Cold Water with a criterion of 16^{o}C. There was also no longer a year-round spawning criterion in effect for dissolved oxygen. Instead, the spawning criterion of 11 mg/L is effective during the salmon and steelhead trout spawning period and the non-spawning period has the cold-water aquatic life criterion of a 30-day mean minimum of 8 mg/L dissolved oxygen. (Id. ¶ 23)."

2 *See* WQMMP §1.1 Adaptive Management Considerations, July 2004

Table 8. Comparison of temperature and dissolved oxygen standards in the WQMMP and the current DEQ standards.

	Standard in WQMMP	Current DEQ Standard
Temperature	Bull trout standard • Limit temperature increase in discharge water to no more than 0.25°F (0.14°C) over what would occur if Project were not in place when surface waters exceed 50°F (10°C).	From June 16 – Oct 14, Core Cold Water • 7-day average max may not exceed 16°C (60.8°F) from June 16-Oct 14 *(OAR 340-041-0028(4)(b))* From Oct 15 – June 15, spawning • 7-day average max may not exceed 13°C *(OAR 340-041-0028(4)(a))*
Dissolved Oxygen	• 11.0 mg/L salmonid spawning criterion applies year-round • If monitoring of IGDO demonstrates that IGDO levels exceed 8.0 mg/L at all times, the alternate water column criterion of 9.0 mg/L will apply	From Oct 15 – June 15, spawning • DO may not be less than 11.0 mg/L. However, if the minimum IGDO, measured as a spatial median, is 8.0 mg/L or greater, then the DO criterion is 9.0 mg/L. • Where conditions of barometric pressure, altitude, and temperature preclude attainment of the 11.0 mg/L or 9.0 mg/L criteria, DO levels must not be less than 95% of saturation. • The spatial median IGDO concentration must not fall below 8.0 mg/L. *(OAR 340-041-0016(1)(a-c))* From June 16 – Oct 14, core cold-water • DO may not be less than 8.0 mg/L as an absolute minimum. • Where conditions of barometric pressure, altitude, and temperature preclude attainment of the 8.0 mg/l, DO may not be less than 90% saturation. • At the discretion of the Department, when the Department determines that adequate information exists, the DO may not fall below 8.0 mg/L as a 30-day mean minimum, 6.5 mg/L as a seven-day minimum mean and may not fall below 6.0 mg/L as an absolute minimum. *(OAR 340-041-0016(2))*

The Applicants have operated the SWW since December 2009. From 2011 to 2019, we entered into a series of separate interim agreements with DEQ and the WCB "to provide a framework for the Joint Licensees to evaluate management and monitoring measures that may be needed to ensure continued compliance with the temperature and dissolved oxygen standards applicable to the Deschutes River below the Project."[3] The interim agreements specify the applicable temperature and dissolved oxygen objectives for the river downstream of the Project and contemplate a future revision to the WQMMP's TMP and DOMP to incorporate these objectives and any appropriate management and monitoring measures to achieve them.[4] Since 2019, we have not entered into interim agreements with DEQ and WCB, the last of which expired in January 2021. Instead, we have consulted with DEQ and WCB prior to each temperature and dissolved oxygen management season to confirm our common understanding of how the Project should be adaptively managed to address temperature and dissolved oxygen in accordance with the Project's water quality certifications and WQMMP.

ODEQ periodically reviews its water quality standards, as required under the Clean Water Act. As a result of the most recent triennial standards review, ODEQ has begun a rulemaking to update the existing aquatic life use subcategory designations relating to Oregon's temperature standard, and to designate aquatic life use subcategories relating to Oregon's dissolved oxygen standards. More information on this process can be found on ODEQ's website at https://www.oregon.gov/deq/rulemaking/Pages/aquaticlife2022.aspx. The Licensees anticipate this rule-making process to conclude in 2023. After the rule-making process has concluded, the Licensees will submit proposed changes to the WQMMP to ODEQ and WCB. The Licensees are waiting for the rulemaking to conclude so to ensure that any changes to the WQMMP are consistent with tribal standards and any changes that may occur as a result of the state rulemaking process. The process for updating the WQMMP will include a public comment period run by ODEQ. Additionally, the Licensees will consult with the Fish Committee, and ultimately need FERC approval for any changes.

In the meantime, the 401 certificates issued in 2002 remain in effect (Attachment C).

- ***Identify any other agency recommendations related to water quality and explain their scientific or technical basis.***

3 *See* Section 401 Interim Agreement, paragraph G, 2019 in Attachment C.

4 Specifically, paragraph 3 of the current interim agreement with DEQ states that by December 20, 2019, "PGE will submit to DEQ proposed modifications to the Temperature Management Plan, Dissolved Oxygen Management Plan, and other components of the WQMMP that the Joint Licensees believe are adequate to provide reasonable assurance that the proposed activities may be conducted in a manner that will not violate the applicable temperature and D.O. standards, consistent with their consultations with DEQ, the CTWS WCB, and other members of the Fish Committee." Please note the date was extended to March 31, 2020, in accordance with the terms of the interim agreement.

In January 2021, the EPA released the Columbia River Cold Water Refuges Plan. The plan describes the available cold-water refuges (CWR) in the lower Columbia River for migrating adult salmon and steelhead and identifies actions to protect and restore these refuges. A CWR is defined as "those portions of a water body where, or times during the diel temperature cycle when, the water temperature is at least 2 degrees Celsius colder than the daily maximum temperature of the adjacent well mixed flow of the water body (OAR 340-041-0002(10))."

The Deschutes River is one of the primary CWR tributaries to the lower Columbia. In the listed actions to protect the Deschutes River CWR, EPA states:

"As part of the Pelton Round Butte Project water quality management and monitoring plan, consider the temperature effects of the selective water withdrawal operations on the Deschutes River CWR. Specifically, consider maximum sub-surface cool water blend (60% percent) in August and September to help maintain temperatures below 18°C when CWR use is highest. (ODEQ/PGE/Warm Springs Tribes)." [5] The Applicants are meeting this action. In August and September, we operate the SWW at full bottom withdrawal, which is 60%.

- ***Describe all compliance activities related to water quality and any agency recommendations for the facility, including on-going monitoring, and how those are integrated into facility operations.***

The WQMMP describes the monitoring the Applicants follow to satisfy the requirements of the 401 Water Quality Certifications. It consists of the following management plans and monitoring plan:

- Temperature Management Plan (TMP), which is focused on achieving water temperature objectives in the Deschutes River downstream of the Project.
- Dissolved Oxygen Management Plan (DOMP), which is focused on achieving dissolved oxygen objectives in the river downstream of the Project.
- pH Management Plan (PHMP), which is focused on achieving pH objectives in the river downstream of the Project.
- Nuisance Phytoplankton Growth Management Plan (NPGMP), which is focused on controlling nuisance phytoplankton in Lake Billy Chinook and Lake Simtustus.
- Water Quality Monitoring Plan (WQMP), which describes the water quality monitoring to support implementation of the certifications' adaptive management requirements.

Each plan is described below.

5 U.S. EPA. January 2021. Columbia River Cold Water Refuges Plan. Section 7.15, page 164. EPA-910-R-21-001. Columbia River Cold Water Refuges Plan - January 2021 (epa.gov)

The TMP directs the Project to monitor temperature at numerous locations listed in Table 6.1 in the WQMMP, including monitoring in the Deschutes River just below the Reregulating Dam and in the three tributaries to Lake Billy Chinook. The tributary temperature monitoring data are used in a mathematical model that predicts the temperature that the river would have just below the Reregulating Dam if the Project were not in place (the "without Project temperature" (WPT), expressed as a moving 7-day average of daily maximum temperatures (7-DMax) in the WQMMP). The 7-DMax of river temperatures at the Reregulating Dam minus the WPT is the estimated effect of the Project on the river temperature at the Reregulating Dam. When the 7-DMax temperature of the combined inflows to the Project reaches a specific temperature, we increase the proportion of bottom withdrawal from LBC to maintain the river temperature at our compliance point (immediately below Reregulating Dam) no greater than a specified amount over the calculated WPT.

The DOMP directs the Project to monitor dissolved oxygen at the Reregulating Dam and initiate controlled spills at the dam to increase DO if concentrations fall below the applicable DO objective. It also directs the Project to monitor intergravel dissolved oxygen (IGDO) downstream of Reregulating Dam to verify the relationship between IGDO and ambient DO concentrations to determine if an alternate DO water column criterion is applicable.[6] Based on the adaptive management principles and water quality and fish passage data generated after the SWW began operation in December 2009, DEQ and the WCB have since 2012 directed the Applicants to operate the SWW using dissolved oxygen objectives that differ from those contained in the DOMP.

The PHMP directs the Project to monitor pH at sites throughout the length of the lower Deschutes River, at the Reregulating Dam, and the tributaries to Lake Billy Chinook. We continuously monitor pH at our compliance point (immediately below Reregulating Dam). When pH at our compliance point exceeds 8.3, additional monitoring is conducted in the three tributaries until pH at the dam drops below 8.3. Data collected at the Reregulating Dam is compared to data collected in the tributary inflows

The NPGMP directs the Project to monitor chlorophyll *a* concentration in Lake Billy Chinook and Lake Simtustus to detect whether increases in chlorophyll *a* (an indicator of phytoplankton biomass) occur as the result of implementing the SWW. Monitoring was conducted between

6 The Applicants completed the required three years of monitoring in 2013 and DEQ and WCB determined the alternate DO water column criterion was applicable. The Applicants have continued to undertake diel monitoring of IGDO downstream from the Reregulating Dam. The diel IGDO monitoring occurs in late June to early July and late October to mid-November. This monitoring period was determined in consultation with DEQ and WCB, and it is the time of year when IGDO concentrations are expected to be the lowest downstream of the Reregulating Dam during the spawning season.

2011-2012, according to the WQMMP, and we shared the results with DEQ and WCB. During consultation, it was determined that the SWW did have an effect on chlorophyll *a* concentration in the reservoirs.

Between 2015-2017, as part of a comprehensive multi-year water quality study, the Applicants monitored phytoplankton biovolume and chlorophyll *a* concentration in Lake Billy Chinook and Lake Simtustus.[7] Additionally, in 2015, we began monitoring harmful algae blooms on Lake Simtustus and continue this monitoring seasonally. These additional data collections are independent of the WQMMP.

The WQMP outlines additional monitoring programs at the Project that addresses four objectives:

- To determine whether the Project is in compliance with the DEQ and WCB section 401 certifications.
- To collect water quality data to aid in the identification and evaluation of adaptive management measures.
- To continue to collect water quality data at sites that have been used in other baseline studies to determine if trends exist related to the Project or other sources.
- To collect water quality data that can be used for other aquatic studies related to reintroduction of anadromous fish.

Table 7 lists the monitoring programs described in the WQMP and their status. The monitoring identified as ongoing will occur for the life of the license. Continuous monitoring is reported monthly to DEQ and WCB, and an annual report summarizing the data is submitted to DEQ, WCB, and FERC.

7 Following the completion of the water quality study, a water quality work group made up of a sub-group of PRB Fish Committee members was convened to complete an in-depth review of the study. The work group has identified and considered various operational scenarios and strategies and how they might improve water quality in the Lower Deschutes River and Project reservoirs in order to provide suggested next steps for Fish Committee consideration. The work group includes a representative from DEQ and from the CTWS, and it has been meeting regularly since 2019.

Table 9. The status of monitoring programs at Pelton Round Butte, as directed by the Water Quality Monitoring and Management Plan.

Monitoring Program	**Status**
Temperature monitoring	Ongoing for life of license
Multi-parameter monitoring (including DO and pH)	Ongoing for life of license
Nutrient and chlorophyll *a* monitoring	Completed in 2017
E. coli monitoring	Completed in 2012
Zooplankton monitoring	Completed in 2014
Lower Deschutes River macroinvertebrate and periphyton monitoring	Completed in 2015
Total dissolved gas monitoring	Completed 2012; additional monitoring occurs periodically during spill events
Lower River geomorphic monitoring	Ongoing through 2025
Large wood monitoring	Ongoing for life of license
Project operations monitoring • Flow monitoring at the USGS Madras Gage • Hourly monitoring of Project inflows • Monitoring minimum flow releases below the Reregulating Development • Monitoring run-of-river operation for lower river flows • Monitoring river stage changes below the Reregulating Development • Monitoring seasonal drawdown and fluctuation limits for Project reservoirs	Ongoing for life of license

As required by the WQMMP, the Licensees have filed an annual Water Quality report with FERC each year- the previous three year's reports are linked here: 2021, 2020 and 2019. Previous year's reports can be found in the FERC elibrary or by request.

In addition to the monitoring described above, and required by the WQMMP, the Licensees have conducted additional studies to inform management of the Pelton Round Butte Project. Most notably, we conducted a comprehensive water quality study from 2015 to 2017. The purpose of this study was to document water quality conditions in the LDR and Project reservoirs and use modeling to assess how changes in Project operations, basin conditions, and climate change may influence water quality in the LDR. The report and all the data used to generate the report are available on the PGE website at: https://portlandgeneral.com/about/rec-fish/deschutes-river/water-quality. After the study concluded, the Pelton Round Butte Fish Committee created a subcommittee, the Water Quality Work Group (WQWG), to dive into the details of the Water Quality Study and determine if management changes were warranted based on the study results. The WQWG consists of members from PGE, CTWS, USFS, DEQ, Native Fish Society and Trout Unlimited. Through its review process the group identified area for additional research but recommended no SWW changes at this time. The process and recommendations are summarized in a report, which is available upon request.

In addition, the WQWG identified a need for better public understanding of water quality in the basin and the Project's role in basin water quality. The first outcome of this was the creation of a collaborative Water Quality Graphic. The graphic shows current and potential influences on water quality, how they impact water quality, and metrics to track these issues. It illustrates what support is most needed and where it might be most impactful. The Licensees have used this as tool to prioritize our monitoring and restoration funding efforts outside the WQMMP. For example, we conducted additional nutrient and periphyton monitoring in the lower Deschutes to better understand the impacts of a high flow event. We have also focused future Pelton Fund projects in the Crooked River basin because it's the area with the highest need for habitat improvement, both in terms of fish and water quality.

More recently the WQWG has convened a lower Deschutes stakeholder working group as a pilot process to build common understanding of the science related to the lower river and discuss desired outcomes for temperature management. This group is professionally facilitated, and is comprised of PGE, CTWS, DEQ, ODFW, Native Fish Society, Trout Unlimited, Deschutes River Alliance, Freshwater Trust, Wild Steelhead Coalition, The Conservation Angler, Pacific Rivers, Central Oregon Informed Angler and three lower Deschutes River fishing guides. The group was convened in June 2022 and has met three times to date. The group's charter is available upon request.

Upstream Fish Passage Standards

1. Provide a list of all migratory fish species (anadromous, catadromous, and potamodromous species) that occur now or have occurred historically at the facility:
   - Steelhead trout (*Oncorhynchus mykiss*)
   - Chinook salmon (*Oncorhynchus tshawytscha*)
   - Sockeye salmon (*Oncorhynchus nerka)*
   - Bull trout (*Salvelinus confluentus*)
   - Pacific lamprey (*Entosphenus tridentatus*)

ZoE1: Lake Billy Chinook: Criterion C-1

Criterion	***Standard***	***Instructions***
C	1	Not Applicable / De Minimis Effect: • Explain why the facility does not impose a barrier to upstream fish passage in the designated ZoE. Typically, impoundment zones will qualify for this standard since once above a dam and in an impoundment, there is no additional facility barrier to further upstream movement. • Document available fish distribution data and the lack of migratory fish species in the ZoE. • If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.

- **Explain why the facility does not impose a barrier to upstream fish passage in the designated ZoE. Typically, impoundment zones will qualify for this standard since once above a dam and in an impoundment, there**

  There is no additional facility barrier to further upstream movement for migratory fish.

- **Document available fish distribution data and the lack of migratory fish species in the ZoE.**

  Fish distribution data for the Pelton Round Butte Project can be found in Witty (1999). There are no upstream migrating fish in this ZOE. Downstream migration is covered elsewhere.

- **If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.**

  With construction of upstream and downstream fish facilities and the reintroduction program Chinook, steelhead and sockeye are no longer extirpated from the area.

ZoE 2, 3 and 4: Lake Simtustus, Reregulating Reservoir and lower Deschutes River at USGS Madras stream gage 14092500: Criterion C-2

Criterion	***Standard***	***Instructions***
C	2	<u>Agency Recommendation:</u> • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented. • Provide evidence that required passage facilities are being operated and maintained as mandated (e.g., meets seasonal operational requirements, coordination with agencies, effectiveness relative to performance targets).

<u>Agency Recommendation:</u>

- **Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective).**

Adult salmon and trout are passed upstream using a trap-and-haul facility that was constructed in 1957, with significant upgrades and/or maintenance occurring in 1984, 1996, 2000 and 2021. Fish enter the Pelton adult trap at the base of the Reregulating Dam and are then trucked around Lake Simtustus and the Reregulating Reservoir and released into Lake Billy Chinook via the adult release facility. In general, trap and haul is not considered the best available

technology, but for the reasons described below, continued use of the trap and haul facilities were approved as part of the Settlement Agreement, incorporated into the USFWS and NOAA Fisheries Section 18 prescriptions, and included, verbatim, into the License.

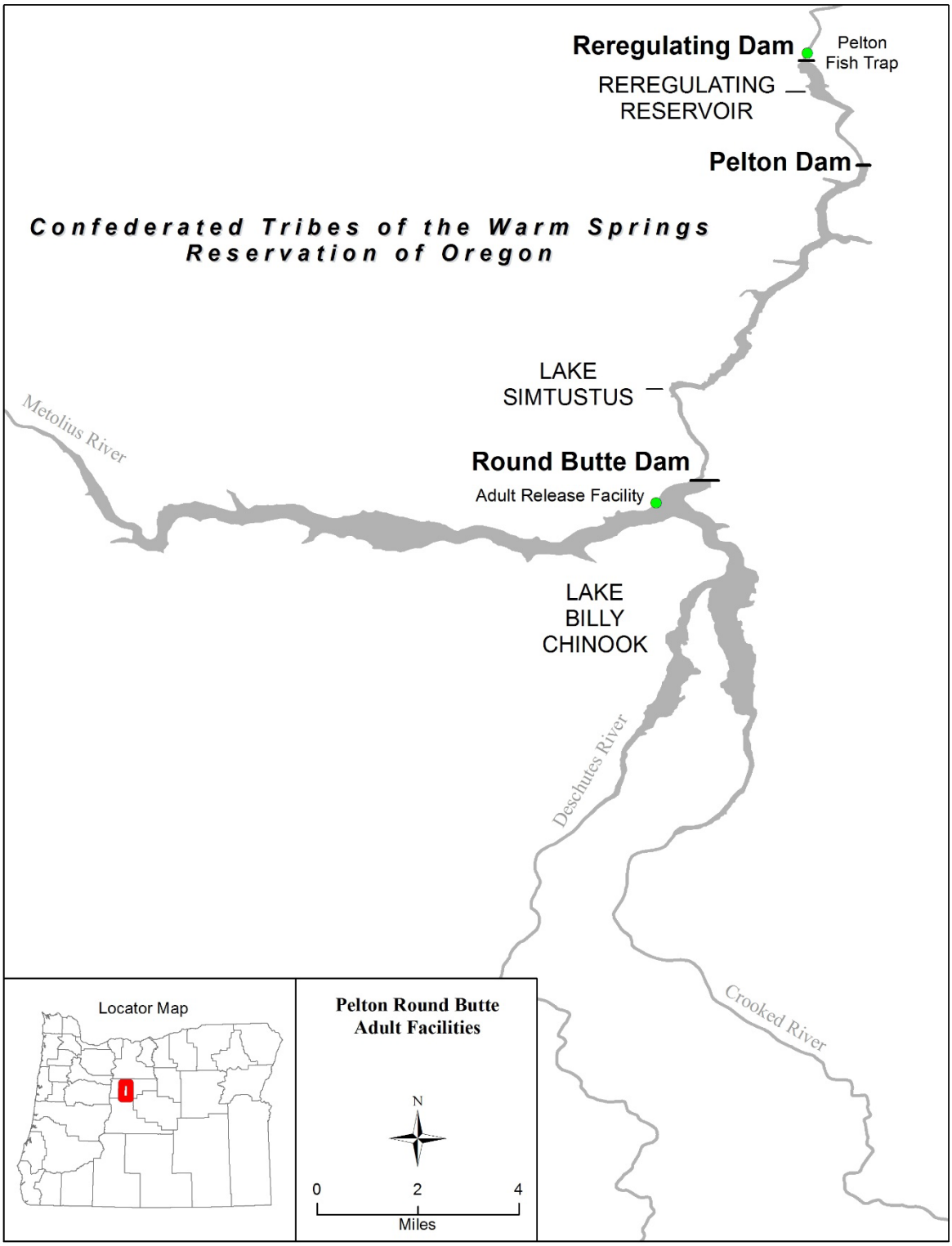

Figure 9. Map showing location of dams and adult release facility.

