CENWP-ODB 29 April 2024

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 17 of 2024, which covers the period from 21 April 2024 to 27 April 2024.

1. ITEMS OUT OF CRITERIA (OOC):

- **Table 1**. FPP Items Out of Criteria.

Date	Location	FPP Violation	Cause	Response
PH1:				
04/21 – 04/27	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should be Open	Mechanically Bound	W.O.
04/21 – 04/27	PH1CC	FG 2-21 Closed, Should Be Open	Mechanically Bound	W.O.
Cascades Island:				
04/21 – 4/27	Cascades Island	FG6-11 Closed, Should Be Open	Mechanically Bound	W.O.
Washington Shore:				
04/24 – 4/27	WA Shore Fishway	Weir 38 High, >1.1’	Weir 37 Blowdown Valve OOS	W.O.

- PH1 Collection Channel diffuser FG 2-19 was found mechanically bound in the mostly closed position on 02/24/22 by PH1 Mechanics. No repairs can be made until the PH1CC can be dewatered.

- PH1 Collection Channel diffuser FG 2-21 was found mechanically bound in the closed position by PH1 Mechanics on 02/24/24. No repairs can be made until the PH1CC can be dewatered.

- The Cascades Island Fishway diffuser FG 6-11 is mechanically bound in the closed position due to stripped shaft threads. A work order has been created and repairs will be made during the next full dewater of the Cascades Island Fishway.

- Cascades Island Fishway diffuser FG 6-18 was found stuck in the open position with limitorque problems in the fall of 2022. A work order has been created and repairs have been attempted, but full repair requires complete dewatering of the fishway. These repairs will be made during the next full dewater of the Cascades Island Fishway.

- PH1 Unit Priority: Multiple oil sheens have been observed in the PH1 tailrace by Bonneville Staff on several occurrences over the past year. Please refer to MFRs 24BON001, 24BON003, 24BON004, 24BON005, 24BON007, and 24BON009 for details. Consequently, Units 2, 3, 4, 5, 6, 7, 8, 9, and 10 have been forced out of service and will remain OOS until a full dewater, inspection, and investigation of each Unit has been completed.

2. OPERATION SUMMARY:

a. Daily average river flows ranged from 170.5 to 193.0 kcfs. Daily average powerhouse forebay elevation ranged from 72.5’ to 73.6’ msl. Daily average Project tailwater ranged from 14.8’ to 16.2’ msl. Secchi disk measurements ranged from 6’ to 7.0+’. Daily average water temperature ranged from 51° to 52°F.

b. Daily average spill ranged from 123.0 to 141.0 kcfs. Spring Spill began on April 10th

c. Unit Operation: **PH2** remains the priority powerhouse. Main unit drawdowns are measured every Monday

and more frequently as needed.

- **Table 2**. Main Unit Outages

Unit	OOS	RTS	Reason	Duration
4	1631 on 29 Mar 2023	---	F.O., Oil Leak Investigation/5-YR Overhaul	---
3	1105 on 12 Jun 2023	---	F.O., Oil Leak Investigation	---
6	1714 on 03 Jan	---	F.O., Oil Leak Investigation	---
10	1714 on 03 Jan	---	F.O., Oil Leak Investigation	---
12	0731 on 05 Jan	---	F.O., Stator Ground	---
9	1220 on 11 Jan	---	F.O., Oil Leak Investigation	---
7	1409 on 15 Feb	---	F.O., Oil Leak Investigation	---
2	1013 on 26 Feb	---	F.O., Oil Leak Investigation	---
8	1359 on 26 Feb	---	F.O., Oil Leak Investigation	---
5	1433 on 26 Feb	---	F.O., Oil Leak Investigation	---

- Fish Units: Second Powerhouse Fish Units provide attraction flow for the Washington Shore (WS) fish ladder.

  Fish Unit Outages: Fish Units are periodically paced into reserve shutdown (RS) to float trash when debris differentials become excessive and trash raking is not possible.