- **Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.**

Continued use of trap and haul was approved due to the unique challenges of fish passage at the Pelton Round Butte project. The total distance of the Project (nearly ten miles from the Reregulating Dam to Round Butte Dam) and the elevation gain (approximately 550 feet) present both physical and biological challenges. The existing fish ladder (roughly 2.8 miles long) was only partially successful at passing adult salmonids during the initial years of the Project. The exact cause of ladder rejection is unknown at this time, but it is thought that the ladder developed its own unique water chemistry during the warmer months, causing fish to turn back.

In addition, the uncertainties regarding collection of smolts from Lake Billy Chinook may take a number of years to overcome. It must also be determined that no new pathogens will be introduced above the Project and that disease risk can be managed. The existing trap facility has been in operation for over 40 years, with improvements made to both the facility and the protocols employed for handling live fish. Additionally, an adult release facility was constructed in the forebay of Lake Billy Chinook. The adult release facility is the best available technology, in that it provides fish a safe space to recover from transport, allowing for volitional exit when ready. Most importantly, the adult release facility prevents thermal shock of returning salmon by providing cool reservoir water and releasing fish below the surface. The trap and haul facility gives fisheries managers a tool to monitor and control the number and type of species passed above the Project and allow for disease risk management. For these reasons, the parties to the settlement negotiations agreed that the initial use of an improved trap-and-haul system will provide adequate resource protection.

- **Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.**

One requirement of the License is to complete the Upstream Trap-and-Haul and Round Butte Adult Release facility test and verification study. With regards to the Pelton Adult Trap, the objectives of this study are to evaluate the timing of adult Chinook from the Deschutes River into the Pelton Adult Fish Trap and to evaluate injury and mortality that may be associated with adult fish capture, processing, loading and transport. Results are summarized in the 2012 Upstream Trap and Haul Annual Report, which was filed with FERC on May 31, 2013. While the test and verification portion is complete, we continue to monitor fish survival and injury. Data are reported monthly to the Fish Committee, on an annual basis in the Fish Passage Annual Reports. The first objective has not yet been fully completed, due to low numbers of Chinook returning to the Pelton trap. Hatchery broodstock and reintroduction needs have been prioritized over completion of this study. In the 2019 Upstream Trap and Haul Annual Report, we reported on our 2018 efforts to evaluate this objective. However, the Fish Committee requested we repeat the study in future years to improve the sample size. The study is currently being repeated as 2022 has seen record Chinook returns.

Additional studies were conducted on the adult release facility. The Upstream Trap-and-Haul and Round Butte Adult Release Facility Test and Verification study required the Licensees to evaluate the effectiveness of the new facility in 2012. The objectives of this study were to 1) observe fish remaining within the release vault, 2) measure the timing of the fish exiting the release pipe, and 3) measure the survival of fish released at the facility. Results of this evaluation are summarized in the 2012 Upstream Trap and Haul Annual Report, which was filed with FERC on May 31, 2013.

The Round Butte Adult Release Facility Monitoring and Evaluation Plan was filed with FERC on March 20, 2013. This M & E plan requires the Licensees to:

- Identify pre-existing injuries on adults at the Pelton Adult Fish Trap
- Observe adults within the facility
- Calculate survival of fish released at the facility
- Monitor water temperature within the vault
- Evaluate physical and mechanical equipment

- **Provide evidence that required passage facilities are being operated and maintained as mandated (e.g., meets seasonal operational requirements, coordination with agencies, effectiveness relative to performance targets).**

Facilities are operated and maintained in accordance with the Pelton Fish Trap Operating Plan and the Monitoring Plan for the Operation and Maintenance of Trap-and-Haul Fishways at the Pelton Round Butte Project filed with FERC on March 2, 2015. Additionally, fish numbers, survival rates, trap performance and maintenance are summarized annually in the Fish Passage Annual report. These reports are reviewed by the Fish Committee, including state, federal and tribal agencies, their comments are incorporated and the final report is filed with FERC by June 1 of each year. Links to the past five years of the fish passage annual reports are provided here for reference (2020 Report, 2019 Report, 2018 Report, 2017 Report, and 2016 Report). Additionally, The License requires an upstream passage survival rate of 98%. These survival rates are to be measured from capture at the Pelton Fish Trap through release at the new Round Butte Adult Release Facility. Survival through the facility has averaged 99% for spring Chinook, 100% for sockeye and 99% for steelhead, for the past five years. Additionally, during initial testing, 128 fish (spring Chinook, sockeye, steelhead and bull trout) were placed in the adult release facility. All 128 fish left of their own volition (without crowding) within 90 minutes of placement in the facility (see 2012 Upstream Trap and Haul Annual Report). Periodic monitoring of the vault is conducted and observations affirm the previous studies of fish leaving within several hours. The Licensees also have a requirement to report fish injury or mortality events to the agencies and FERC immediately as described in Article 405. From 2012 to 2022, we have reported four fish incidents involving adult fish. These are listed in Table 4.

Downstream Fish Passage and Protection Standards

Required regardless of standard selected:

1. **In addition to the migratory species list provided for criterion C above, provide a list of all riverine/resident fish species that occur now or have occurred historically at the facility.**

- Rainbow trout
- Mountain whitefish
- Sculpins (shorthead, torrent, slimy, mottled, prickly)
- Dace (longnose, speckled)
- Suckers (bridgelip, largescale)
- Chiselmouth
- Northern pikeminnow
- Redside shiner
- Brown trout (introduced)
- Smallmouth bass (introduced)
- Goldfish (introduced)
- Black crappie (introduced)
- Brown bullhead catfish (introduced)
- Tui chub (introduced)
- Threespine stickleback (introduced)
- Largescale suckers, etc.

ZoE 1- Lake Billy Chinook: Criterion D-3

D	3	<u>Best Practice / Best Available Technology:</u> • Describe the downstream fish passage practices or technologies that have been deployed and are in operation and justify why they qualify as best practices or best available technology. • Explain how the downstream fish passage facilities provide adequate and safe passage for fish species that are present and require passage. • Describe the monitoring and effectiveness activities that have been or are being conducted for the downstream passage facilities.

- **Describe the downstream fish passage practices or technologies that have been deployed and are in operation and justify why they qualify as best practices or best available technology.**

  To provide juvenile fish passage, the Licensees completed construction of a Selective Water Withdrawal (SWW) in December 2009. The dams were initially constructed with fish passage, but initial attempts at fish passage failed in the 1970s and salmon and steelhead were extirpated from the 250 stream miles upstream of the dams. Therefore, restoration of fish passage was a major focus of the 2005 FERC License. The main reason that fish passage initially failed is that the intake for the dams was deep in the reservoir (at 273 ft),

meaning that the current was moving along the bottom of the reservoir, rather than at the surface where salmon and steelhead are migrating. The SWW solves for this problem by adding two entrances at the surface, each measuring 40 x 60 feet (Figure 8). By drawing water off of the surface, we are able to attract fish to the facility. Downstream migrating fish are collected, sorted and marked at the fish transfer facility loaded onto trucks and released in the lower Deschutes River. Resident fish are recycled back into the reservoir via pipes which exit below the surface to avoid the warmest surface layer of the reservoir. The bottom gates are operated seasonally to meet water quality targets as described in the Water Quality section. All intakes are screened; there is no turbine passage.

The SWW won the Edison Award because of its innovative approach to meeting fish passage, water temperature management and hydroelectric generation, concurrently.

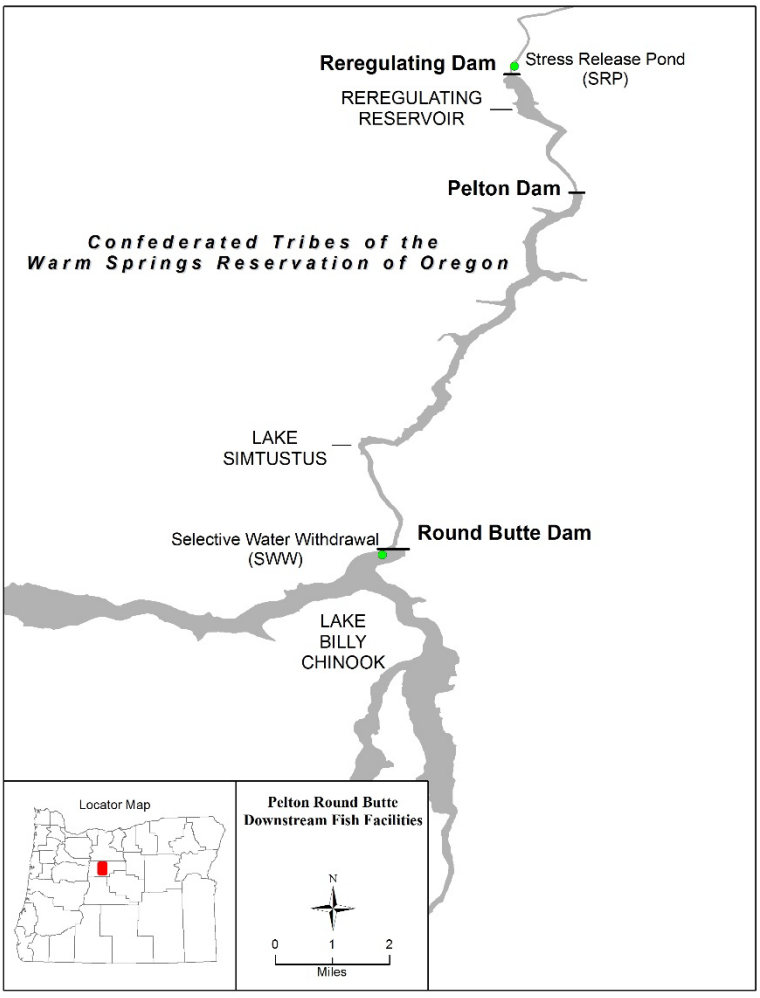

Figure 10. Map showing downstream fish passage facilities, including the Selective Water Withdrawal (SWW) and Stress Relief Pond (SRP).

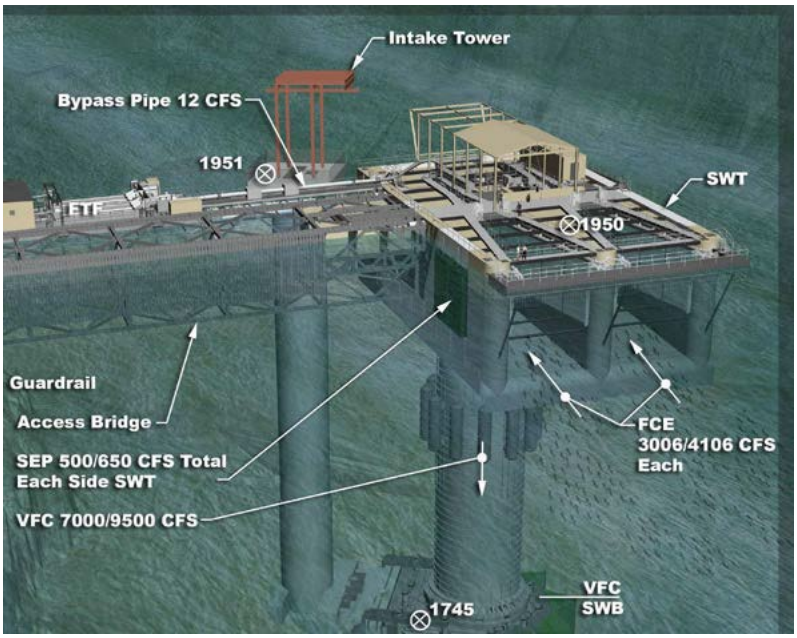

Figure 11. Selective Water Withdrawal (SWW) rendering.

- ***Explain how the downstream fish passage facilities provide adequate and safe passage for fish species that are present and require passage.***

Passage Safety

We measure mortality, injury and descaling at the facility and report these numbers in our annual Fish Passage Reports. Additionally, the Licensees fund an ODFW fish pathologist. The pathologist examines the majority of mortalities and, whenever possible, recommends changes to our program to prevent injury and mortality. We are required to have survival through the facilities greater than 96 percent (as described in Exhibit D:Fish Passage Plan, Settlement Plan, Section IV.C.1.a.2). We have met the requirement in all years since SWW began operations in 2010. The past five years of data are included in Table 8 for reference. More details on species-specific injury and mortality rates, causes of mortality and level of injury can be found in the annual reports which are available in the FERC elibrary. The Licensees also have a requirement to report fish injury or mortality events to the agencies and FERC immediately as described in Article 405. From 2012 to 2022, we have reported nine fish incidents involving adult fish. These are listed in Table 4.

Table 10. Smolt survival and injury at the SWW from 2017 to 2021.

	Smolt Survival	Injury*
2021	98.3%	0.2%
2020	98.6%	0.2%
2019	98.3%	2.8%
2018	98.4%	1.4%
2017	98.1%	0.1%

*Overall survival for Chinook, steelhead, and sockeye

*Percent of fish with injuries as measured per our long-term monitoring plan

Passage Adequacy

Each year we pass between 37,000 and 471,000 outmigrating smolts downstream through the SWW (Table 9). These numbers fluctuate based on natural conditions, like drought, as well as the number of hatchery smolts released upstream.

Table 11. Number of Chinook, steelhead and sockeye smolts transported to the lower Deschutes from the SWW from 2010 to 2021.

Year	Chinook smolts to lower river	Steelhead smolts to lower river	Sockeye smolts to lower river
2010	44,018	7,733	49,095
2011	31,120	10,606	225,565
2012	24,236	7,806	4,955
2013	20,913	2,705	24,708
2014	18,662	2,113	153,730
2015	15,418	3,702	38,702
2016	16,811	4,003	48,519
2017	29,413	10,525	430,986
2018	21,631	8,841	46,402
2019	36,547	11,035	89,896
2020	28,044	16,294	32,355
2021	28,902	12,550	30,523

In addition to monitoring the number of fish collected; we also measure reservoir passage efficiency. The long-term target in our License is 75% passage through Lake Billy Chinook and into the SWW (as described in Exhibit D:Fish Passage Plan, Settlement Plan, Section IV.C.1.a.4). The 75% target was based on a modeling effort which, using assumptions on adult return rates and habitat quality, indicated 75% the passage efficiency was needed to achieve self-sustaining populations. Details can be found in Cramer and Beamesderfer (2006). This is updated periodically based on the habitat surveys which PGE conducts as part of the Native Fish Habitat program. The most recent update was filed with FERC in 2017. The updates occurred annually for the first ten years of the License, and now are to occur every five years. The next update will be filed with FERC by June 1, 2024. Note, initially this was scheduled for completion in 2023. However, no surveys were conducted in 2020 due to Covid so the review was postponed one year to allow incorporation of a full five years of data. The report and consultation record can be found here.

We are not meeting the 75% criteria to-date. However, we have an active adaptive management program in place to increase passage efficiency and recent years have seen

significant improvements. As a result of the studies described below, these are the major changes we've made to improve fish passage:

2017 - present	Nighttime generation
2020 - present	Smolt acclimation
2022	Installation of lead net

From 2014 to 2016, the median collection efficiency for Chinook was 45%, after beginning major adaptive management changes starting in 2017 average efficiency rose to 50%. Collection efficiency in 2022, after installation of the lead net, was 54%. From 2014 to 2016 the median collection efficiency for steelhead was 12%, after instituting major adaptive management changes starting in 2017 average efficiency was 20%. Collection efficiency in 2022, after installation of the lead net, increased to 38%.

It is worth noting that not all changes can be attributed to management changes. For example, spring tributary flow is a strong driver of smolt collection at the SWW (Shrader 2019). In high run off years, we tend to collect more downstream migrants, in lower water years we collect fewer migrants. Central Oregon has been in a sustained drought- with drought declared in Deschutes, Crook and Jefferson counties for each of the past three years (2020 to 2022). From 2014 to 2019, drought was only declared for the tri-county area in 2015 (drought declarations can be found at: https://apps.wrd.state.or.us/apps/wr/wr_drought/declaration_status_report.aspx). These recent low flows are likely suppressing our collection efficiencies beyond what we would see in a high flow year.

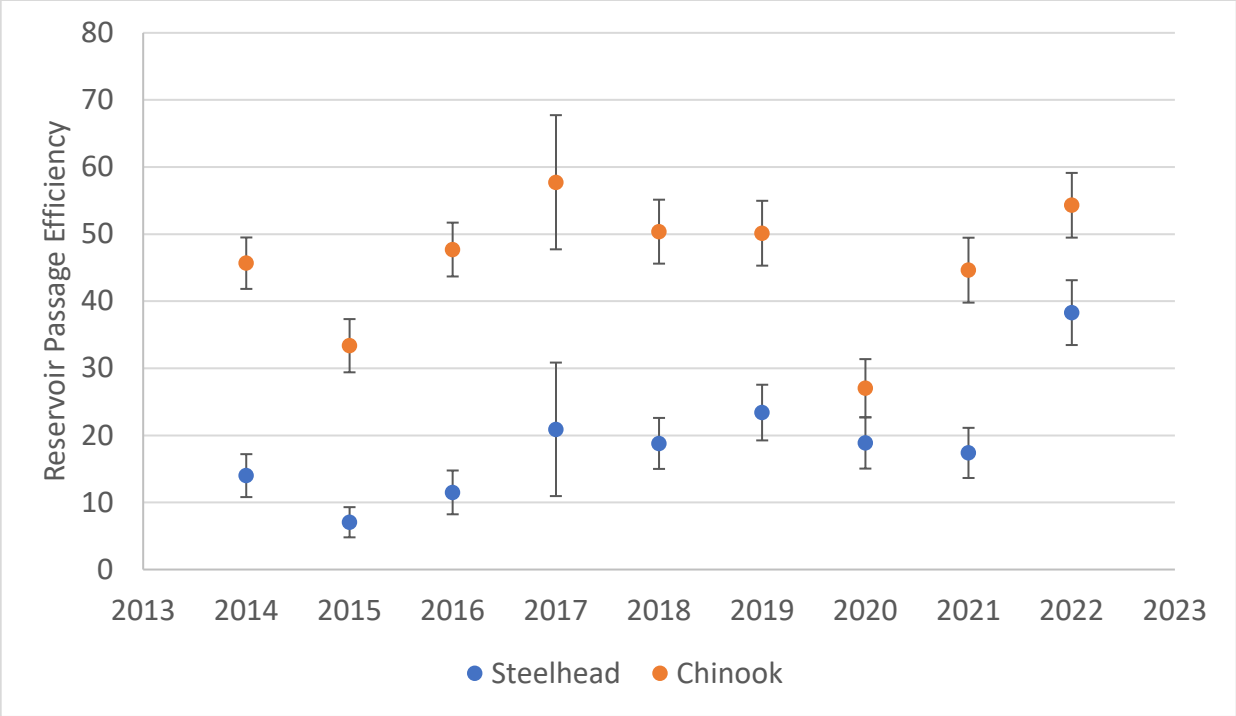

Figure *12*. Reservoir passage efficiency from 2014 to 2022. Fish were released in the confluence of the Crooked, Deschutes and Metolius rivers and Lake Billy Chinook.

- **Describe the monitoring and effectiveness activities that have been or are being conducted for the downstream passage facilities.**

  Links to referenced studies are provided where available. References not available on-line will be provided upon request.

  - 2010 – present- Annual monitoring of fish collection numbers and injury and mortality. These results are summarized in our annual Fish Passage Report, which is submitted to FERC each June (2019, 2020, 2021 reports- additional years available via the FERC elibrary). Additionally, we measure reservoir passage efficiency each year in the Juvenile Migration Test and Verification study, which is filed with FERC each July (2019, 2020, 2021 reports - additional years available via the FERC elibrary). In addition to this long-term monitoring, we have conducted the following in-depth studies on downstream fish passage:

    - 2020 – 2021 – We contracted with U.S. Geological Survey (USGS) to conduct baseline acoustic studies to determine fish behavior in the vicinity of the SWW without the presence of a guidance net. Results of initial study leads to efforts, beginning in 2021, to “fine tune” hours of nighttime generation (Smith et al. 2021, Smith and Hatton 2022).

    - 2016 – Pilot testing of fish passage/flow model. PIT-tagged fish were released under varying conditions andtheir collection efficiency was

measured. Collection showed a positive response to increased nighttime flow (Pyper 2019).

- 2015 - 2016 – Physical reservoir studies. Studies show that flows change with the SWW as predicted but flow magnitudes are very low. Zone of influence shifts with changing generation (Nugraha and Khangaonkar 2017, Stillwater Sciences 2015).

- 2014 - 2015 – Statistical model relating fish passage to generation is developed. This shows that more flow at night will likely improve fish passage collection (Pyper 2015, Pyper 2016).

- 2010 - 2013 – Juvenile migration studies. Initial passage rates were positive; Licensees met the Phase 1 goal in year one of the SWW operations. Radio-tagging studies show that most fish enter the forebay, but many fail to enter the SWW, indicating an issue with either: 1) SWW avoidance, and/or 2) guidance. Acoustic studies in the forebay show long residence times (Hill et al. 2014).

ZoE 2 and 3 - Lake Simtustus and Reregulating Reservoir: Criterion D-2

D	2	• Agency Recommendation: Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is part of a Settlement Agreement or not. Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented. Provide evidence that required passage facilities are being operated and maintained as mandated (e.g., meets seasonal operational requirements, coordination with agencies, effectiveness relative to performance targets).

- **Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective).**

Per Article 28 of the Settlement Agreement, the Licensees are directed to transport all migrants directly from the SWW in Lake Billy Chinook to the lower Deschutes River, bypassing Lake Simtustus and the Reregulating Reservoir during the smolt migration season. During other times of the year, the Licensees are directed to, at the request of the Fish Committee, transport downstream-migrating salmonids into Lake Simtustus to take advantage of the

lentic habitat it provides. Utilization of Lake Simtustus for additional rearing would require construction of upstream and downstream fish passage facilities. The Licensees completed designs of these facilities. Plans for a guidance net was filed with FERC on December 12, 2012. Final plans for upstream facilities were filed with FERC on December 20, 2012. However, to date the Fish Committee have not requested these facilities be constructed as rearing habitat in Lake Billy Chinook does not appear to be a limiting factor, and passage through these additional reservoirs would provide additional sources of mortality and delay for downstream migrants.

- **Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is part of a Settlement Agreement or not.**

To date, the Fish Committee has not requested that fish facilities be constructed in Lake Simtustus because:

- Additional lentic habitat from Lake Simtustus is not needed.
    - *O. nerka* populations in Lake Billy Chinook have remained stable following the reintroduction effort, despite passing several thousand *O. nerka* downstream through the SWW annually.

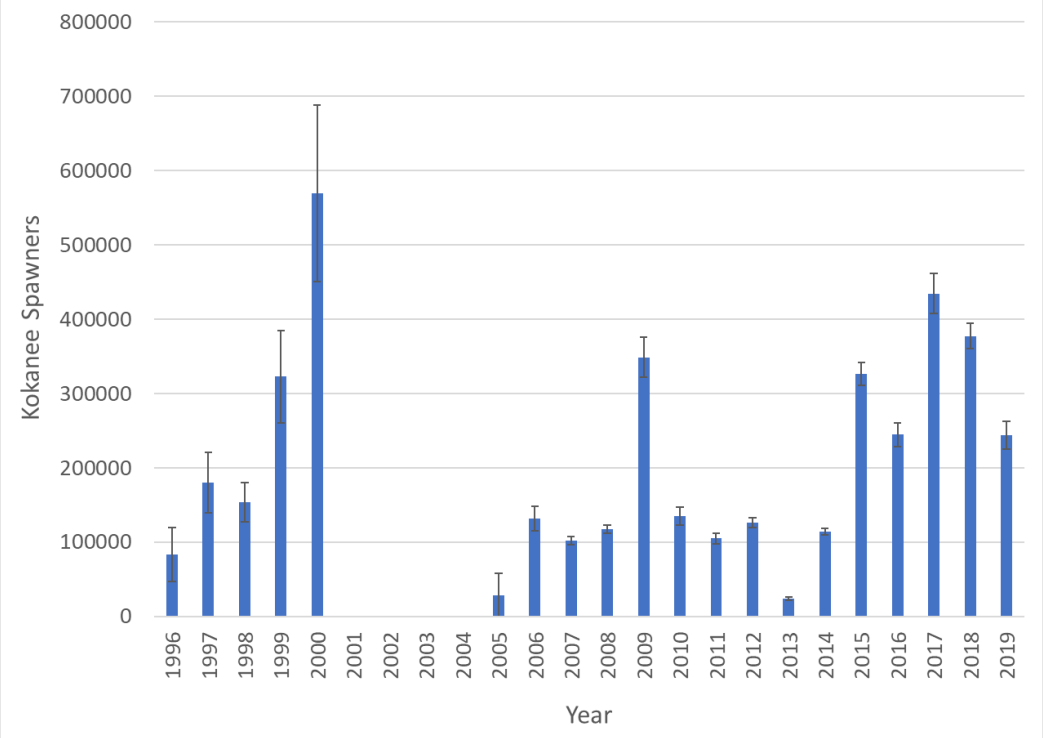

Figure 13. Kokanee spawners in the Metolius River from 1996 to 2019. The SWW was constructed in 2010. Data courtesy of Jeff Hogle, Confederated Tribes of Warm Springs.

- Lake Simtustus does not provide habitat for salmonid spawning.
    - There are only two small tributaries that enter Lake Simtustus and the Reregulating Reservoir: Seekseequa Creek and Willow Creek. Seekseequa Creek is located on the Confederated Tribes of Warm Springs Reservation. Willow Creek flows through the city of Madras and does not support anadromous fish production due to warm temperatures, degraded habitat, and intermittent flow. PGE conducted limited water quality sampling of Willow Creek from 2015 to 2017 which documented a mean temperature of 19.9 degrees C, and high nutrient loading (Eilers and Vache 2020). The potential loss of fish and delay in migration that would occur with including Lake Simtustus in the passage program, rather than bypassing through trucking outweighs the potential additional production from these small creeks.

- Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.
    - The Licensees completed designs of the Lake Simtustus fish facilities. Plans for a guidance net was filed with FERC on December 12, 2012. Final plans for upstream facilities were filed with FERC on December 20, 2012. Monitoring and effectiveness plans have not been developed as they facilities have not yet been constructed per agency recommendation.

- Provide evidence that required passage facilities are being operated and maintained as mandated (e.g., meets seasonal operational requirements, coordination with agencies, effectiveness relative to performance targets).
    - Because there hasn't been an agency request to construct these facilities, this question is not applicable.

ZoE 4 - Madras Gage: Criterion D-1

D	1	Not Applicable / De Minimis Effect: • Explain why the facility does not impose a barrier to downstream fish passage in the designated ZoE, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no additional facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective, and timely downstream migration. • For riverine fish populations that are known to move downstream, explain why the facility in the designated ZoE does not contribute adversely to the species populations or to their access to habitat necessary for successful completion of their life cycles; or • Document available fish distribution data and the lack of fish species requiring passage in the ZoE; or • If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.

Not Applicable / De Minimis Effect:

- **Explain why the facility does not impose a barrier to downstream fish passage in the designated ZoE, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no additional facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective, and timely downstream migration.**

This is the downstream most ZOE. There are no more facility barriers to downstream movement.

- **For riverine fish populations that are known to move downstream, explain why the facility in the designated ZoE does not contribute adversely to the species populations or to their access to habitat necessary for successful completion of their life cycles; or**

See Criterion A (Ecological Flows) and Criterion B (Water Quality). The Project is managed to provide lower river flows and water quality to support downstream migrants. For example, the project is operated as a modified run-of-river system, meaning that inflow matches, within 10%, outflow. This ensures there are sufficient downstream flows in the spring while fish are out-migrating. Further, through our temperature management program, we provide temperatures consistent with the temperature expected if the dams were not here.

- **Document available fish distribution data and the lack of fish species requiring passage in the ZoE; or, if migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.**

This is the most downstream dam; there are no fish requiring downstream passage.

ZoE 1: Lake Billy Chinook: Criterion D-PLUS

D	PLUS	Bonus Activities: • If advanced technology has been or will be deployed, explain how it will increase fish passage success relative to other options; or • If a basin-scale redevelopment strategy is being pursued, explain how it will increase the abundance and sustainability of migratory fish species in the river system; or • If adaptive management is being implemented describe the management objectives, the monitoring program to evaluate performance against those objectives, and the management actions that will be taken in response to monitoring results.

• If adaptive management is being implemented describe the management objectives, the monitoring program to evaluate performance against those objectives, and the management actions that will be taken in response to monitoring results.

The Pelton Round Butte Fish Committee has recently undergone a process to clarify our adaptive management program. The group developed a Reintroduction Roadmap in 2019. The roadmap was then updated, including the addition of two new strategies, in 2022.

The Fish Committee Reintroduction Road Map (Road Map) is a high-level guide to past actions and future considerations that impact the goal of returning "self-sustaining and harvestable runs of spring Chinook, sockeye and summer steelhead" to the Deschutes basin, upstream of the Project. It recognizes that through ongoing scientific studies and operation of fish passage facilities, significant information relevant to future management decisions has been gathered. Before development of the Road Map, however, these data were presented in narrowly focused reports; there was no comprehensive tool that showed interactions between major influential factors or captured the work being conducted by different organizations. The Road Map describes these actions in one document, to better communicate a holistic understanding of the adaptive management actions guiding the reintroduction program, to both stakeholders and the public.

The Roadmap was developed over a year-long process by a subgroup of Fish Committee members, including the Oregon Department of Fish and Wildlife (ODFW), Oregon Department of Environmental Quality, Native Fish Society, Trout Unlimited, National Marine Fisheries Service (NOAA Fisheries), PGE, and CTWS-BNR. It includes a diagram that identifies the goal of

the reintroduction effort, the three objectives that need to be met to accomplish the goal, and key strategies to achieve those objectives. Each strategy is symbolized with a color and shape. The color indicates the time frame of the activity: present and future, under consideration, or for future consideration. Shapes are used to show the lead organization for each strategy. The group developed high-level descriptions for each strategy that outline: the strategy's importance, anticipated outcomes, evaluation methods, timeline, lead organization/agency, Fish Committee role, and related studies/actions/decisions. These summaries are meant to provide easily accessible/quick reference information and basin-wide context about the reintroduction effort for the Fish Committee and the public. The Fish Committee sees the Road Map as an essential adaptive management tool for planning and integrating basin-wide efforts into annual work plans that the Fish Committee is responsible for overseeing. It serves as a living document that describes the evolving long-term management actions pertaining to the reintroduction of anadromous salmonids upstream of the Project. It is anticipated that substantial revisions to this Roadmap, like those conducted in 2021-2022, will be made approximately every three to five years. The Roadmap acts as a guide that allows the Fish Committee to focus on those strategies within their control that may impact reintroduction, while taking into consideration the data, decisions, and plans taking place throughout the watershed.

Two examples of recent adaptive management actions are the additions of a lead net at the SWW and a stress relief pond at the lower Deschutes River release point. Both of these facility upgrades were based on data collected via studies as outlined in the Reintroduction Roadmap (Strategy A and Strategy H). The stress relief pond was completed in June 2021. The lead net was installed in February 2022. Under the guidance of the Pelton Round Butte Fish Committee, we are currently conducting studies to evaluate the effectiveness of these facilities as outlined in the 2022 Fish Passage Annual Work Plan (Shrader and Hill 2022). Preliminary results show a positive response to the lead net (Figure 13); however, complete study reports will not be available until July 1, 2023.

Shoreline and Watershed Protection Standards

ZoE 1-3, Lake Billy Chinook, Lake Simtustus, Reregulating Reservoir: Criterion E-2

E	2	<u>Agency Recommendation:</u> • Provide copies or links to any agency recommendations or management plans that are in effect related to protection, mitigation, or enhancement of shoreline surrounding the facility in the designated ZoE (e.g., Shoreline Management Plans). • Provide documentation that the facility is in full compliance with applicable agency recommendations or management plans.

***Required regardless of standard selected*:**

1. **Describe land use and land cover around the facility. Describe any protections afforded the river or lands around the facility (e.g., Wild and Scenic River, conservation lands surrounding the impoundment: state or local regulatory restrictions: critical or core habitats for sensitive species, etc.)**

The shoreline areas of the Project reservoirs encompass areas owned or managed by a variety of jurisdictions, including federal, Tribal, state, local, and private entities. Major land managers are the CTWS, USFS, BLM, OPRD and the Licensees. In addition, privately developed recreation facilities exist in the Three Rivers development area adjacent to Lake Billy Chinook and Lake Simtustus Resort adjacent to Lake Simtustus. Land uses include recreation (camping, day-use, marina, and hiking), conservation, rangeland, commercial enterprises, vacation homes and residential homes. The lake is within canyonlands largely composed of basalt, welded tuff, talus slopes, and porous soils. The shorelines include riparian, grassland, and shrub-steppe vegetation, where suitable soils occur.

Much of the area is designated by Jefferson County as big game winter range for mule deer and elk, affording state and local protections around development, land use and seasonal vehicle use within a Travel Management Area TMA). CTWS lands are governed by the Tribes' Integrated Resource Management Plans. Licensee-owned conservation lands are governed by the TRMP, for the purpose of protecting and enhancing terrestrial resources and sensitive habitats. Federal lands are governed by the Crooked River National Grassland Forest Plan, Deschutes Forest Plan and Two Rivers Resource Management Plan. The reservoirs include important nesting habitat for bald eagles, golden eagles, peregrine falcons, prairie falcons, and osprey. The Licensees have nest site management plans and institute seasonal disturbance buffers for sensitive nests located on Project lands. Additionally, PGE's company-wide Avian Protection Plan provides additional protections around all Project facilities and infrastructure.

- **Provide copies or links to any agency recommendations or management plans that are in effect related to protection, mitigation, or enhancement of shoreline surrounding the facility in the designated ZoE (e.g., Shoreline Management Plans).**

- **Provide documentation that the facility is in full compliance with applicable agency recommendations or management plans.**

Terrestrial Resources Management Plan

In accordance with the Settlement Agreement and FERC License Article 422, the Terrestrial Resources Management Plan (TRMP) for the Project, which was developed in consultation with the Terrestrial Resources Working Group (TRWG), is now being implemented. Implementation of the TRMP serves as the basis for mitigation and enhancements to reduce or eliminate the continuing effects of Project operations on terrestrial resources during the license term. The

TRMP applies to all undeveloped lands currently inside the FERC boundary, totaling nearly 11,000 acres. This includes Project reservoirs and shorelines, the Licensee-owned Metolius mule deer winter range lands and the Trout Creek Ranch property. The TRMP also directs the Licensees to conduct specific habitat improvement projects on federal/state lands. Implementation of the TRMP is done in consultation with the TRWG. The TRMP includes the following resource management strategies for implementing specific PME measures:

- Riparian and wetland restoration and protection strategy
- Vegetation management strategy
- Exotic and invasive vegetation management strategy
- Comprehensive bald eagle management strategy
- Raptor protection strategy
- Threatened, endangered, and sensitive species and habitats of special concern protection strategy
- Wildlife control strategy
- Travel and access management strategy
- Public access strategy
- Pelton fish ladder wildlife protection strategy
- Wildlife monitoring strategy

Additional terrestrial resource protection measures include funding for the ODFW mule deer winter range telemetry study. In addition, the TRMP lists construction standards and best management practices (BMPs) for minimizing or mitigating the impacts of Project-related construction activities on terrestrial and aquatic resources. In association with the construction standards and BMPs, the Licensees have implemented a "worker environmental program" for Project employees, as well as employees of contractors and subcontractors engaged in work or operations at the Project.

Compliance

- Work Plans: Implementation of the TRMP is ongoing, in accordance with the TRMP Implementation Schedule and Annual Work Plans, developed in consultation with the TRWG and filed with FERC in the TRMP Annual Report. The Draft Out-Year Work Plan for 2023 was filed with FERC on April 20, 2022.
- Reporting: Following 30-day consultation with the TRWG, an annual report summarizing the previous year's implementation activities and monitoring results, as well as Final Current Year and Draft Year-Out Annual Work Plans is due to FERC by June 1. The Terrestrial Resources Management Plan 2021 Annual Report was filed with FERC on April 20, 2022 (2021 Terrestrial Resources Management Plan (TRMP) Annual Report). The 2019-2021 TRMP rolling three-year annual report was filed on May 7, 2020.
- Five-Year Review: 2022 marks the 16th year of TRMP implementation and the third required five-year review of the TRMP. The review serves as a mechanism for ensuring

resource objectives are met. The review and revised TRMP, to be completed in consultation with the TRWG, is due to be filed with FERC by December 31, 2022. (2018 Update of Terrestrial Resources Management Plan (TRMP))

Shoreline Erosion Plan

In accordance with the Settlement Agreement and FERC License Article 429, the SEP was developed in consultation with the SMWG and is now being implemented. The SEP serves as the basis for implementing measures to monitor and control stream and impoundment shoreline erosion at the Project. The plan discusses the conditions and probable causes of, as well as potential measures for, shoreline erosion and provides for implementation by the Licensees of the following measures:

- Conducting a baseline survey of the Project area to identify, map, and assess existing erosion sites.
- Implementing erosion rehabilitation measures at numerous existing erosion sites identified during the baseline survey within three years of license issuance.
- Conducting a biennial survey of the Project area to monitor existing erosion sites and identify and map any new Project-related erosion sites.
- Conducting an erosion survey following (i) any event at the Round Butte development where the outflow exceeds inflow by more than the maximum turbine flow, (ii) any drawdown of Lake Simtustus resulting in seven or more feet of reservoir elevation change in a 24-hour period, or (iii) other events that could rapidly change the shoreline condition.
- Developing, in consultation with the appropriate agencies and the SMWG, site-specific measures to deal with Project-related erosion sites significantly affecting terrestrial habitats, fish habitats, water quality, cultural resources, or causing or likely to cause significant loss of shoreline on CTWS Reservation land. Preference is to be given to "soft" erosion control techniques including, bioengineering, planting and seeding of appropriate native riparian species, sediment replenishment, or anchored woody debris, but may, when necessary, utilize "hard" erosion control, including use of geotextiles, rock armoring, or other hard surfaces.

Compliance

- Surveys: Biennial surveys are conducted during low pool conditions during even years. The most recent survey was conducted in February 2022. Survey results are reviewed with the SMWG during the annual meeting (Shoreline Erosion Plan)
- Reporting: Following 30-day consultation with the SMWG, a report summarizing the previous two shoreline erosion surveys is due to FERC every fifth year, by June 1, beginning in 2012 and continuing for the life of the license. The last monitoring report

was filed with FERC on May 23, 2018. The monitoring report for 2020 and 2022 was filed with FERC on May 25, 2022 (2022 Shoreline Erosion Plan Annual Report).

Shoreline Management Plan

In accordance with the Settlement Agreement and license, the Licensees developed a Shoreline Management Plan (SMP) in consultation with the Shoreline Management Working Group (SMWG) to address new development and resource protection on the shorelines of Lake Billy Chinook and Lake Simtustus. The SMP has been integrated with other plans, such as recreation and terrestrial resources management plans, to comprehensively address long-term issues.

The goals of the SMP are to manage shoreline structures within the Project Boundary to:

- Protect public health and safety
- Manage the lands and waters associated with the Project in a manner that assures safe and reliable Project operations and protects environmental values
- Provide an accurate inventory of existing uses and development on Project reservoirs
- Provide consistent and coordinated management of new development on Project reservoirs
- Provide consistency with new Project license requirements related to shoreline erosion control, enhancement of shoreline habitat and vegetation, protection of cultural resources and control of in-water structures
- Provide a management tool to evaluate proposed shoreline actions in a manner that is consistent across multiple ownership, jurisdictional, and management boundaries and treats all classes of owners in a consistent manner
- Recognize existing uses of the shoreline and achieve a balance of the interests of the Licensees and private and commercial property owners and recreational users

Compliance

Table 12 shows the history of the Shoreline Management Plan:

Table 12. History of the Shoreline Management Plan

DATE OF EVENT	DESCRIPTION OF EVENT
June 8, 2006	Article 428 required Licensees to file SMP with FERC.
July 3, 2006	FERC issued public notice of filing and invited public comments until August 31, 2006.

October 2, 2006	Licensees requested that the SMP that was filed to be withdrawn to provide further consultation with the public. They also requested an extension to file by July 15, 2007.
October 12, 2006	FERC approved the withdrawal and extension.
March 7, 2007 – May 15, 2007	SMWG held five meetings and revised the SMP.
July 11, 2007	Revised SMP filed with FERC.
January 27, 2009	FERC approved the SMP with modifications and ordered the Licensees to make specific revisions and refile by October 27, 2009.
September 9, 2009	Revised SMP was filed with FERC.
February 15, 2011	FERC approved revised SMP.
January 27, 2015	SMP Six-Year Review filed with FERC.
June 18, 2015	FERC approved SMP Six-Year Review.
January 26, 2021	Licensees requested extension from FERC to file SMP Six-Year Review
February 3, 2021	FERC approved requested extension to file SMP Six-Year Review.
January 27, 2022	SMP Six-Year Review filed with FERC.

Shoreline Management Working Group

The Shoreline Management Working Group (SMWG) was created due to the many separate jurisdictions that manage the shoreline within the FERC Project boundary, all with varying regulatory processes. This group is an avenue for the various shoreline owners to work together to achieve the goals of the SMP. The SMWG includes the Joint Licensees, representatives of private shoreline property owners, Oregon Department of Parks & Recreation (OPRD), the United States Forest Service (USFS), Jefferson County, Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), and the Oregon Department of Fish and Wildlife (ODFW). The Licensees conduct an annual meeting with the SMWG, typically in late summer or fall, to discuss permit applications, annual survey results, safety violations, and other SMP related topics.