  Table 3. Fish Unit Outages:

Unit	OOS/RS	RTS	Reason	Duration
F2	1759 on 23 April	1900 on 23 April	P.O., Float Trash	1 hour, 1 minute

- **Table 4**. Fish Unit Drawdowns, in Feet.

Date	F1	F2
04/21	0.2’	1.7’
04/22	0.5’	1.9’
04/23	0.3’	3.0’
04/24	0.6’	0.4’
04/25	0.2’	0.2’
04/26	0.2’	0.2’
04/27	0.2’	0.3’

2. MAINTENANCE ACTIVITIES:

a. Auxiliary Water System Closures:
FV6-9 was placed into manual for cleaning from 0655 to 0716 on 25 April

b. STS/VBS Inspections: Nothing to report.

c. Dewatering and Fish Salvages: Nothing to report.

3. RESEARCH

a. Four Peaks Environmental - Fish counting contract: Daytime video counting (0400 to 2000 PDT) began on 01 December. Fish counts can be viewed here.

b. USFWS – Lamprey Metamorphosis Study: Juvenile lamprey researchers are onsite and the work is underway.

c. Pacific States Marine Fisheries Commission – Smolt Monitoring: Sample collections at the Smolt Monitoring Facility (SMF) began on 02 March at 0700. Debris at the primary dewatering structured (PDS) and fish/debris separator was light consisting mostly of sticks and other woody debris. The Outfall hydrocannons are operating.

Gas Bubble Trauma (GBT) examinations began on 13 April and are typically performed two days per week through the end of spill. Results of this week's GBT examinations: 200 combined yearling Chinook and Steelhead examined: two fish (1.0%) were observed with GBT symptoms. Please follow this link https://www.fpc.org/currentdaily.gbtsumbybatchdate.pdf to the FPC web page for further details.

Fallbacks observed this week: Two Steelhead and one Salmon

4. FISHWAYS:

a. Project Biologists inspected from 21 April – 27 April

b. Adult Fishways:

(1) The AFF remains in service. CRITFC performed their first trapping day 23 April

(2) Sensor calibration checks occurred on 24 April

(3) SLEDs are installed at all locations.

(4) Bradford Island, Cascades Island, and Washington Shore Fishways remain in service.

c. Juvenile Fishways:

(1) The ITS remains in service.

(2) The hydro-cannon remains in service.

(3) The B2CC remains in service, operating 24 HRS/day.

(4) The DSM remains in service.

(5) STSs remain in service.

d. Lamprey Fishways:

(1) BI, CI, and WA Shore LPS's remain in service.

(2) The Bradford Island Wetted Wall (BIWW) remains in service.

(3) The PH2 Lamprey Flume Structure (LFS) remains out of service.

(4) The 2023 lamprey trapping and translocation activities have concluded for the 2023 season. The CI, AFF, and B-Branch trap will be started two weeks prior to CRITFC translocation work beginning.

e. Avian Monitoring: Avian counts are recorded 01 April – 31 October.

5. WATER QUALITY MONITORING:

a. Fishway Temperatures: Fishway temperature monitoring has concluded for the 2023 season and is scheduled to start June 1 2024.

b. Zebra Mussel Monitoring: No signs of colonization were observed this reporting week.

7. CONSTRUCTION: Nothing to report.

8. HAZMAT, SPILLS AND CLEANUP: Nothing to report.

9. TELETYPES CURRENTLY IN EFFECT:

- A teletype was distributed on 24 April updating the spring spill caps and lack of load spill priority list for Snake and Columbia River Projects and BPA. This teletype is to be used from 03 April until further notice. In the table provided in this teletype, Level 1 contains the spill level at the applicable State Water Quality Standard (WQS). For fish passage projects, the WQS is the level of spill specified in the 2024 Fish Operations Plan (FOP). The spill rate for the 125% gas cap is in the Level 2 for fish passage projects. The table provides lack of load spill levels (kcfs) and the order in which to spill from top to bottom, exhausting the complete list at each level before proceeding with the spill order at the next level. Please see teletype BON R 042424 1030 for detailed operational guidance.