Structure Monitoring and Compliance

PGE staff conduct annual surveys, via boat, of all permitted structures to confirm their compliance with the SMP. PGE staff assess any safety violations, as well as any unpermitted construction or new structures. PGE started conducting annual drone survey flights in order to take photographs of all permitted structures in 2020, to support ongoing monitoring efforts. The Joint Licensees have the responsibility to enforce any non-compliance or safety violations related to all permitted structures.

Six-Year Review

In 2009, FERC made it a requirement for the Joint Licensees to conduct a formal review of the SMP program every six years, beginning January 2015. The review is to evaluate the effectiveness of the SMP in achieving its prescribed goals, particularly regarding resource

protection permitting, monitoring and enforcement, and coordination with other jurisdictional agencies. The report must also include descriptions of (1) the review process; (2) the information and issues considered during the review; (3) the entities who participated in the review; and (4) the results of the process, including any proposed revisions in the SMP. The report is to be prepared in consultation with the SMWG.

Revising the Shoreline Management Plan

The Six-Year Review, filed with FERC in 2015, yielded no suggested revisions to the SMP. The Six-Year Review, filed with FERC on January 27, 2022, communicated the SMWG is working in consultation on proposed revisions to the SMP.

The SMWG intends to continue to meet monthly in 2022 until the Joint Licensees file the proposed revisions of the SMP with FERC. The initial deadline to file the proposed revisions with FERC was October 31, 2022, but a request for an extension has been requested. The new date by which the revised SMP is to be filed, is January 31, 2023.

Relevant Resources

Pelton Round Butte Hydropower License: Article 428 – Shoreline Management Plan

PGE Shoreline website: Public website that describes the reasoning behind the development of the SMP, shares the goals of the SMP, provides a link to the SMP, and provides documents/links for shoreline owners to apply for construction permits.

Tribal Resource Management Plans

The Confederated Tribes of Warm Springs have developed two Integrated Resource Management Plans (IRMPs) that pertain to natural resource issues on the Warm Springs Reservation, including those within the Project area. Pursuant to the Settlement Agreement, the Licensees have agreed to comply with the IRMPs before undertaking any ground-disturbing activities on Tribal land.

The IRMP I provides management direction for the use and/or protection of the natural resources within the forested area of the Reservation. It establishes an integrated approach to project planning and provides management direction for approximately 398,466 acres of forested Tribal land. The management direction in IRMP I provides for a system of riparian buffers, the practice of leaving snags and live trees after harvest, erosion control, and transportation system management.

IRMP II pertains to non-forested and rural lands. It addresses numerous resource issues, including the designation of Extensive Management Zones, management of woodlands outside of commercial forestry areas, uplands management, riparian management, transportation system management, and measures to protect, enhance, and reintroduce threatened or

endangered species. IRMP II recommends average road density guidelines that reduce road densities in riparian and wetland zones, reducing the number of roads in non-forested areas, and reducing impacts through road closures, culvert placement, and revegetation of cutbanks.

The IRMPs can be found here.

Law Enforcement Plan

In accordance with the Settlement Agreement and FERC License, Article 404, the Law Enforcement Plan (LEP), was developed in consultation with Jefferson County and is now being implemented. The plan provides funding, on an annual basis, to Jefferson County in order to increase law enforcement in the Project area and thereby ensure that certain PME measures implemented pursuant to the terms of the Settlement Agreement are effective.

Under the terms of the law enforcement agreement with Jefferson County, the Licensees provide funding for one full-time land-based patrol officer and two seasonal marine patrol officers to patrol all campgrounds, developed recreation sites and dispersed recreation areas within the Project. Responsibilities of the full-time officer also focus on enforcing compliance with the relevant provisions of the TRMP on Project lands. This includes enforcing seasonal and permanent road closures, unauthorized all-terrain vehicle use, eagle nest site closures, big game winter range protections, prohibited dispersed camping, shooting ordinances, wildlife harassment, and game poaching.

Compliance

The Jefferson County law enforcement positions remain fully funded. Coordination with law enforcement officers occurs during an annual law enforcement meeting with Jefferson County and throughout the year, as needed, when enforcement priorities change, or new enforcement issues arise.

The FERC annual reporting requirement was discontinued by FERC in October 2012, following consultation the Project's Fish Committee, the Shoreline Management Working Group, the Pelton Round Butte Fund Governing Board, the Jefferson County sheriff, and the Coordinating Committee. The annual law enforcement meeting was expanded to include the TRWG, CRWG, and RRWG members.

The LEP can be found here.

ZoE 4, Lower Deschutes River at USGS Madras stream gage 14092500: Criterion E-3

E	3	<u>Enforceable Protection:</u> • Demonstrate that there is an approved and enforceable shoreline buffer or equivalent watershed protection plan (including state or local regulations) in place for conservation purposes, including buffered shoreline along river corridors; or • In lieu of an existing shore land protection plan, provide documentation that the facility has protected or commits to protect and not develop an equivalent land area for conservation purposes as a condition of LIHI Certification, with such commitment to be in effect for the duration of LIHI Certification.

***Required regardless of standard selected*:**

1. **Describe land use and land cover around the facility. Describe any protections afforded the river or lands around the facility (e.g., Wild and Scenic River, conservation lands surrounding the impoundment: state or local regulatory restrictions: critical or core habitats for sensitive species, etc.)**

Land between the Reregulating Reservoir and the lower Deschutes River stream gage 14092500 (compliance point) is owned by the Licensees (east bank) and the CTWS (west bank). Land use supports Project facilities and power generation infrastructure, including a substation, transmission infrastructure, Pelton fish ladder, Pelton adult trap, Project control room, offices, and other supporting infrastructure. Other nearby land use includes agriculture and rangeland. The area is within canyonland largely composed of basalt, welded tuff, talus slopes, and porous soils. The shorelines include riparian vegetation and upland areas are largely shrub-steppe, juniper woodlands, and agricultural fields.

The Deschutes River is designated as a Wild and Scenic River from the Regulating Reservoir downstream to its confluence with the Columbia River. CTWS lands are governed by the Tribes' Integrated Resource Management Plans. Licensee-owned lands are governed by the TRMP, for the purposes of mitigation, protection and enhancement of terrestrial resources and sensitive habitats. PGE's company-wide Avian Protection Plan provides additional protections around all Project facilities and infrastructure.

- **Demonstrate that there is an approved and enforceable shoreline buffer or equivalent watershed protection plan (including state or local regulations) in place for conservation purposes, including buffered shoreline along river corridors.**

This ZoE is designated as part of the Wild and Scenic Rivers Designation (Enforceable Protection through WSR Act, 1968)

- Qualifying Designated Reach**:** From the Pelton Reregulating Dam to the confluence with the Columbia River. Designated on October 28, 1988.
- Classification: Recreational – 100 miles
- Managing Agencies: BLM - Prineville District

The Deschutes River provides much of the drainage on the eastern side of the Cascade Range, on its way to its confluence with the Columbia River. The Deschutes was an important resource for thousands of years for Native Americans, as well as in the 19th century for pioneers on the Oregon Trail.

The Deschutes River features ruggedly beautiful scenery, outstanding whitewater boating and a renowned sport fishery for steelhead, brown trout and native rainbow trout. The lower Deschutes River offers the greatest opportunities for whitewater rafting and is one of Oregon's premier steelhead and trout fisheries.

<u>Lower Deschutes Outstandingly Remarkable Values:</u>

Botany
The variety of plant communities in the Deschutes River canyon fall into four broad categories; high desert uplands, juniper-big sagebrush, bunchgrasses, and the riparian vegetation along the river, which is dominated by alders.

Cultural - Pre-History

Humans have occupied the Deschutes Canyon area for, at least, 10,000 years. One hundred thirty-five prehistoric sites have been recorded in the lower Deschutes River canyon and it is believed that many others will yet be found. Most common are habitation sites. One of these sites, at Macks Canyon Campground, was excavated by University of Oregon archaeologists in the late 1960s and is now listed on the National Register of Historic Places. Sherars Falls, a point of difficult passage for anadromous fishes, is an important traditional fishing station for Native Americans.

Fisheries

The lower Deschutes River provides extensive spawning and rearing habitat for both resident fish, such as rainbow trout, and anadromous steelhead and Chinook salmon. There is also a regionally unique run of wild sockeye salmon that is sustained by the passage of kokanee smolts at the Pelton Round Butte hydroelectric complex. Runs of anadromous fish sustain an important subsistence fishery for Native Americans.

Geologic

The Deschutes River flows through the Deschutes-Umatilla Plateau, the main part of which slopes northward from 4,000-foot levels in the mountains of central Oregon to a 400-foot elevation along the Columbia River. The rocks are mostly Columbia River basalt, nearly 2,000 feet thick. The lava flows that make up the plateau occurred over millions of years and formed in distinct layers of various thickness.

Historic

Exploration and fur trapping by Euro-Americans began in the Deschutes Canyon in the early 19th century. Other historic activities that have been documented include use of the Oregon Trail, road and railroad construction and settlement. In the Deschutes Canyon, 38 historic sites have been documented, most of them associated with early railroad construction.

Recreation

The lower Deschutes River is central Oregon's playground; an ideal location for outdoor sports, from whitewater paddling and swimming to hiking and biking. The river provides a stable, high-volume flow, available for recreation all year long, and it has been internationally known for its excellent fishery for many years. One hundred river miles offer segments favored for overnight camping and fishing, whitewater adventures, and guided or non-guided fishing trips. Notable activities include following the Lower Deschutes River Back Country Byway along the river to campgrounds at Beavertail and Macks Canyon or the accessible fishing ramp at Blue Hole.

Scenic

The lower Deschutes River canyon contains a diversity of landforms, vegetation, and color. The river, having carved a canyon nearly 2,000 feet deep in many locations out of rugged Columbia River basalt flows, provides a dramatic and diverse landscape. The clear water of the river framed by the green riparian vegetative fringe creates a stark contrast to the often barren and broken reddish and brown cliffs and hillsides of the canyon. While transportation corridors exist (roads and railroads) and occupational and rural development have occurred in several areas, they are overshadowed by the magnitude and beauty of the river and canyon character.

Wildlife

The Deschutes River canyon provides habitat for approximately 300 different species of wildlife. Most of these utilize riparian habitats adjacent to the river. This provides outstanding opportunities for viewing many species of wildlife including songbirds, waterfowl, mink, heron, mule deer and many reptiles, amphibians and other small and large mammals. Notable species are the bald eagle, peregrine falcon, osprey, Dalles sideboard snail and shortface lanx.

Information Source: https://www.rivers.gov/rivers/deschutes.php

Related Management Plans:

Lower Deschutes River Management Plan
Supplement to the Lower Deschutes River Management Plan

ZoE 1, Lake Billy Chinook: Criterion E-PLUS

E	PLUS	Bonus Activities: • Provide documentation that the facility has a formal site-specific conservation plan protecting a buffer zone of 50% or more of the undeveloped shoreline; or • In lieu of a formal conservation plan, provide documentation that the facility has established a watershed enhancement fund for ecological land management that will achieve the equivalent land protection value of an ecologically effective buffer zone of 50% or more around the undeveloped shorelines.

In addition to Lake Billy Chinook meeting Criterion E-2, this ZoE meets the E-Plus Criterion as demonstrated below.

- **Provide documentation that the facility has a formal site-specific conservation plan protecting a buffer zone of 50% or more of the undeveloped shoreline; or**
- **In lieu of a formal conservation plan, provide documentation that the facility has established a watershed enhancement fund for ecological land management that will achieve the equivalent land protection value of an ecologically effective buffer zone of 50% or more around the undeveloped shorelines.**

The facility does not have a formal site-specific conservation plan protecting a buffer zone of 50% or more of the undeveloped shoreline. However, as identified in the original certification report, the federal, state and tribal ownership of a majority of Project lands, including those along the shoreline, combined with the numerous Project resource management plans, provide significant natural resource protection. In addition, we have established watershed enhancement funds, as described below.

Pelton Round Butte Fund

The Project has established a watershed enhancement fund for ecological land management that will achieve the equivalent land protection value of an ecologically effective buffer zone of 50% or more around the undeveloped shorelines. The Pelton Round Butte Fund has two funds: the General Fund and the Water Rights Fund. Contributions from these funds will be made over

the term of the license and will total $11.5 million for the General Fund and $11 million for the Water Rights Fund, in 2003 dollars. As described in Exhibit H to the Settlement Agreement, the fund includes provisions for escalation and interest accumulation. As of December 31, 2021, $23,576,459.00 ($9,231,288.00/Water Fund and $14,345,171.00/General Fund) has been awarded to over 40 General Fund projects and 22 Water Fund projects that enhance riparian and riverine systems and for acquisition of land, water, and water rights. This is the cumulative total of expenditures since 2005.

Project proposals are submitted and requests for funding are reviewed by a Technical Review Team (TRT). The TRT conducts site visits and then scores each project using an evaluation matrix. Results of the technical review by members of the TRT informed the evaluation matrix, previously approved by the Governing Board (see Table *11*) and assist the Licensees in ranking proposals based on their technical merits. The TRT makes their recommendations about which projects should be funded, and to what extent, to the Governing Board at their annual meeting.

The Governing Board is comprised of eleven signatories of Settlement Agreement, including one representative or designee from each of the agencies/organizations listed in Table 11. Applicants are then notified whether or not their project will be funded and, if applicable, how much funding they will receive. Conditions of the funding contract between successful applicants and the Licensee include semi-annual reporting of project status and submission of a final report upon completion of the project. In addition, an annual report of Pelton Round Butte Fund activity is filed with FERC by June 1 of each year. In 2021, a report covering 2020 and 2021 was filed since there was little to no activity to report in 2020, as a result of extreme wildfires and Covid restrictions. Further details may be found in the Pelton Round Butte General Fund and Water Rights Fund 2020/2021 Report.

Table 13. Representatives/designees who serve on the Pelton Round Butte Fund Governing Board.

Licensees – one representative collectively
Confederated Tribes of the Warm Springs – Branch of Natural Resources (CTWS-BNR)
Confederated Tribes of the Warm Springs – Water Control Board (CTWS-WCB)
U.S. Fish and Wildlife Service (USFWS)
National Marine Fisheries Service (NMFS)
Bureau of Indian Affairs (BIA)
U.S. Forest Service (USFS) and Bureau of Land Management (BLM) – one representative collectively
Non-governmental Organization (NGO) – one representative collectively
Oregon Department of Fish and Wildlife (ODFW)
Oregon Department of Environmental Quality (ODEQ)
Oregon Water Resources Department (OWRD)

General Fund

The General Fund is administered by an eleven-member Governing Board consisting of representatives of the Licensees and parties to the Settlement Agreement. Resource projects

funded by the Pelton Round Butte Fund will be located in the Deschutes River basin, including the middle and lower Deschutes River, the Crooked River, the Metolius River, and any tributaries to those river segments, and may include:

- *Land acquisition or lease of riparian, wetlands, and uplands* — Funds may be used for locating appropriate parcels, purchase costs, purchase and title expenses, surveying, and ongoing restoration, monitoring, and management for the life of the new license.
- *Water rights acquisition or lease* — Funds may be used for locating appropriate rights, purchase/lease costs, purchase and title expenses, and ongoing monitoring.
- *Water conservation* — Funds may be used for conservation projects that yield legally protected instream water rights.
- *Conservation easements* — Funds may be used for locating appropriate parcels, establishment of easements, surveying, and ongoing restoration, monitoring and enforcement.
- *Construction of fish passage facilities and removal of fish passage barriers* — Funds may be used for private, non-federal dam and diversion removal, construction or improvement of fish passage facilities and screens, including planning, design, and effectiveness monitoring (but not for improvement or removal of barriers at other FERC-licensed projects).
- *Instream habitat improvements* — Funds may be used for projects that improve or enhance fish habitat such as cover, pool and riffle structure, spawning beds, and water quality, including planning, design, and effectiveness monitoring.
- *Riparian and wetland protection and enhancement* — Funds may be used to protect riparian corridors and wetlands from grazing, provide for native species plantings, non-native plant species management, and erosion control, including planning, design, and effectiveness monitoring.
- *Off-Project recreation impacts* — Funds may be used to protect and restore riparian corridors, wetlands, and spawning and rearing habitats that are adversely impacted by off-Project recreation use. Such projects may include planning, design, and effectiveness monitoring.

Applications for funding are evaluated against the following three priorities, as well as considerations regarding whether it provides a measurable positive cost-benefit compared to similar activities and that it provided benefits at least for the life of the license, or in the case of water rights, for at least the length of the license.

1. Proposed project is upstream of the Project and supports the anadromous reintroduction program by helping to achieve a self-sustaining Chinook salmon population and a sustainable salmon harvest.
2. Proposed Project is in the lower Deschutes River mainstem and tributaries increase the likelihood of adult and juvenile salmonid survival as the fish pass through the Project to and from the upper basin.
3. Proposed Project enhances existing and reintroduced populations of resident and anadromous fish and terrestrial wildlife above or below the Project.

Water Rights Fund

The Water Rights Fund is administered by the Licensees, in consultation with the appropriate resource agencies. The Water Rights Fund is used to acquire or lease instream water rights, or participate in water conservation projects, each of which would result in instream flows that benefit aquatic habitat. Water rights acquisitions must go instream at times and locations that improve aquatic habitat beyond existing conditions and must result in a net benefit to aquatic resources.

All projects funded by the Pelton Round Butte Fund will be located in the Deschutes River basin, including the middle and lower Deschutes River, the Crooked River, the Metolius River, and any tributaries to those river segments. All projects must be consistent with Federal, State, and Tribal laws and policies in effect at the time the project is proposed.

Threatened and Endangered Species

***Required regardless of standard selected*:**

1. **Identify all federal and state listed species (fish, aquatic plants and organisms, and terrestrial plants and wildlife) in the facility area based on current data. Avoid using privileged locational information or provide that information in a separate confidential attachment.**

A current and complete list of threatened and endangered species known to occur or potentially occurring within the facility area, as well as their listing status and source, is in Table 14 below. This list includes federally listed as threatened or endangered by the USFWS (IPaC 2022); plant species listed as threatened or endangered by Oregon Department of Agriculture (Oregon Biodiversity Information Center 2022); and animal species listed as threatened or endangered by the Oregon Department of Fish and Wildlife (Email 05-09-2022). The ODFW list contains a list of Oregon Conservation Strategy species, none of which are listed as threatened or endangered in Oregon (https://www.oregonconservationstrategy.org/ocs-strategy-species/).

The Oregon Department of Agriculture uses a multistep process to determine if surveys and consultation are required for plants listed as threatened or endangered (https://www.oregon.gov/oda/programs/PlantConservation/PermitsConsultations/Pages/ConsultationProcess.aspx). No listed plants are known to occur in Jefferson County, Oregon (https://www.oregon.gov/oda/programs/PlantConservation/Pages/ListedPlants.aspx). Federal and State listed threatened and endangered species known to occur or potentially occurring within the Project boundary are individually discussed below.

ZoE 1, 2, 3 and 4: Lake Billy Chinook, Lake Simtustus, Reregulating Reservoir and lower Deschutes River at USFS Madras stream gage 14092500: Criterion F-3.

Criterion	***Standard***	***Instructions***
F	3	Recovery Planning and Action: • If listed species are present, document that the facility is in compliance with relevant conditions in the species recovery plans, incidental take permits or statements, biological opinions, habitat conservation plans, or similar government documents. • Document that any incidental take permits and/or biological opinions currently in effect were designed as long-term solutions for protection of listed species in the facility area.

Recovery Planning and Action:

- **If listed species are present, document that the facility is in compliance with relevant conditions in the species recovery plans, incidental take permits or statements, biological opinions, habitat conservation plans, or similar government documents.**

- **Document that any incidental take permits and/or biological opinions currently in effect were designed as long-term solutions for protection of listed species in the facility area.**

Table 14. Federal and State of Oregon listed threatened and endangered species occurring or potentially occurring within the Pelton Round Butte FERC boundary.

Common Name	Scientific Name	Status	Source
Bull Trout	*Salvelinus confluentus*	Federally Threatened	IPaC
Steelhead - MCR summer run	*Oncorhynchus mykiss* pop. 28	Federally Threatened	ORBIC
Gray Wolf	*Canis lupus*	Federally Endangered[1]	ODFW

[1] Federally relisted as endangered west of Highways 395, 78 and 95 on February 10, 2022.