- A teletype was distributed on 24 April describing Spring Spill for juvenile fish passage at Bonneville. Effective Monday, 10 April at 0001 HRS, through Monday, 15 June at 2359 HRS, operate Bonneville Dam in accordance with the 2023 Fish Operations Plan (FOP) to provide spring spill for juvenile fish passage as described below:
  Pursuant to FOP Table 3, the 2023 spring spill operation at Bonneville Dam is as follows:
  125% gas cap, 24 HRS/day. During all hours, spill at the rate defined in the Level 2 of the most recent spill priority list teletype. This spill rate is estimated to meet but not exceed 125% total dissolved gas (TDG) in the Bonneville Dam Tailrace (unless otherwise adjusted due to Project constraints or current conditions). The spill cap for Bonneville Dam will not exceed a maximum of 150 kcfs to avoid causing erosion in the spillway stilling basin.
  Distribute spill according to spill patterns in the 2024 Fish Passage Plan (FPP) Table BON-16. Follow the pattern in the table for the spill rate that is closest to the target. Actual spill may range up to +/- 3 kcfs from the target due to Project operational limitations described in the FOP Sections 3 and 8.8.3.
  Operate turbine unites within the operating ranges defined in FPP Section 4.2.1.1 (PH1) and 4.2.1.2 (PH2), unless otherwise instructed via teletype.
  During periods of high spill, there may be a need to temporarily reduce spill or modify patterns to maintain safe navigation in the tailrace (per FOP Section 4.6).
  If river flow is too low to maintain FOP spill and minimum generation requirements in FOP Table 1, operate at minimum generation and spill the remainder of outflow. This operation supports power system reliability during low flows.
  Please see teletype BON R 042424 1123 for more thorough details.

- A teletype was distributed on 16 April describing Operations for Powerhouse Two Gatewell Improvement, Post-Construction Evaluation. Effectve during Saturday, April 20 through Thursday, June 6. As well as Saturday, June 8 through Saturday, July 20.
  Outside of the dates specified above operate in accordance with reference CBT MSG BON R 040523 1237 FOP spring spill for fish passage and the subsequent FOP summer spill operation that will be forthcoming.

Do not operate PH2 Units above the upper 1% during the spring and summer test periods as described on page 61, of the NOAA fisheries 2020 Columbia River System Biological Opinion (2020 CRS BIOP). The BIOP may be found on the following website.

Https://www.salmonrecovery.gov/BiologicalOpinions/FCRPSBiOp.aspx

The goal of the tests are to evaluate the effectiveness of recent structural modifications to the PH2 gatewells for fish guidance efficiency (FGE). More information associated with PH2 1% operating limits may be found in the 2024 Fish Passage Plan (FPP) on page BON-40 in table BON-15. The 2024 FPP is posted on the website.

HTTPS://PWEB.CROHMS.ORG/TMT/DOCUMENTS/FPP/2024/

Additional information on PH2 FGE testing is described in memorandum of coordination (MOC) 24BON010 B2FGE post construction evaluation 2024. The MOC may be found on the following website.

HTTPS://PWEB.CROHMS.ORG/TMT/DOCUMENTS/fpom/2010/nwp%20mEMOS%20OF%20cOORDINATION%20AND%20nOTIFICATION/bon%20moc%20AND%20mfr/

During the impingement test days identified in the schedule implement the following turbine Unit Priority that is a modification from Unit Priority identified in the 2024 FPP (See page BON-34, Table BON-13) PH2 is the priority Powerhouse during the test operations.

Impingement Test PH2 Unit Priority: 11, 18, 15, 16, 14, 12, 17, 13.
PH1 Unit Priority: 1, 10, 3, 6, 9, 4, 5, 8, 7, 2.

Outside of the dates identified continue operationg in accordance with Unit Priority identified in the 2024 FPP on page BON-34.

Please see teletype BON R 041624 1534 for more thorough details.

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