Steelhead – Middle Columbia River:

The steelhead in the lower Deschutes River are part of the Mid-Columbia River (MCR) steelhead Evolutionarily Significant Unit (ESU). The MCR steelhead ESU was listed as

threatened on March 25, 1999. In 2005, NOAA Fisheries added to this ESU over 100 hatchery populations and resident populations of *O. mykiss*, including the Round Butte Hatchery population, based on NOAA Fisheries' determination that the hatchery population is genetically no more than moderately divergent from the natural populations. In 2013, NOAA designated the steelhead population upstream of Round Butte dam as a non-essential experimental population under the 10j rule of the Endangered Species Act (ESA).

The project was issued a Biological Opinion in November 2004, including incidental take statement and reasonable and prudent measures, through ESA Section 7 consultations with FERC in the course of the relicensing of the project. Since the SWW started operations in December 2009, there have been a total of 1,025 steelhead trout mortalities, out of 98,643 steelhead captured. Two steelhead mortalities have occurred at the Pelton Adult Trap, where 619 steelhead trout have been captured since 2010. This is well below the incidental take statement in the BiOp, which allows for injury and mortality rates up to 8% annually for the juvenile fish facilities, and one percent or less for adult steelhead. PGE promptly reports all steelhead mortalities to NOAA fisheries within six hours of discovery.

Bull Trout:

Bull trout (*Salvelinus confluentus*) became federally listed as a threatened species throughout Oregon in 1998. Five distinct populations of bull trout have been identified in the Deschutes River basin, including three in the Metolius River basin, upstream of the Project, and two in tributaries to the lower Deschutes River, downstream of the Project.

The project was issued a Biological Opinion in November 2004, including incidental take statement and reasonable and prudent measures, through ESA Section 7 consultations with FERC in the course of the relicensing of the project. Since the SWW started operations in December 2009 there have been a total of 94 bull trout mortalities, out of 8,394 bull trout captured. Zero bull trout mortalities have occurred at the Pelton Adult Trap, where 262 bull trout have been captured since 2010. This is well below the incidental take statement in the BiOp which allows for injury and mortality rates up to 8% annually for the juvenile fish facilities and one percent or less for adult bull trout. PGE promptly reports all bull trout mortalities to USFWS within six hours of discovery.

In addition, ongoing cooperative research, protective regulations, and habitat protection and enhancement since the mid-1980s have enabled the bull trout population in Lake Billy Chinook to recover from previously low levels, and Lake Billy Chinook currently supports a healthy bull trout population and popular bull trout fishery. Even with the federal listing of bull trout as a threatened species, the USFWS is allowing a consumptive fishery in Lake Billy Chinook to continue under supervision of ODFW because of the overwhelming evidence that this population is robust and productive. Additionally, bull trout from the Metolius basin have been used as donor stock for an experimental reintroduction in the Clackamas basin.

Gray Wolf:

Gray wolves (*Canis lupus*) were federally relisted as endangered west of highways 395, 78 and 95 in Oregon on February 10, 2022. Although there is no known established wolf pack and den

site occurring on or near Project lands, there is a new Area of Known Wolf Activity (AKWA) that includes Project habitat lands within the Metolius wolf use area (Figure 14). The Licensees were notified of this development by ODFW during a TRWG meeting on July 6, 2022. For this reason, the Licensees will be asking USFWS for a *Not Likely to Adversely Affect* concurrence during consultation planned for 2023. Federal and state databases do not yet reflect this new AKWA; therefore, the species does not occur on the IPaC, ORBIC or ODFW lists, but is included in Table 14.

The Gray wolf is a keystone predator and habitat generalist that requires large, natural ecosystems and population connectivity. Specific threats to this species include human-caused mortality (trapping, shooting, poisoning, etc.), reduction in prey (ungulate herd) populations, human disturbance, and habitat fragmentation and loss. There are several measures in the *Terrestrial Resources Management Plan (TRMP)* that protect against these threats. Specifically, provisions in the: *Threatened, Endangered, and Sensitive Species and Habitats of Special Concern Strategy*; *Travel and Access Management Strategy* which permanently closes Project habitat lands to off-road vehicle use in addition to permanent and seasonal road closures which protect sensitive habitats and wintering ungulate herds; *Vegetation Management Strategy* which protects and enhances upland habitats to promote plant and wildlife habitat diversity; *Exotic and Invasive Management Strategy* to maintain or improve habitat function and landscape resilience; *Wildlife Monitoring and Special Habitat Projects Strategy* which includes maintaining ten wildlife guzzlers on the Metolius Mule Deer Winter Range (MMDWR) and funding to monitor trends in the Metolius mule deer herd population; *Public Access Strategy* which limits public access to Project habitat lands within the MMDWR to non-ORV day use and prohibits camping and campfires; and *Worker Environmental Awareness Program* and *Best Management Practices* to educate Project personnel and contractors on ways to avoid and minimize Project-related impacts to wildlife and habitats, including TES species. The *TRMP* also defines the goals and desired condition of all lands within the Project boundary, which are unique to each Management Unit's resources, to achieve an optimal mosaic landscape of plant communities to benefit wildlife. These protections make it unlikely that gray wolves would be negatively impacted by the Project.

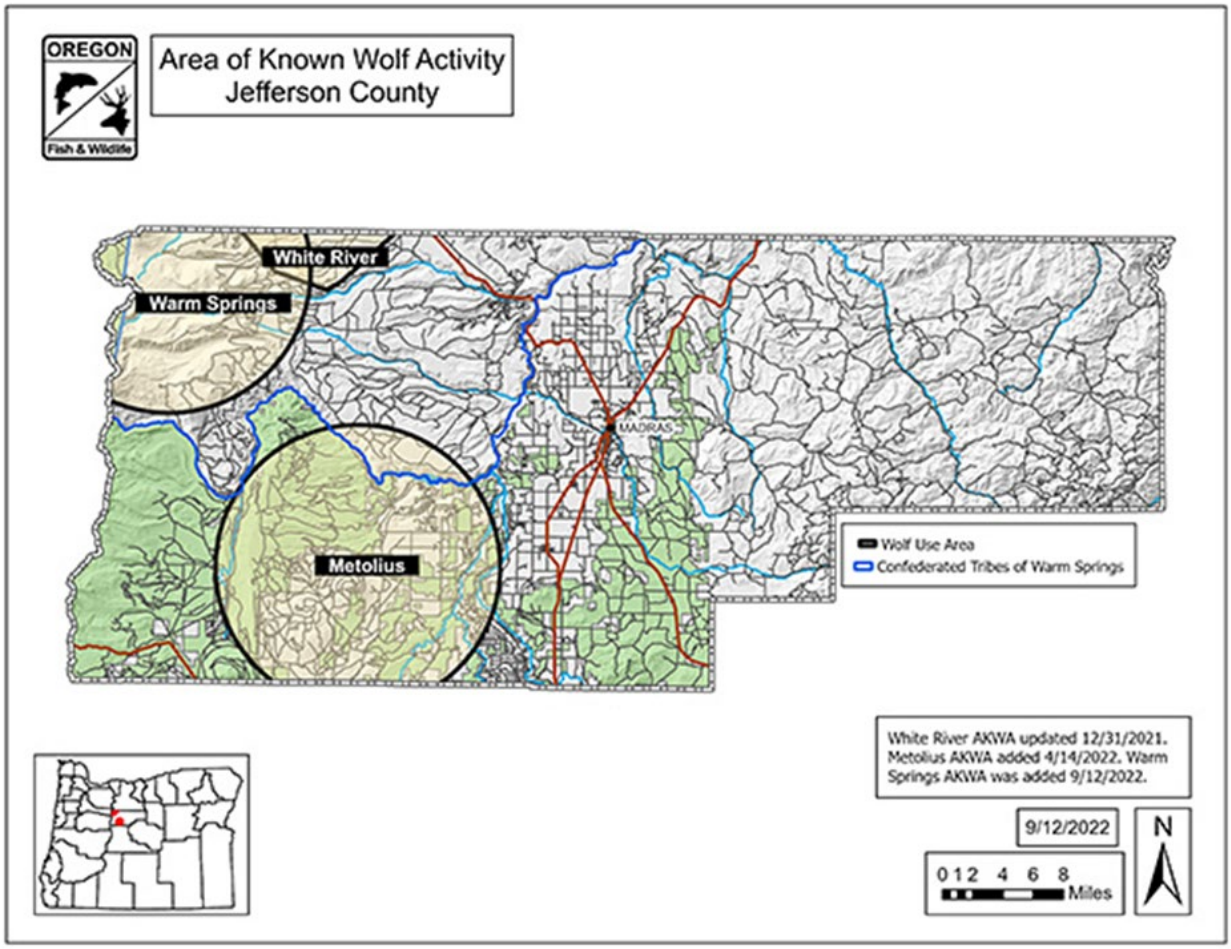

Figure 14. Areas of Known Wolf Activity in Jefferson County, Oregon, September 12, 2022.

Cultural and Historic Resources

ZoE 1-4, Lake Billy Chinook, Lake Simtustus, Reregulating Reservoir and Lower Deschutes River at USGS Madras stream gage 14092500: Criterion G-2

Criterion	*Standard*	*Instructions*
G	2	Approved Plan: • Provide documentation of all approved state, federal, and recognized tribal plans for the protection, enhancement, and mitigation of impacts to cultural and historic resources affected by the facility. • Document that the facility is in compliance with all such plans.

- **Provide documentation of all approved state, provincial, federal, and recognized tribal plans for the protection, enhancement, and mitigation of impacts to cultural and historic resources affected by the facility**.

The management of cultural resources, including archaeological, historic, and traditional use sites within the Project area is the responsibility of federal, Tribal, and state agencies and PGE. The cultural resources associated with the Pelton Round Butte Hydroelectric Project include the historic structures such as the powerhouses, dam, fish ladder, and other features that are over 50 years old, as defined by the Manual for Built Resources (MBR). Other cultural resources within the Project boundary include a defined list of archaeological sites that are monitored annually for impacts and any Traditional Cultural Property of significance to the Tribes. Management is governed by governed by the Programmatic Agreement (PA), which is stipulated in the Project license, under Article 432, and the Cultural Resources Management Plan (CRMP), which is Exhibit J of the Settlement Agreement.

The CRMP was submitted to FERC, on July 30, 2004, and approved by FERC on November 8, 2004. A link to the FERC correspondence to the Licensees implementing the CRMP is below. The Oregon State Historic Preservation Officer and the Commission's Office of Energy Project executed the PA on November 8, 2004. Article 432 of the license, as well as Exhibit J of the Settlement Agreement, establishes the requirements and guidelines for PGE to implement the PA and CRMP for the Project.

Pursuant to the CRMP, a Cultural Resources Working Group (CRWG) consisting of members from the State Historic Preservation Office (SHPO), Confederated Tribe of the Warm Springs Reservation, and several local, state and federal agencies meets annually to discuss the progress of implementing the CRMP and reports its decisions to FERC in the cultural resources annual

report. Annual reports for Cultural Resources can be located at the following links: 2021, 2020, 2019, 2018 and 2017.

Also, PGE has developed a MBR in consultation with the SHPO for reviewing impacts from the Project on historic resources. PGE researches and documents every minor or major undertaking and assesses its impact on documented cultural resources in the area.

- **Document that the facility is in compliance with all such plans.**

PGE is in compliance with all FERC requirements for management of cultural resources at the Pelton Round Butte Hydroelectric Project and files an annual report by June 1st of each year documenting any projects that had the potential to impact cultural resources. Following is a link to the Agreement Implementing the Cultural Resource Management Plan for the relicensing of the Pelton Round Butte project:

Recreational Resources

Required regardless of standard selected:

1. **Identify and briefly describe all recreational amenities associated with the facility, identify which are owned by the facility, and which not owned or operated by the facility.**

   A description of all recreational amenities associated with the facility can be found between page 3 – 10 in the Recreation Resources Implementation Plan (RRIP). A breakdown of which entity is responsible for each recreational amenity is included.

2. **If there has been a FERC Environmental and Recreation Inspection, please provide a link to or copy of the report and any follow-up activities. If there was no inspection, please state that.**

   There was no inspection.

3. **Provide representative photos of recreational facilities and amenities taken within the last twelve months and a map showing locations.**

   Below (Figure 15) is a map showing the recreation sites managed as part of the Round Butte Development, sites numbered 9 – 14. (Sites numbered 1 – 7 are managed by PGE's Clackamas River Hydroelectric Project, FERC No. 2195.)

Figure 15. Map showing recreation sites managed as part of the Pelton Round Butte Development (numbers 9-14). Sites numbered 1-7 are managed as part of the Clackamas River Hydroelectric Project No. 2195.

Zone of Effect	***Number on Map***	***Name of Facility***	***Figure Number***
Reregulating Reservoir	9	Pelton Wildlife Overlook	Figure 16
Lake Simtustus	10	Pelton Park	Figure 17
Lake Billy Chinook	11	Round Butte Overlook Park	Figure 18
Lake Billy Chinook	12	Balancing Rocks Overlook	Figure 19
Lake Billy Chinook	13	Perry South Campground	Figure 20
Lake Billy Chinook	14	Monty Campground	Figure 21

Figure 16. Picnic table and overlook at Pelton Wildlife Overlook (indicated as #9 on map that is Figure 15).

Figure 17. The entrance to Pelton Park. A sand volleyball area and playground are behind the sign; campsites are visible in the distance (indicated as #11 on map that is Figure 15).

Figure 18. Round Butte Overlook Park. The building is open to the public and the interior contains interpretive exhibits about area resources (indicated as #12 on map that is Figure 15).

Figure 19. Viewpoint at Balancing Rocks Overlook (indicated as #13 on map that is Figure 15).

Figure 20. Docks and boat launch at Perry South (indicated as #13 on map that is Figure 15).

Figure 21. Typical campsite at Monty Campground (indicated as #14 on map that is Figure 15).

4. **If applicable, provide a weblink to any public website or describe signage informing the public about the facility's recreational amenities.**

PGE Park's home webpage provides links to all our recreational sites within the project. Each link goes to a detailed description of the facility and its associated recreational amenities. Link to PGE Parks web page.

ZoE 1-3, Lake Billy Chinook, Lake Simtustus, Reregulating Reservoir: Criterion H-2

H	2	Agency Recommendation: • Document any resource agency recommendations and any enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility in the designated ZoE is in compliance with all such recommendations and plans.

- **Document any resource agency recommendations and any enforceable recreation plan that is in place for recreational access or accommodations.**

All resource agency recommendations are in the RRIP within the Implementation Schedule between pages 21 – 25.

Recreation resources in the Project area are extensive and varied. The Project itself is one of the most heavily used recreation resources in central Oregon. The Project provides a wide variety ofrecreational activities, including water-based activities such as boating, jet skiing, waterskiing, fishing, and swimming, and land-based activities such as camping, wildlife viewing, hiking, sightseeing, and biking. Recreation opportunities at the Project are provided by both developed facilities, such as campgrounds and day-use sites, and undeveloped sites and use areas, such as dispersed shoreline camping areas with no developed infrastructure. Recreation resources in the Project vicinity are managed by a variety of public, Tribal, and private entities, including the U.S. Bureau of Land Management (BLM), the U.S. Forest Service (USFS), the Oregon Parks and Recreation Department, the Licensees, and other private landowners and recreation providers. Public access to the Project reservoirs is provided without charge, though there maybe user fees for facilities such as USFS campgrounds.

Recreational use at the Project increased significantly during the term of the original license. To ensure that infrastructure and resource protection measures are adequate to meet the existing and anticipated demand for recreational access to the Project through the new license term, the Settlement Agreement provided for, and the subsequent FERC license required, the

Licensees to develop a Recreation Resources Implementation Plan (RRIP) within one year of license issuance to define the Licensees' responsibilities for implementing recreation improvements and monitoring their use over the term of the new license. All aspects of the RRIP were developed inconsultation with federal, state, and Tribal governments. The RRIP was filed on June 21, 2006 and is being implemented by the Licensees.

As contemplated in the Settlement Agreement, the comprehensive recreation improvements provided for in the RRIP are consistent with other resource management plans (as described above under section D, Watershed Protection), without increasing recreation use of Project impoundments. In general, planned measures specified under the RRIP include improving recreational resources at existing recreational sites around the Project, improving accessibility as required by the Americans with Disabilities Act, partially funding operation and maintenance costs at recreational facilities operated by the state, the USFS, and the CTWS, evaluating whether navigational hazards in the reservoirs should be marked or removed, studying the need for improvements in emergency communications, improving annual maintenance at certain dispersed recreation sites,and providing funding for additional law enforcement in the Project area. These obligations are further formalized by a series of articles in the new license. In its Final Environmental Impact Statement for the relicensing of the Project, FERC concluded that these proposed recreational enhancement measures would be beneficial because they would address a backlog of maintenance needs and the RRIP would provide a framework to ensure that public use of the Project's recreational facilities remains consistent with the resource objectives of the resource and land management agencies.

As part of the Settlement Agreement, the Licensees also provide financial support for non-Project recreational facilities that serve as alternative destinations away from the Project. Specifically, the Licensees are contributing funding to the USFS for infrastructure maintenance or improvements at Haystack Reservoir, located approximately 12 miles from the Project, and to the BLM to implement site improvement measures at several BLM-managed recreation sites on the lower Deschutes River. Also, as part of the Settlement Agreement, the Licensees are funding road maintenance activities on Jefferson County and USFS roads affected by Project-generated traffic(including recreation-related traffic).

As noted above and described in more detail in section D (Watershed Protection), potential recreation impacts on other resources, such as wildlife, habitat, and cultural resource sites, will be controlled through the Licensees' law enforcement agreement with Jefferson County, through which funding will be provided for County law enforcement officers to patrol all recreation sites and areas within the Project.

- **Document that the facility in the designated ZoE is in compliance with all such recommendations and plans.**

The Licensees are in compliance with the provisions of the Settlement Agreement pertaining to recreational access, accommodation and facilities. The requirements of the Settlement

Agreement have been incorporated into the terms of the license and the Project has been operating in compliance with those terms. The Licensees are in compliance with the Recreation Resources Implementation Plan (RRIP) by meeting all FERC requirements.

ZoE 4, Compliance Point: Criterion H-1

H	1	Not Applicable / De Minimis Effect: • Document that the facility does not occupy lands or waters in the designated ZoE to which public access can be granted and that the facility does not otherwise impact recreational opportunities in the facility area.

The area around the Project offers a wide range of recreational opportunities and destinations, however, within ZoE 4, the facility does not occupy lands or waters for which public access can be granted due to tribal ownership, Project security and no developed sites or facilities that would require or allow access. Thus, there is no impact to recreational opportunities in this Zone of Effect.

Compliance

Recreation Resources Working Group (RRWG)

The Recreation Resources Working Group (RRWG) was, in part, created due to many separate jurisdictions that manage the recreational facilities within the FERC Project boundary with varying regulatory processes. This group is an avenue for the various recreation providers to work together to achieve the goals of the RRIP. The RRWG includes the Joint Licensees, Oregon Department of Parks & Recreation (OPRD), the United States Forest Service (USFS), Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), and the Oregon Department of Fish and Wildlife (ODFW). The Licensees conduct an annual meeting with the RRWG, typically in the late fall/early winter to discuss measures implemented, as scheduled, in the RRIP, next year's proposals for implementing scheduled recreation management actions, monitoring of completed actions, and other recreation related topics. An annual report is filed with FERC by June 1. The 2021 Recreation Resources Annual Report was filed on May 31, 2022. The 2020 and 2019 Recreation Resources Annual Reports may be accessed via the FERC elibrary.

Appendix A

Agency Letters

From: Lickwar, Peter <peter_lickwar@fws.gov>
Sent: Tuesday, October 4, 2022 2:54 PM
To: Megan Hill <Megan.Hill@pgn.com>; scott.carlon <scott.carlon@noaa.gov>; MOBERLY Erik R ODFW <Erik.R.MOBERLY@odfw.oregon.gov>; Brad Houslet (brad.houslet@ctwsbnr.org) <brad.houslet@ctwsbnr.org>; Lyman Jim (lyman.jim@ctwsbnr.org) <lyman.jim@ctwsbnr.org>
Subject: Peter USFWS re LIHI Support Letters

Hi Megan,

The U.S. Fish and Wildlife Service's Bend Field Office supports LIHI's continued certification of Portland General Electric's (PGE) Pelton Round Butte Hydroelectric Project (Pelton Project) as a low-impact hydropower facility. We have worked closely with PGE's Pelton Project fisheries, water quality, instream flow, wildlife, recreational, and cultural resources staff for many years. Based on our experiences working with PGE, we believe that they meet all eight of the LIHI science-based environmental, cultural and recreational criteria listed below. PGE has appropriately consulted with us on these topics, as well as regarding fish incidents or flow deviations. Please let me know if you have any questions or need additional information.

1) Ecological flow regimes that support healthy habitats
2) Water quality supportive of fish and wildlife resources and human use
3) Safe, timely and effective upstream fish passage
4) Safe, timely and effective downstream fish passage
5) Protection, mitigation and enhancement of the soils, vegetation, and ecosystem functions in the watershed
6) Protection of threatened and endangered species
7) Protection of impacts on cultural and historic resources
8) Recreation access is provided without fee or charge

Peter Lickwar
USFWS, Bend, Oregon
(541) 312-6422 office

From: Scott Carlon - NOAA Federal <scott.carlon@noaa.gov>
Sent: Wednesday, October 12, 2022 3:46 PM
To: Megan Hill <Megan.Hill@pgn.com>
Cc: Lickwar, Peter <peter_lickwar@fws.gov>; MOBERLY Erik R * ODFW <Erik.R.MOBERLY@odfw.oregon.gov>; Justin Yeager - NOAA Federal <justin.yeager@noaa.gov>
Subject: LIHI Certification

Hello Megan,

The National Marine Fisheries Service (NMFS) supports the Pelton Round Butte Hydroelectric Project's (Project) recertification with the Low Impact Hydropower Institute (LIHI). Since about 1996, the Portland General Electric Company (PGE) and the Confederated Tribes of the Warm Springs Reservation (CTWS), co-licensees for the Project, have worked closely and consistently with NMFS on natural resource matters affecting anadromous fish species. We are particularly appreciative of the co-licensees' continued commitment to improve fish passage performance and survival and the maintenance of flow, ramping rates, and water quality downstream of the Project. These ongoing efforts by PGE and CTWS continue to support and promote anadromous fish runs in the Deschutes River basin, including threatened Middle Columbia River steelhead.

Please feel free to contact me if you have any questions or need additional information.

--
Scott J. Carlon
NOAA Fisheries, West Coast Region
Columbia Basin Branch
1201 NE Lloyd Blvd., Ste 1100
Portland, Oregon 97232
ph: 503.231.2379
cell: 971.322.7436
fax: 503.231.2318
www.westcoast.fisheries.noaa.gov [westcoast.fisheries.noaa.gov]

From: FONSECA Marilyn * DEQ <Marilyn.FONSECA@deq.oregon.gov>
Sent: Monday, October 24, 2022 2:16 PM
To: Megan Hill <Megan.Hill@pgn.com>
Cc: ehg@karnopp.com; Brad Houslet <brad.houslet@ctwsbnr.org>; FONSECA Marilyn * DEQ <Marilyn.FONSECA@deq.oregon.gov>; MEHTA Smita * DEQ <Smita.MEHTA@deq.oregon.gov>
Subject: Agency Letters for LIHI

Good afternoon Megan - Oregon Department of Environmental Quality can confirm that the water quality certification for the Pelton Round Butte hydroelectric project is valid, in effect and incorporated into the FERC license. The water quality certification is available at: https://www.oregon.gov/deq/wq/wqpermits/pages/section-401-hydropower.aspx [oregon.gov].

In addition, DEQ regularly participates in the Fish Committee meetings, the Water Quality Work Group and lower Deschutes River Stakeholder Working Group convened by PGE.

Thank you,

Marilyn Fonseca
Oregon Department of Environmental Quality
Northwest Region Water Quality
Marilyn.Fonseca@deq.oregon.gov
Cell: 503-348-9705 (currently teleworking)
Office: 503-229-6804

Oregon
Kate Brown, Governor

Department of Fish and Wildlife
Deschutes Watershed District
61374 Parrell Road
Bend, Oregon 97702
(541) 388-6363

October 25th, 2022

RE: Low Impact Hydropower Institute Letter of Support from ODFW

To: Megan Hill

The Oregon Department of Fish & Wildlife (ODFW) supports the Pelton Round Butte Hydroelectric Project's (Project) recertification with the Low Impact Hydropower Institute (LIHI). Since FERC relicensing of the Project began almost two decades ago, ODFW fisheries, hatchery, wildlife, habitat and hydropower program staff have worked closely with Portland General Electric (PGE) and The Confederate Tribes of Warm Springs (CTWS), co-licensees for the Project, on many issues and solutions regarding natural resources set forth in the FERC License and Anadromous Fish Reintroduction Plan.

PGE has been committed to the adaptive management process and making progress towards fish passage/reintroduction goals even though not all performance targets are currently being met. The Test and Verification Study process has been paramount to adaptive management as it generates vigorous and statistically defensible datasets for testing and improve facilities and programming. ODFW appreciates PGE engagement in the basin and willingness to test and refine advanced technologies, implement science-based adaptive management programs, and support watershed enhancement and restoration funding.

PGE staff have been proactive in consulting with ODFW and members of the Fish Committee especially regarding fish mortality incidents, issues with fish trap/collector operations or deviations from standard operations and procedures.

Please let me know if you have any questions or need additional information.

Sincerely,

Gerald J George

Jerry George
ODFW District Fish Biologist
Deschutes Watershed District

Cc: Erik Moberly, Corey Heath

Appendix B

401 Certification and Related Documentation

Attachment A

FINAL

Clean Water Act §401 Certification

for the

Application for Certification
Pursuant to Section 401 of the
Federal Clean Water Act

Submitted by:

Portland General Electric
and
The Confederated Tribes of Warm Springs Reservation of Oregon

for the

Federal Energy Regulatory Commissions'

RELICENSING OF THE PELTON ROUND BUTTE HYDROELECTRIC PROJECT ON THE DESCHUTES RIVER, JEFFERSON COUNTY, OREGON (FERC No. 2030)

Pursuant to Tribal Ordinances 45 and 80
& Tribal Code Chapters 433 and 479

Prepared by:
Tribal Environmental Office
Natural Resources Department
Warm Springs, Oregon 97761

For:
THE WATER CONTROL BOARD
Confederated Tribes of Warm Springs Reservation of Oregon

June 25, 2002

Clean Water Act § 401 Certification

For Portland General Electric and Confederated Tribes of Warm Springs' Pelton Round Butte Hydroelectric Project on the Deschutes River, Oregon.

Portland General Electric (PGE) and the Confederated Tribes of Warm Springs (Tribes) own and operate the Pelton Round Butte Hydroelectric Project (Project) on the Deschutes River near the City of Madras, Jefferson County, Oregon. The Project is operated under a license issued by the Federal Energy Regulatory Commission (FERC). Because the license expires in the year 2002, PGE and the Tribes (Joint Applicants) on June 25, 2001 applied to FERC for a new major license to continue operating the Project beyond that date (FERC Project No. 2030).

On June 26, 2001, the Joint Applicants applied to the Water Control Board (WCB) of the Confederated Tribes of Warm Springs for water quality certification of the Project pursuant to § 401 of the federal Clean Water Act (CWA) and Tribal Ordinance 80. The Natural Resources Department's Tribal Environmental Office (TEO) has evaluated the application for consistency with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA; Tribal Ordinances 45, 74, 80, and 81; and the specific water quality provisions for the Deschutes River Basin.

The WCB recognizes that the Joint Applicants have worked diligently to address the water quality issues attributed to this Project and that the applicants are willing to bring the Project into full compliance with the water quality standards of both the State of Oregon and the Confederated Tribes of Warm Springs Reservation of Oregon. In addition, the Joint Applicants are willing to adaptively manage the project through the Water Quality Management and Monitoring Plan and are willing to enter into an agreement with the WCB to facilitate future discussions or actions that may be required to keep the Project in compliance through the term of the License. Therefore, the WCB supports the Applicants request for a 50-year license term for the Pelton-Round Butte Hydroelectric project.

Based on the application, public and agency comments, the Evaluation Report and Findings, and other information submitted to the WCB, and pursuant to § 401 of the Clean Water Act and Tribal Ordinances 45, 74, 80 and 81, the WCB conditionally approves the application for certification. The WCB is reasonably assured that compliance with the certification conditions contained herein will maintain the Project consistent with applicable provisions of Sections 301, 302, 303, 306, and 307 of the Clean Water Act, Tribal water quality standards, and other appropriate requirements of Tribal law related to water quality.

In accordance with Tribal Ordinance 81 and Warm Springs Tribal Code Chapter 433, the Joint Applicants, if dissatisfied with the conditions of this certification, may request a hearing before the WCB or a hearings officer designated by the WCB. Such request for a hearing must be made in writing to the Chairman of the Water Control Board within 20 days of the date of mailing of this certification. Any hearing will be conducted pursuant to the rules of the Tribal Council.

This certification is valid for the Joint Applicants only and is not transferable without prior approval of the Tribal Council or its' designated representative, in accordance with Ordinance 81, 433.070 (7).

Certification Conditions

1. Protection of beneficial uses of anadromous fish passage, salmonid spawning, salmonid rearing, and resident fish and aquatic life

Upon FERC's issuance of a new license for the Project, the Joint Applicants shall comply with the following provisions related the Biological Criteria water quality standard and other appropriate requirements of Tribal law:

A. Habitat Improvement Projects

The Joint Applicants will work with private and governmental entities in the Deschutes River Basin to implement cost-effective habitat enhancement and restoration measures to improve the quality of water flowing into, through or below the Project. These measures will include, but not be limited to, the creation of riparian refugia, as well as improvements such as livestock exclusion, placement of large woody debris, planting of grass, shrubs, trees, and the maintenance and creation of wetlands.

The Joint Applicants will expend a minimum of $1.475 million for these measures over the first 5 years of the new license.

Proposed Mitigation Measure	Proposed Expenditure
Improved Riparian Corridor Management	$ 750,000
Community Habitat Education Activities	$ 25,000
Establishment of Reserves and Refugia	$ 700,000
Total	$1,475,000

B. **Long-Term Water Quality Monitoring and Adaptive Management**

The selective water withdrawal facility, to be built as a means to address water quality and fish passage issues, may adversely affect specific water quality parameters such as turbidity and pH. Therefore, the WCB requires a comprehensive water quality monitoring and management plan be implemented to monitor physical, chemical, and biological parameters. Implementation of this plan along with adaptive management will allow rigorous evaluation of progress towards achieving defined measures of success; and utilization of gained knowledge to make necessary modifications through time.

Knowledge gained from the water quality monitoring and management plan will receive broad review from resource managers and the public leading to informed decisions by an Implementation Oversight Committee representing the WCB, DEQ, and the Joint Applicants. The Implementation Oversight Committee will be involved in the administration of the Water Quality Management and Monitoring Plan attached hereto as Appendix A and the Implementation Agreement attached hereto as Appendix B.

The Tribal Council of the Confederated Tribes of Warm Springs has delegated the responsibility and accountability to implement the Policy Statements listed in Tribal Ordinance 80 and 81 to the Water Control Board. Therefore the WCB will be responsible for all decisions requiring the exercise of delegated authority from the Federal Environmental Protection Agency under the Federal Clean Water Act and for implementing Tribal Ordinances 45, 80 and 81.

In the WCB's view the biological criteria also includes consideration of the Project's ongoing impacts on the lower Deschutes River in terms of increased recreational use of the reservoirs, increased development along reservoir shorelines, interception of large woody materials, interception of gravel and finer materials, flow modification (instream flows, ramping rates, and attenuation of flood peaks), disconnection of populations for resident fish species, and prevention of anadromy. This document addresses each of these factors insofar as they affect the support of designated beneficial uses of the lower river as specified by the Tribes in the Reservoirs and the lower Deschutes River. Designated beneficial uses most sensitive to the above-listed impacts include anadromous fish passage, salmonid rearing, salmonid spawning, and resident fish and aquatic life.

The WCB therefore requires the Joint Applicants to implement a long-term monitoring program to address water quality, water quantity, biological parameters and environmental factors related to resource management objectives in the tribal waters affected by the Project. This monitoring program will provide the data necessary to assess whether the Project attains and maintains compliance with the appropriate water quality standards. The information gathered in this program will also be used in the adaptive management of project operations to meet Tribal water quality standards.

The Draft Water Quality Monitoring and Management Plan (Appendix A) will be finalized (including a Quality Assurance and Quality Control Plan) within one year of the date of this Certificate being signed. The Joint Applicants may ask for an extension to this timeframe if this plan cannot be completed due to circumstances beyond their control.

C. Large Wood

The WCB requires all large wood naturally entering the Reservoirs of the Project to be collected and reintroduced below the Project. Mitigation projects to reintroduce large wood back into the lower Deschutes River will be coordinated with all appropriate agencies and approved by the Implementation Oversight Committee. Projects to replace large wood in the lower river will include addition of large wood to the waters in the way of installed structures along the banks to provide for habitat diversity, streambank stability and enhancement of the environment. In addition, some large wood reintroduction projects could be coordinated with normal high flow events to allow the large wood to find its' own *"home"* in the lower river.

Based on the fact that there is a lack of the "ideal quality" of large wood naturally entering the Project due to riparian management activities in the upper watershed, the WCB recommends use of proposed habitat improvement mitigation funds to supplement the large wood naturally entering the reservoirs. Typically this material would be anchored or placed along shorelines or riverbanks to add stability and habitat quality. All applicable licenses, permits and clearances for mitigation or monitoring projects will be obtained prior to any activity taking place in Tribal Waters.

D. Gravel

The reservoirs act as a settling basin not only for gravel-sized sediment but also for finer sand and silt. This may have some adverse effects to the fisheries habitat in the lower river from the Reregulating Dam to the mouth of Shitike Creek. The level of anadromous fish spawning in this area has been documented as being lower over the last 20 years.

As a result, the Joint Applicants will take the following measures with regard to sediment transport and spawning gravel in the Deschutes River downstream of the Project:

1. Verify the sediment transport model developed by Fassnacht (1998) by placing radio- tagged and/or colored rocks on selected bars in the Deschutes River below the Reregulating Dam. Determine at which flow levels these rocks are mobilized by checking their positions after each major flow event. Initiate study at flows greater than 6,500 cfs. As data is collected at this flow level, adjustments can be made to the flow level event that would trigger future data collection needs. Buried columns of colored rocks may be utilized to determine the depth of scour at different flow levels.
2. Resurvey channel cross sections at five locations utilized by Fassnacht (1998). Resurvey these annually for 5 years to determine if there is any active channel change associated with years having high flow events. If no change is detected after 5 years, resurvey them every 5 years, or after events greater than 15,000 cfs.
3. If monitoring sediment transport and channel change shows significant transport and/or change at flows lower than predicted by Fassnacht (1998), initiate a program to measure actual bedload transport at different flow levels at the Warm Springs bridge.
4. If monitoring of channel change and measuring bedload shows significant transport at low levels significantly below those predicted by the geomorphology study, revisit the sites used by McClure (1998) for particle size measurements and replicate these particle surveys.
5. Coordinate and lead a study of historical fish counts and spawning data to determine the cause of anadromous spawning reduction in the Lower Deschutes River from below the Reregulating Dam down to the mouth of Shitike Creek. In addition, the Applicants will conduct a study to determine anadromous gravel habitat quality in the Lower Deschutes River from below the Reregulating Dam down to the mouth of Shitike Creek.

The results of these studies and other appropriate information generated in the FERC re-licensing process will be used to determine if additional mitigation measures (such as gravel augmentation) are necessary to improve habitat quality.

E. Flow Modification

The WCB requires that the Reregulating Reservoir be used to redistribute upstream peaking flows and maintain nearly steady discharge into the Deschutes River, approximately equal to the daily average inflow to Lake Billy Chinook. Project operations will closely mimic inflows (surface and groundwater) so that the project functions as a "run of the river" system under most operational conditions. There will be no more than a 10% variation from Project inflow under most conditions.

SAFETY

Project inflows above 6,000 cfs will be used as a trigger value whereby the project operators will:

1. Evaluate if the Project Emergency Action Plan needs to be implemented.
2. Determine if a power emergency exists (as defined in the Western Systems Coordinating Council Minimum Operating Reliability Criteria (WSCC 1999)).
3. Determine if equipment failures or emergencies exist at one of the Project dams or power plants.
4. Determine reservoir drawdown needs for safe passage of anticipated floods to minimize damage to life and property.

If any of these steps warrant a change to the outflow policy of being within plus or minus 10% of inflow, the Joint Applicants may take whatever steps are necessary to minimize impacts to the Project while protecting public health and safety. Overall direction is to minimize changes to inflow so as to provide the lower river a more normal flow regime.

NORMAL OPERATIONS

These operational requirements will allow for higher peak flows to occur in the Lower River allowing for more natural channel maintenance processes. The Joint Applicants will implement the following:

1. Institute real time flow monitoring at each of the inflows to provide hourly records of flow. This will be required to ensure compliance with the "runoff the river" mandate.
2. Institute real time flow monitoring at the Madras Gauge that will offer better control of flows and a significant enhancement in accurate monitoring of actual stream flows in the lower Deschutes River. This system will enable the project to operate as "run of the river" and comply with other operational guidelines.
3. Project operations will closely mimic inflows (surface and groundwater) so that the project functions as a "run of the river" system under most operational conditions. There will be no more than a 10% variation from Project inflow under most conditions. These changes will allow for higher peak flows to occur in the Lower River allowing for more natural channel maintenance processes.
4. The WCB requires that the Q80 flows for the full period of record for the Madras Gauge (1925-1999) be used as the target "minimum flow" to be released from the project to the Lower Deschutes River. In the event inflows to the project are lower than the target "minimum flow" then inflow volumes must be released to the Lower Deschutes River. The required "minimum flow" may be reduced up to 150 cfs to ensure the refilling of Lake Billy Chinook to reach its normal minimum summer operational level of 1944 feet. The recommended target Q80 "minimum flows" are summarized below by month.

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1924-1999 Q80	3512	4049	4225	4263	4267	4571	4170	3721	3686	3540	3446	3431

5. Seasonal operation of Lake Billy Chinook to allow for no more than a 10 foot draw down during normal winter months with an absolute maximum draw down of 20 feet. Lake Billy Chinook should be filled and at normal operation level of 1944 feet by 1st of April. However, if this is not possible, the reservoir must be at normal operation level of 1944 feet by June 15. The "minimum" level required to be maintained at 1944 feet from June 15 to September 15, for Lake Billy Chinook. During the fall months Lake Billy Chinook should be maintained at the 1944 feet operation level so as to provide continued protection of riparian vegetation and cultural resources.
6. Seasonal operation of Lake Simtustus to allow for a minimum elevation of 1,576 feet from June 1 to August 31 and 1,573 feet elevation from September 1 to May 31.
7. Seasonal operation of the Reregulating Reservoir to allow for a minimum elevation of 1,414 feet year round.
8. Limits on river stage changes below the Reregulating Development will be as follows:
    a. From May 15 to October 15, hourly stage control limit will be 0.05 feet with a daily stage change control limit of 0.2 feet.
    b. From October 16 to May 14, hourly stage control limit will be 0.1 feet with a daily stage change control limit of 0.4 feet.

    Only during extraordinary or emergency situations can the Joint Applicants deviate from these stage change limits.

F. Fish Passage

The WCB requires the Joint Applicants implement mitigation measures that will effectively enable fish passage and allow for re-connection of harvestable fish populations and anadromy. The WCB requires that these measures do not adversely impact the thriving populations of resident fish species in the Project Reservoirs and the healthy populations of anadromous and resident fish species in the lower Deschutes River.

The Joint Applicants are proposing the construction of a selective water withdrawal facility at Round Butte Dam to address the effects of the Project on water quality and also as a means to enable fish passage. The Joint Applicants have modeled the facility's impacts on water quality and have provided enough information to show that the water quality effects of the project can be mitigated. Fish passage issues are being studied and results may not be known for many years. If the selective water withdrawal facility on Round Butte Dam will not adequately address fish passage, the Joint Applicants still have the responsibility to implement mitigation measures that will effectively enable fish passage and allow for re-connection of fish populations and anadromy within a reasonable period of time not to exceed 10 years from issuance of FERC license. If current modeling of volitional passage has not been successfully completed after 10 years, alternative methods of re-connecting the fish populations will be developed and approved by the managing agencies having regulatory authority for fisheries in the Deschutes River and the Joint Applicants, and implemented by year 15 of the new license. The Joint Applicants may request that these time frames be adjusted by the WCB after due consultation with appropriate agencies.

The Joint Applicants will continue existing fisheries mitigation programs and evaluation of fish passage projects until the fish passage issue has been resolved.

The WCB is reasonably assured that the discussed biological criteria standard will be met with implementation of mitigation measures outlined above and with the implementation of the Water Quality Monitoring Plan and Management Plan. The Draft Water Quality Monitoring and Management Plan (Appendix A) will be finalized (including a Quality Assurance and Quality Control Plan) within one year of the date of this Certificate being signed. The Joint Applicants may ask for an extension to this timeframe if this plan cannot be completed due to circumstances beyond their control.

2. Dissolved Oxygen Conditions

The Joint Applicants shall comply with the following provisions related to dissolved oxygen levels in the lower Deschutes River.

The WCB requires additional data be collected at appropriate locations to determine the correlation of the Intergravel Dissolved Oxygen (IGDO) and ambient Dissolved Oxygen (DO) for a period of 3 years following issuance of this Certificate. Until the correlation between IGDO and DO has been established and it supports a change in the applicable DO Standard, the WCB will use of the ambient DO levels (11mg/l) as the appropriate standard. The methodology to be used in monitoring IGDO will be approved by the WCB prior to any activity taking place.

The Joint Applicants will begin construction of selective water withdrawal facilities at the Round Butte Dam within 3 years of FERC license being issued and operational to meet water quality standards by end of year five. The Joint Applicants may petition the WCB to adjust these timeframes as appropriate.

Joint Applicants will implement a combination of selective water withdrawal and operational changes to keep the river immediately below the Project within range of the relevant water quality criteria for dissolved oxygen.

The WCB is reasonably assured that the discussed dissolved oxygen criteria will be met with implementation of mitigation measures outlined above and with the implementation of a Water Quality Monitoring and Management Plan. The Draft Water Quality Monitoring and Management Plan (Appendix A) will be finalized (including a Quality Assurance and Quality Control Plan) within one year of the date of this Certificate being signed. The Joint Applicants may ask for an extension to this timeframe if this plan cannot be completed due to circumstances beyond their control.

3. Temperature Management Conditions

a. Upon FERC's issuance of a new license for the Project, the Joint Applicants shall comply with the following provisions related to water temperatures in the Deschutes River Basin:

- Joint Applicants will begin construction of selective water withdrawal facilities at the Round Butte Dam within 3 years of FERC license being issued and operational to meet water quality standards by end of year five. The Joint Applicants may petition the WCB to adjust these timeframes as appropriate.
- Implementation of the Water Quality Monitoring and Management Plan and the Implementation Management Plan will continue to help ensure that project operations do not violate the temperature criteria.

1. Upon the U.S. Environmental Protection Agency's (EPA's) final approval or adoption of a Total Maximum Daily Load (TMDL) for temperature in the portion of the Tribal waters affected by the Project, the WCB :

(a) Will seek, in conjunction with designated management agencies and in accordance with applicable law, other anthropogenic sources within the Deschutes River Basin to implement measures to reduce their contribution to exceedances of the temperature criteria; and

May reevaluate the Water Quality Monitoring and Management Plan in light of information acquired since the certification of the Project and in light of the temperature modification measures sought to be implemented by other sources in the basin, whether or not such implementation is underway or completed for all other sources. If additional temperature improvement measures are feasible and necessary to meet a load allocation (LA) for the Project under the TMDL (either as a component of the initial TMDL or any subsequent modification of the TMDL), the WCB may require submittal of a revised temperature management plan that insures attainment of the LA, subject to limits set forth

in the Water Quality Monitoring and Management Plan. The Draft Water Quality Monitoring and Management Plan (Appendix A) will be finalized (including a Quality Assurance and Quality Control Plan) within one year of the date of this Certificate being signed. The Joint Applicants may ask for an extension to this timeframe if this plan cannot be completed due to circumstances beyond their control.

2. At the end of the period determined by WCB to be necessary to implement the TMDL for temperature in the portion of the Tribal waters affected by the Project, the WCB may:

(a) Determine whether the TMDL and LA for the Project have been achieved.

(b) If the TMDL and LA for the Project have been achieved, the Joint Applicants shall continue to implement the Temperature Management Plan (TMP) unless, at the Joint Applicant's request, the WCB approves a modification of the Water Quality Monitoring and Management Plan.

(c) If the TMDL or LA for the Project has not been achieved, the WCB may require submittal of a revised temperature management plan that insures attainment of the LA, subject to limits set forth in the Water Quality Monitoring and Management Plan. The Draft Water Quality Monitoring and Management Plan (Appendix A) will be finalized (including a Quality Assurance and Quality Control Plan) within one year of the date of this Certificate being signed. The Joint Applicants may ask for an extension to this timeframe if this plan cannot be completed due to circumstances beyond their control.

3. Any Project-related instream temperature increase of 0.25 ºF, or less above the relevant criterion shall not be deemed to contribute to an exceedance of the temperature criterion or to a violation of the temperature water quality standard.

4. pH (hydrogen ion concentration)

Upon FERC's issuance of a new license for the Project, the Joint Applicants shall comply with the following provisions related to pH in the Deschutes River:

The Joint Applicants will implement the construction and operation of the selective water withdrawal facilities. Modeling results have indicated that discharges from the Reregulating Dam will continue to meet the pH criterion, with the possible exception of minor, brief, and isolated instances during the summer months. The exceedances that are predicted are within the error of the model, and the model predictions themselves are conservative in that they are at the upper end of the error range.

Conditions in Lake Billy Chinook will improve and will meet the relevant pH criterion where the associated beneficial uses occur or are expected to occur. Any increases that occur within Lake Simtustus will be minor and will not cause a failure to comply with water quality standards in that reservoir. Moreover, Lake Billy Chinook and Lake Simtustus will continue to fall within the exemption from the pH standard. Specifically, the reservoirs existed as of January 1, 1996, and the exceedance of the pH standard occurs as a result of the impoundment in response to primary productivity supported by nutrients that arise from sources not associated with the impoundment. With the implementation of selective water withdrawal, the Joint Applicants will have taken all practicable measures to bring pH in the impounded waters into compliance with the criterion.

The WCB is reasonably assured that the discussed pH criteria will be met with implementation of mitigation measures outlined above and with the implementation of the Water Quality Monitoring and Management Plan. The Draft Water Quality Monitoring and Management Plan (Appendix A) will be finalized (including a Quality Assurance and Quality Control Plan) within one year of the date of this Certificate being signed. The Joint Applicants may ask for an extension to this timeframe if this plan cannot be completed due to circumstances beyond their control.

(a) Upon EPA's final approval or adoption of a TMDL for pH in the Deschutes River, the WCB will determine whether the Project needs to provide additional measures to achieve an LA for the Project under the TMDL (either as a component of the initial TMDL or any subsequent modification of the TMDL). If the TMDL does not include a specific LA for the Project, references to the "LA for the Project" shall refer to the LA that encompasses Project contributions to pH exceedances in the Deschutes River below the Project or within the Projects' reservoirs. The determination shall be based on data provided through the Water Quality Monitoring Plan and other relevant information and on an analysis of the extent to which measures employed by or required of other sources within the Deschutes River Basin will result in achievement of the TMDL.

(4) (b) If the TMDL or LA for pH has not been achieved, the WCB may require submittal of a revised pH management plan that insures attainment of the LA, subject to limits set forth in the Water Quality Monitoring and Management Plan attached to this §401 Certification as Exhibit A.

(c) The WCB may approve cessation or modification of components of the Water Quality Monitoring Plan if the WCB determines that it will not impair the achievement of any pH TMDL or LA for the Project and will not contribute to the exceedance of the pH criterion in waters affected by the Project. Among other circumstances, the WCB may approve a request for termination of pH monitoring if the Deschutes River does not show pH exceedances for at least three consecutive years.

5. Nuisance Phytoplankton Growth

Although the nuisance phytoplankton standard is exceeded in the surface waters of Lake Billy Chinook and Lake Simtustus, the WCB believes that this condition is not adversely affecting any beneficial use of either impoundment, and that the condition is due to elevated inputs of nutrients from tributaries.

There are no technically and economically practicable strategies to control this condition in the Project itself, although the implementation of selective water withdrawal may tend to reduce measured chlorophyll *a* levels. However, due to unknown effects of the selective withdrawal facility on the chlorophyll *a* levels, the WCB recommends that a reference value for current conditions be established (average chlorophyll *a* levels taken for a period of 5 years). This value will be compared against annual measurements of chlorophyll *a.* If the reference value is exceeded by more than 10% in any given sample, a replication or verification sample will be collected and analyzed within 30 days. If this verification sample also exceeds the reference value by 10%, a survey of water users will be conducted to determine the level of nuisance within the next 30 days.

The WCB is reasonably assured that the discussed nuisance phytoplankton criteria will be met with implementation of mitigation measures outlined above and with the implementation of the Water Quality Monitoring and Management Plan described in Exhibit A. The WCB however does require the Joint Applicants to conduct a survey of users of Project Reservoirs based on criteria listed above to ensure that beneficial uses are not being adversely impacted by nuisance phytoplankton.

6. Total Dissolved Gas

The WCB is reasonably assured that the total dissolved gas standard will be met without special requirements. The WCB will require implementation of the Water Quality Monitoring and Management Plan for DO and Total Dissolved Gas to ensure compliance with this standard.

7. Antidegradation Policy

With the implementation of the mitigation measures listed above, the WCB believes that overall water quality in and below the Project will be improved. As noted earlier, the modeled shift in temperature back toward pre-Project conditions will cause an increase over existing conditions during the first half of the

year; but as this represents a *reversal* of a Project impact, this does not constitute a violation of the antidegradation policy. Current modeling results indicate that DO levels will improve throughout the year. The pH levels in the lower Deschutes River may increase slightly for brief periods of time, but these increases, if they occur, are not predicted to have any adverse impact on water quality or on compliance with other standards, particularly the biological criteria standard. As shown by the recently completed modeling of the lower river, the overall impact on water quality will be beneficial. Accordingly, the WCB believes that there will be a reasonable assurance that Project operations, coupled with the mitigation measures listed above, will comply with the Tribal antidegradation policies. The WCB will require implementation of the Water Quality Monitoring and Management Plan to ensure compliance with the antidegradation policy.

8. Naturally-Occurring Conditions

There are a number of issues related to natural conditions that need to be stressed.

(a) Water temperatures are in excess of the current bull trout standard upstream of Lake Billy Chinook in the upper Deschutes River, Crooked River, and Metolius River sub-basins. It is evident that temperatures in the streams of the Deschutes River Basin naturally exceed the temperature standard set for bull trout. Groundwater entering the Crooked River at Opal Springs runs at an average temperature of 53˚F (11.67 ˚C) year round according to the Tribal Water Quality Monitoring Program. In the late summer and fall months, groundwater provides the majority of the surface flows entering lake Billy Chinook from the Crooked River and Deschutes River arms. Therefore surface water temperatures are naturally above the standard temperature for bull trout.

The spring fed Metolius River temperatures are also in excess of the current bull trout standard during this period. The water entering Lake Billy Chinook has a hydraulic residence time of approximately 2 months, and since the tributary streams exceed 10°C for nearly this long during the summer, it is unlikely that the temperature in the reservoir could remain below 10°C. Lake Simtustus receives nearly all of its inflow from Lake Billy Chinook, so it, too, is unlikely to remain below 10°C. Therefore, stream temperatures in the lower Deschutes River are unlikely to remain below 10˚C.

(b) Dissolved oxygen concentration in the hypolimnion of Lake Billy Chinook and Lake Simtustus follows a pattern that is typical of highly productive lakes. Biological oxidation of organic matter in the hypolimnion during the period of stratification results in depletion of oxygen. In many productive lakes, DO concentration in the hypolimnion can approach zero. In Lake Billy Chinook, however, this extreme condition is avoided because oxygen-containing water from the tributaries flows into the hypolimnion and provides a source of oxygen. In Lake Simtustus, the flow into the hypolimnion comes from the relatively well-aerated mid-depths of Lake Billy Chinook.

(c) The pattern of pH seen in the Project reservoirs and in the Deschutes River below the Project is, like the DO pattern in the reservoirs, a function of the high productivity of the water bodies. Intense photosynthetic activity results in elevated pH levels in the water. This occurs in the reservoirs, in the lower Deschutes River, and in the Deschutes and Crooked rivers above the Project. It is a consequence of the relatively high nutrient concentration in the waters of the Project, which acts to increase biological activity resulting in an increase in pH.

(d) As stated earlier, the Metolius River may be representative of the "natural" nutrient conditions of the steams flowing into the Project reservoirs. The Metolius River is low in nitrogen and relatively high in phosphorus. The Deschutes and Crooked rivers have similar phosphorus concentrations but higher nitrogen concentrations, suggesting that they are being artificially enriched in nitrogen. The resulting high nutrient concentrations support the profuse algal production, which results in the patterns of DO and pH seen in the Project reservoirs and in the lower Deschutes River. Dense algal blooms would occur even in the absence of nitrogen enrichment because species of cyanobacteria (blue-green algae) present in Lake Billy Chinook are capable of meeting their nitrogen needs from the atmosphere in the presence of sufficient phosphorus. It is unlikely that

phosphorus input could be reduced sufficiently to limit the growth of phytoplankton because of the naturally high concentration in inflowing streams.

(e) The current conditions regarding stream flow entering the Project Area may be deemed to be naturally occurring in that the Project does not regulate legal water rights obtained under State Law nor does the Project generate or create additional water above what nature delivers within the context of the entire Deschutes Basin. Given the current appropriations and their individual supporting water right certificate with corresponding priority date, the WCB is convinced that the most effective, equitable and efficient way to increase stream flow below the project is to work within the legal framework to increase flows entering the Project area. This could include use of market based incentives, land acquisitions, water right transfers and other legal methods to secure more water.

(f) Increases in surface stream flow entering the Project due to mitigation measures in the upper basin may increase temperature regimes in the reservoirs and ultimately the Lower Deschutes.

(g) The stability of the Lower Deschutes River is attributable to significant ground water sources within and immediately above the Project area. The lower Deschutes River flows are dominated by groundwater contributions in the late summer and fall months. Diurnal fluctuations are small immediately below the Project mainly due to constant groundwater contributions and present Project Operations. Although both the Deschutes and Crooked Rivers are highly managed in the upper basin, water quality within the Project is moderated to a great extent by the excellent quality and quantity of groundwater entering within the vicinity of the Project.

(h) Conditions in the Lower Deschutes River do not appear to violate the Tribal Water Temperature Standard.

The WCB believes that naturally-occurring temperatures and nutrient levels may be adversely and indirectly affecting water quality within and downstream of the Project. The WCB has taken these facts into account in making their findings. No additional special requirements, aside from those already listed above, are needed to meet the requirements of the Tribal Water Code.

9. Spill and Waste Management

The Joint Applicants shall implement its Project-specific Oil Spill Prevention, Control and Countermeasure (SPCC) Plan and Waste Management Guidelines. The SPCC Plan and Waste Management Guidelines shall be kept current. In the event of a spill or release or threatened spill or release to Tribal waters, Joint Applicants shall immediately implement the site's SPCC plan, modified SPCC plan or other applicable contingency plan and notify the Oregon Emergency Response System (OERS) at 1-800-452-0311, Tribal Fire & Safety Office at (541) 553-1634 and the Natural Resources Department at (541) 553-2001.

10. § 401 Certification Modification

Subject to the provisions of Ordinance 80 and 81, the WCB may reconsider and add or alter conditions to the §401 Certification as necessary to address changes in conditions or knowledge or to address any failure of conditions herein to protect water quality and beneficial uses. In accordance with the Clean Water Act §401, any added or altered condition shall, so long as it is in effect, become a condition of any federal license or permit that is thereafter issued for the Project. Ordinance 81 provides a mechanism for appropriate changes to the conditions established in this §401 Certificate. With respect to an existing federal license or permit for the Project, the WCB may petition the federal agency to incorporate the added or altered condition in the federal license or permit.

11. Project Changes

The Joint Applicants must obtain the WCB review and approval before undertaking any change to the Project that might significantly affect water quality, including changes to Project operation and flows.

12. Project Repair or Maintenance

The Joint Applicants must obtain the WCB review and approval before undertaking Project repair or maintenance activities that might significantly affect water quality. The WCB may, at Joint Applicants' request, provide prior approval of such repair and maintenance activities on a periodic or ongoing basis.

13. Costs for TEO and WCB Oversight

In accordance with Tribal Ordinance 80 and 81, Joint Applicants shall pay a project-specific fee for the WCB and the TEO's costs of overseeing implementation of this §401 Certification. The fee shall be $24,000 annually (2002 dollars indexed to the Federal Inflation Rate) made payable to "Tribal Environmental Office, Natural Resource Department" and due on July 1 of each year after issuance of this Certificate. If this fee amount is found to be in excess of needs or inadequate to cover costs incurred, the Water Control Board may change the annual fee charged after consultation with the Joint Applicants.

14. Project Inspection

The Joint Applicants shall allow the WCB and TEO or other designated representative such access as necessary to inspect the Project area at reasonable times to monitor compliance with certification conditions.

15. Notification

The Joint Applicants will notify the WCB and the TEO of all future changes in the project or operation of the project.

16. Posting of Certification

A copy of this certification shall be prominently posted within the project powerhouse.

The Joint Applicants have provided reasonable assurance that the Project will be managed and operated in a manner that will not violate applicable tribal water quality standards. The Water Control Board as the delegated authority of Tribal Council of the Confederated Tribes of the Warm Springs Reservation of Oregon is reasonably assured that compliance with the certification conditions contained herein will maintain the Project consistent with applicable provisions of Sections 301, 302, 303, 306, and 307 of the Federal Clean Water Act, Tribal water quality standards, and other appropriate requirements of Tribal law related to water quality.

Based on the application, public and agency comments, the Evaluation Report and Findings, and other information submitted to the WCB, and pursuant to § 401 of the federal Clean Water Act and Tribal Ordinances 45, 74, 80 and 81, the WCB hereby conditionally approves the application for certification.

Attachment B

From: FONSECA Marilyn * DEQ <Marilyn.FONSECA@deq.oregon.gov>
Sent: Friday, May 20, 2022 2:34:11 PM
To: Richard George <Richard.George@pgn.com>
Cc: FONSECA Marilyn * DEQ <Marilyn.FONSECA@deq.oregon.gov>; MRAZIK Steve * DEQ <Steve.MRAZIK@deq.oregon.gov>; Marriott Anika E <anika.e.marriott@doj.state.or.us>
Subject: Agency Low Impact Hydro Requirement

Good afternoon Richard – The Clean Water Act Section 401 water quality certification issued in 2002
for the Pelton Round Butte hydroelectric project is valid and in effect. The certification may be accessed at:
https://www.oregon.gov/deq/wq/wqpermits/pages/section-401-hydropower.aspx [oregon.gov]
Thank you,
Marilyn Fonseca
Oregon Department of Environmental Quality
Northwest Region Water Quality
Marilyn.Fonseca@deq.oregon.gov
Cell: 503-348-9705 (currently teleworking)
Office: 503-229-6804

From: Mike McKay <mike.mckay@ctwsbnr.org>
Sent: Thursday, June 2, 2022 3:29 PM
To: Megan Hill <Megan.Hill@pgn.com>
Subject: Re: Email from WCB needed for LIHI recertification

Hi Megan,
The Clean Water Act, Section 401 water quality certification issued in 2002 for the Pelton Round Butte project is still valid and in effect. Please contact me if you have any questions. Thanks.
Mike McKay
Hydrologist
Confederated Tribes of Warm Springs
541-553-

Attachment C

SECTION 401
INTERIM AGREEMENT
For the
PELTON ROUND BUTTE HYDROELECTRIC PROJECT

This Interim Agreement ("Agreement") is entered on the Effective Date between the Water Control Board ("WCB") of the Confederated Tribes of the Warm Springs Reservation of Oregon and Portland General Electric Company ("PGE") (collectively, "the Parties"), on behalf of itself as Operator of the Pelton Round Butte Hydroelectric Project (the "Project") located on the Deschutes River in Jefferson County, Oregon, and the Confederated Tribes of the Warm Springs Reservation of Oregon ("CTWS"), who together with PGE are the Joint Licensees for the Project.

RECITALS

A. WCB is the Tribal agency charged with administering and enforcing Tribal law regarding water quality. DEQ is the state agency charged with administering and enforcing state law regarding water quality. On June 24, 2002, WCB issued a water quality certification under Section 401 of the federal Clean Water Act, 33 U.S.C. §1341 ("§ 401 Certification") for the Project. Thereafter, on June 21, 2005, the Federal Energy Regulatory Commission ("FERC") issued a new 50-year license for the Project.

B. Condition 1(B) of the § 401 Certification requires the Joint Licensees to implement a Water Quality Management and Monitoring Plan ("WQMMP") to satisfy the requirements of the § 401 Certification. Section 2 of the WQMMP is a Water Temperature Management Plan. Section 3 of the WQMMP is a Dissolved Oxygen Management Plan. Section 4 of the WQMMP is a pH Management Plan. Section 5 of the WQMMP is a Nuisance Phytoplankton Growth Management Plan. The Joint Licensees have been implementing each of these management plans since the new license was issued in accordance with Condition 1(B) of the § 401Certification.

C. Since December 2009, the Joint Licensees have been operating a Selective Water Withdrawal facility ("SWW") at the Round Butte Dam to manage temperature, dissolved oxygen, and pH, and to facilitate downstream passage of migrating salmonids.

D. The § 401 Certification and the WQMMP establish management measures for the Joint Licensees to achieve discharge temperatures at the Reregulating Dam that are at or below the temperature that would occur at that location without the project ("WPT") + 0.25°F when the combined inflows to Lake Billy Chinook are greater than 10°C. WPT is calculated using a regression equation that inputs the flow-weighted, 7-day average daily maximum temperatures of the three major tributaries to Lake Billy Chinook, and the 7-day average daily air temperature at the Redmond Airport. If the weather cools suddenly, and the maximum daily temperatures of the three upstream tributaries suddenly decline, the calculated WPT can decrease before the cooler water reaches the Reregulating Dam, which may lead to an exceedance of WPT + 0.25°F.

E. The Dissolved Oxygen Management Plan contemplates determination of the applicable WCB dissolved oxygen standard(s) after a three-year period of required monitoring of water column and intergravel dissolved oxygen ("IGDO") levels. In early 2013, the Parties decided that additional data collection was needed. Based on the four years of data, WCB has determined that the 9.0 mg/L standard applies below the Project during the spawning season of the year.

F. The WQMMP applies the spawning criterion for dissolved oxygen to the Deschutes River below the Project on a year-round basis. Under the state standard for dissolved oxygen, however, the spawning criterion only applies from October 15th to June 15th. The state applies its criterion for cold-water aquatic life during the rest of the year.

G. As contemplated by the WQMMP, the Joint Licensees will take an adaptive management approach in operations of the SWW to attain water quality standards. The purpose of this Agreement is to provide a framework for the Joint Licensees to evaluate management and monitoring measures that may be needed to ensure continued compliance with the temperature and dissolved oxygen standards applicable to the Deschutes River below the Project. To assist in this evaluation, PGE commissioned a water quality study for the Project and the Lower Deschutes River that includes the development of a new water quality model to assess the water quality effects of potential revisions to Project operations. PGE publicly released the study on June 20, 2019 and will discuss the results of the study and their implications for management of the Project with DEQ, the CTWS, other members of the Pelton Round Butte Fish Committee, and the public during the remaining months of 2019. In particular, PGE expect that discussion of the study and its implications will be an agenda item for upcoming Fish Committee meetings.

H. WCB is currently reviewing its water quality standards and ancticipates submitting the revised standards to EPA for approval, including revised temperature and dissolved oxygen standards.

AGREEMENT

Therefore, the Parties agree as follows:

1. Applicable Temperature Standard

During the term of this Agreement, PGE will attempt to anticipate cooling events based on weather forecasts, and to increase the percentage of cooler water in the water released by the SWW to match the anticipated decline in the WPT. During such cooling events, the blending operations at the SWW may target a 7-day average daily maximum discharge temperature below the Reregulating Dam of up to 0.5°C above WPT for up to three (3) calendar days. Thereafter, the targeted 7-day average daily maximum discharge temperature will be no more than WPT+0.3°C. PGE will begin blending operations at the SWW when the increasing discharge temperature below the Reregulating Dam approaches 13.0°C.

2. Applicable Dissolved Oxygen Standard

As part of the adaptive management obligations of the Joint Licensees, the Joint Licensees will operate the Project pursuant to the terms of the Dissolved Oxygen Management Plan to achieve (i) an absolute minimum of at least 8.0 mg/L in the Deschutes River downstream of the Reregulating Dam during the period from June 16 through October 14; and (ii) an absolute minimum dissolved oxygen concentration of 9.0 mg/L (or 95% saturation) in the Deschutes River downstream of the Reregulating Dam from October 15 through June 15.

3. Revision of WQMMP

In order to accommodate the evaluation of the water quality study conducted by PGE as well as CTWS WCB's review and potential revision of its applicable temperature and dissolved oxygen standards, the Joint Licensees will meet with DEQ and the CTWS WCB to discuss the applicable temperature and D.O. standards in the fall of 2019. In consultation with PGE, WCB will determine whether PGE should file a revised WQMMP that incorporates the measures needed to satisfy the temperature and D.O. standards WCB determines to be applicable in the Deschutes River below the Reregulating Dam. If determined to be necessary, upon approval by WCB, PGE will (i) file a revised WQMMP with FERC and, upon FERC approval, (ii) implement the revised WQMMP. In consultation with PGE, WCB will determine whether modification to the § 401 Certification to include the revised WQMMP is necessary. The Parties acknowledge and agree that no provision of this Agreement limits the Joint Licensees' rights to challenge any modification or to revocation of the Project's state 401 certification.

4. Relationship to WQMMP

This Agreement does not otherwise affect, modify, or supersede the Joint Licensees' obligations under the WQMMP. The Parties acknowledge and agree that no provision of this Agreement waives or alters WCB's authority to modify or revoke the Project's state 401 certification

5. Entire Agreement

This Agreement contains all the terms and conditions agreed upon by the Parties.

6. Modification

Modifications to this Agreement shall be made only by mutual consent of the Parties, by the issuance of a written modification, signed and dated by all Parties, prior to any changes being effective; provided, WCB reserves all authorities to administer and enforce the § 401 certification and water quality standards as provided under applicable law.

7. Effective Date

The Effective Date of this Agreement is the latest date of the signature dates below. This Agreement expires fifteen months from the latest date of the signature dates below.

[*Signature Page Follows*]

PORTLAND GENERAL ELECTRIC COMPANY

Kristin Stathis JRS 10/23/19

Kristin Stathis — Date

Vice President, Operations Services

WATER CONTROL BOARD OF THE CONFEDERATED TRIBES OF THE WARM SPRINGS RESERVATION OF OREGON

10/16/19

Roy Spino, Chairman — Date

SECTION 401
INTERIM AGREEMENT
For the
PELTON ROUND BUTTE HYDROELECTRIC PROJECT

This Interim Agreement ("Agreement") is entered on the Effective Date between the Oregon Department of Environmental Quality ("DEQ") and Portland General Electric Company ("PGE") (collectively, "the Parties"), on behalf of itself as Operator of the Pelton Round Butte Hydroelectric Project (the "Project") located on the Deschutes River in Jefferson County, Oregon, and the Confederated Tribes of the Warm Springs Reservation of Oregon ("CTWS"), who together with PGE are the Joint Licensees for the Project.

RECITALS

A. DEQ is the state agency charged with administering and enforcing state law regarding water quality. On June 24, 2002, DEQ issued a water quality certification under Section 401 of the federal Clean Water Act, 33 U.S.C. §1341 ("§ 401 Certification") for the Project. Soon thereafter, the Environmental Quality Commission modified water quality standards before the current FERC license was issued. Thereafter, on June 21, 2005, the Federal Energy Regulatory Commission ("FERC") issued a new 50-year license for the Project.

B. Condition A of the § 401 Certification requires the Joint Licensees to implement a Water Quality Management and Monitoring Plan ("WQMMP") to satisfy the requirements of the § 401 Certification. Section 2 of the WQMMP is a Water Temperature Management Plan. Section 3 of the WQMMP is a Dissolved Oxygen Management Plan. Section 4 of the WQMMP is a pH Management Plan. Section 5 of the WQMMP is a Nuisance Phytoplankton Growth Management Plan. The Joint Licensees have been implementing each of these management plans, since the new license was issued, in accordance with Condition A of the § 401 Certification.

C. Since December 2009, the Joint Licensees have been operating a Selective Water Withdrawal facility ("SWW") at the Round Butte Dam to manage temperature, dissolved oxygen, and pH, and to facilitate downstream passage of migrating salmonids.

D. The § 401 Certification and the WQMMP establish management measures for the Joint Licensees to achieve discharge temperatures at the Reregulating Dam that are at or below the temperature that would occur at that location without the project ("WPT") + 0.25°F when the combined inflows to Lake Billy Chinook are greater than 10°C. WPT is calculated using a regression equation that inputs the flow-weighted, 7-day average daily maximum temperatures of the three major tributaries to Lake Billy Chinook, and the 7-day average daily air temperature at the Redmond Airport. If the weather cools suddenly, and the maximum daily temperatures of the three upstream tributaries suddenly decline, the calculated WPT can decrease before the cooler water reaches the Reregulating Dam, which may lead to an exceedance of WPT + 0.25°F.

E. The Dissolved Oxygen Management Plan contemplates determination of the applicable DEQ dissolved oxygen standard(s) after a three-year period of required monitoring of water column and intergravel dissolved oxygen ("IGDO") levels. In early 2013, the Parties decided that additional data collection was needed. Based on the four years of data, DEQ has determined that the 9.0 mg/L standard applies below the Project during the spawning season of the year.

F. The WQMMP applies the spawning criterion for dissolved oxygen to the Deschutes River below the Project on a year-round basis. Under the state standard for dissolved oxygen, however, the spawning criterion only applies from October 15th to June 15th. The criterion for cold-water aquatic life applies during the rest of the year.

G. As contemplated by the WQMMP, the Joint Licensees will take an adaptive management approach in operations of the SWW to attain water quality standards. The purpose of this Agreement is to provide a framework for the Joint Licensees to evaluate management and monitoring measures that may be needed to ensure continued compliance with the temperature and dissolved oxygen standards applicable to the Deschutes River below the Project. To assist in this evaluation, PGE commissioned a water quality study for the Project and the Lower Deschutes River that includes the development of a new water quality model to assess the water quality effects of potential revisions to Project operations. PGE publicly released the study on June 20, 2019 and will discuss the results of the study and their implications for management of the Project with DEQ, the CTWS, other members of the Pelton Round Butte Fish Committee, and the public during the remaining months of 2019. In particular, PGE expects that a discussion of the study and its implications will be an agenda item for the August 15, October 12, and December 12, 2019 Fish Committee meetings.

H. The CTWS Water Control Board ("WCB") is currently revising its water quality standards and anticipates submitting the revised standards to EPA for approval, including revised temperature and dissolved oxygen standards for the Deschutes River below the Project.

AGREEMENT

Therefore, the Parties agree as follows:

1. Applicable Temperature Standard

During the term of this Agreement, PGE will attempt to anticipate cooling events based on weather forecasts, and to increase the percentage of cooler water in the water released by the SWW to match the anticipated decline in the WPT. During such cooling events, the blending operations at the SWW may target a 7-day average daily maximum discharge temperature below the Reregulating Dam of up to 0.5°C above WPT for up to three (3) calendar days. Thereafter, the targeted 7-day average daily maximum discharge temperature will be no more than WPT+0.3°C. PGE will begin blending operations at the SWW when the increasing discharge temperature below the Reregulating Dam approaches 13.0°C.

2. Applicable Dissolved Oxygen Standard

Because the Joint Licensees collect hourly dissolved oxygen ("D.O.") data from the Project's Reregulating Dam water quality monitoring station, DEQ has determined that the Joint Licensees can apply the 30-D, 7-Mi and minimum D.O. values that are specified in Table 21 of DEQ's D.O. criterion for cold-water aquatic life during the non-spawning season. Accordingly, the Joint Licensees will operate the Project pursuant to the terms of the Dissolved Oxygen Management Plan to achieve: (i) dissolved oxygen concentrations of at least 8.0 mg/L (30-D value), 6.5 mg/L (7-Mi value) and 6.0 mg/L (absolute minimum value) in the Deschutes River downstream of the Reregulating Dam during the period from June 16 through October 14; and (ii) an absolute minimum dissolved oxygen concentration of 9.0 mg/L (or 95% saturation) in the Deschutes River downstream of the Reregulating Dam from October 15 through June 15.

3. Revision of WQMMP

In order to accommodate the evaluation of the water quality study conducted by PGE as well as the CTWS WCB's revision of its applicable temperature and dissolved oxygen standards, the Joint Licensees will meet with DEQ and the CTWS WCB to discuss the applicable temperature and D.O. standards and potential revisions to the WQMMP within two months after the Effective Date. By December 20, 2019, PGE will submit to DEQ proposed modifications to the Temperature Management Plan, Dissolved Oxygen Management Plan, and other components of the WQMMP that the Joint Licensees believe are adequate to provide reasonable assurance that the proposed activities may be conducted in a manner that will not violate the applicable temperature and D.O. standards, consistent with their consultations with DEQ, the CTWS WCB, and other members of the Fish Committee. DEQ and PGE may agree in writing to extend the December 20, 2019, deadline if the CTWS WCB proposes revised water quality standards for the Deschutes River that are materially different than DEQ's, if relevant comments from the Fish Committee or other stakeholders require additional time to address, or for any other appropriate reason. Following receipt of the Joint Licensees' proposed revisions to the WQMMP and any further consultation DEQ deems necessary, if any, DEQ will modify the certification in accordance with OAR 340-048-0050. Following DEQ's issuance of any final certification decision, the Joint Licensees will (i) file with FERC a revised certification, including as applicable a revised WQMMP, if any, and, upon FERC approval, (ii) implement the certification in accordance with its terms, including the revised WQMMP, if any. Nothing in this Agreement, however, limits any right PGE or CTWS may have to challenge any modification to, or revocation of, the certification, including the WQMMP.

4. Relationship to WQMMP

This Agreement does not otherwise affect, modify, or supersede the Joint Licensees' obligations under the WQMMP. The Parties acknowledge and agree that no provision of this Agreement waives or alters DEQ's authority to modify or revoke the Project's state 401 certification, which includes the WQMMP, in accordance with applicable law.

5. Entire Agreement

This Agreement contains all the terms and conditions agreed upon by the Parties.

6. Modification

Modifications to this Agreement shall be made only by mutual consent of the Parties, by the issuance of a written modification, signed and dated by all Parties, prior to any changes being effective; provided, DEQ reserves all authorities to administer and enforce the § 401 certification and water quality standards as provided under applicable law.

7. Effective Date

The Effective Date of this Agreement is the latest date of the signature dates below. This Agreement expires fifteen months from the latest date of the signature dates below.

PORTLAND GENERAL ELECTRIC COMPANY

Kristin Stathis _____ 8/12/19

Kristin Stathis
Vice President, Operations Services

Date

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

_____ _____

Linda Hayes Gorman
DEQ Regional Division Administrator

Date

Appendix C

B.4 Contacts Forms

All applications for LIHI Certification must include complete contact information.

Table 11. Applicant-related contacts

Facility Owner:	
Name and Title	Chris Bozzini, Director of Environmental Services
Company	Portland General Electric
Phone	503-4647853
Email Address	Chris.bozzini@pgn.com
Mailing Address	121 SW Salmon Street, 3 WTCBRHL, Portland, OR 97204
Name and Title	Cathy Ehli, General Manager
Company	Warm Springs Power Enterprises (WSPE)
Phone	541-553-1046
Email Address	Cathy.ehli@wspower.com
Mailing Address	510 Jackson Trail Road, PO Box 960, Warm Springs, OR 97761
Facility Operator (if different from Owner):	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Nancy Doran, Licensing Specialist
Company	Portland General Electric
Phone	541-325-0983
Email Address	Nancy.doran@pgn.com
Mailing Address	726 SW Lower Bend Rd, Madras, OR 97741
Party responsible for accounts payable:	
Name and Title	Nancy Doran
Company	Portland General Electric
Phone	541-325-0983
Email Address	Nancy.doran@pgn.com
Mailing Address	726 NW Lower Bend Rd, Madras, OR 97741

Table 12. Current relevant state, federal, and tribal resource agency contacts (excluding FERC).

Agency Contact		*Area of Responsibility (check applicable boxes)*
Agency Name	Oregon Department of Fish and Wildlife	☐ Flows ☐ Water Quality ☒ Fish/Wildlife ☒ Watershed ☒ T&E Species ☐ Cultural/Historic ☐ Recreation
Name and Title	Erik Moberly, PRB Mitigation Coordinator	
Phone	541-388-6363	
Email address	Erik.r.moberly@odfw.oregon.gov	
Mailing Address	61374 Parrell Road, Bend, OR 97702	

Agency Contact		*Area of Responsibility (check applicable boxes)*
Agency Name	Oregon Department of Environmental Quality	☒ Flows ☒ Water Quality ☐ Fish/Wildlife ☒ Watershed ☐ T&E Species ☐ Cultural/Historic ☐ Recreation
Name and Title	Smita, Mehta, Basin Coordinator	
Phone	541-633-2022	
Email address	Smita.mehta@deq.state.or.us	
Mailing Address	475 NE Bellevue Drive, Suite 100, Bend, OR 97701	

Agency Contact		*Area of Responsibility (check applicable boxes)*
Agency Name	Oregon Parks and Recreation Department	☐ Flows ☐ Water Quality ☐ Fish/Wildlife ☐ Watershed ☐ T&E Species ☒ Cultural/Historic ☒ Recreation
Name and Title	Steve Bifano, Park Manager - The Cove Palisades State Park	
Phone	541-977-5464	
Email address	steve.bifano@oprd.oregon.gov	
Mailing Address	7300 Jordan Rd, Culver OR 97734	

Agency Contact		*Area of Responsibility (check applicable boxes)*
Agency Name	U.S. Fish and Wildlife Service	☒ Flows ☒ Water Quality ☒ Fish/Wildlife ☒ Watershed ☒ T&E Species ☐ Cultural/Historic ☐ Recreation
Name and Title	Peter Lickwar, Fish and Wildlife Biologist	
Phone	541-312-6422	
Email address	peter_lickwar@fws.gov	
Mailing Address	63095 Deschutes Market Rd, Bend OR 97701	

Agency Contact		*Area of Responsibility (check applicable boxes)*
Agency Name	Bureau of Indian Affairs, Division of Natural Resources	☐ Flows ☒ Water Quality ☒ Fish/Wildlife ☒ Watershed ☒ T&E Species ☒ Cultural/Historic ☒ Recreation
Name and Title	Stephen Lewis,	
Phone	503-231-6702	
Email address	stephen.lewis@bia.gov	
Mailing Address	911 NE 11th Ave, Portland, OR 97232	

Agency Contact		*Area of Responsibility (check applicable boxes)*
Agency Name	Bureau of Land Management – Prineville	☒ Flows ☒ Water Quality ☒ Fish/Wildlife ☒ Watershed ☐ T&E Species ☒ Cultural/Historic ☒ Recreation
Name and Title	Jimmy Eisner, Fisheries Biologist	
Phone	541-416-6753	
Email address	jeisner@blm.gov	
Mailing Address	3050 NE 3rd Street, Prineville, OR 97754	

Agency Contact		*Area of Responsibility (check applicable boxes)*
Agency Name	Bureau of Land Management – Deschutes Field Office	☐ Flows ☐ Water Quality ☒ Fish/Wildlife ☒ Watershed ☐ T&E Species ☒ Cultural/Historic ☒ Recreation
Name and Title	Jeff Kitchens, Field Manager	
Phone	541-416-6766	
Email address	jhkitchens@blm.gov	
Mailing Address	3050 NE 3rd Street, Prineville, OR 97754	

Agency Contact		*Area of Responsibility (check applicable boxes)*
Agency Name	U.S. Forest Service – Ochoco National Forest	☒ Flows ☒ Water Quality ☒ Fish/Wildlife ☒ Watershed ☒ T&E Species ☒ Cultural/Historic ☒ Recreation
Name and Title	Slater Turner, District Ranger	
Phone	541-416-6640 3160 NE Third St, Prineville, OR 97754	
Email Address	slater.turner@usda.gov	
Mailing Address	3160 NE Third St, Prineville, OR 97754	

Agency Contact		*Area of Responsibility (check applicable boxes)*
Agency Name	Confederated Tribes of the Warm Springs of Oregon – Natural Resources	☒ Flows ☒ Water Quality ☒ Fish/Wildlife ☒ Watershed ☒ T&E Species ☒ Cultural/Historic ☒ Recreation
Name and Title	Austin Smith, Jr, General Manager-Bureau of Natural Resources	
Phone	541-553-2303	
Email address	austin.smithjr2@ctwsbnr.org	
Mailing Address	PO Box C, Warm Springs, OR 97761	

Agency Contact		*Area of Responsibility (check applicable boxes)*
Agency Name	US Forest Service, Deschutes National Forest – Sisters Ranger District	☒ Flows ☒ Water Quality ☒ Fish/Wildlife ☒ Watershed ☒ T&E Species ☒ Cultural/Historic ☒ Recreation
Name and Title	Ian Reid, District Ranger	
Phone	541-549-7701	
Email address	Ianreid2@usda.gov	
Mailing Address	PO Box 249, Sisters, OR 97759	

Table 13. Current engaged stakeholder and tribal contacts.

Stakeholder Contact		*Area of Responsibility (check applicable boxes)*
Organization Name	NOAA /National Marine Fisheries	☐ Flows ☒ Water Quality ☒ Fish/Wildlife ☒ Watershed ☒ T&E Species ☐ Cultural/Historic ☐ Recreation
Name and Title	Scott Carlon, West Coast Region-Columbia Basin Branch	
Phone	503-231-2379	
Email address	scott.carlon@noaa.gov	
Mailing Address	1201 NE Lloyd Blvd, Suite 1100, Portland, OR 97232	

Stakeholder Contact		*Area of Responsibility (check applicable boxes)*
Organization Name	Oregon Water Resources Department	☒ Flows ☐ Water Quality ☐ Fish/Wildlife ☐ Watershed ☐ T&E Species ☐ Cultural/Historic ☐ Recreation
Name and Title	Dwight French, Water Rights and Adjudication Administrator	
Phone	503-871-7292	
Email address	Dwight.w.french@oregon.gov	
Mailing Address	725 Summer St, NE Salem, OR 97310	