

MEMORANDUM FOR Biologist, Operations Division (CENWP-OD)

SUBJECT: Bonneville Lock & Dam, Fishway and Fish Activities for Week 09 of 2024, which covers the period from 25 February to 02 March 2024.

1. ITEMS OUT OF CRITERIA (OOC):

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

Date	Location	FPP Violation	Cause	Response
02/25 – 03/02	BON	Unit Priority – U2, U3, U4, U5, U6, U7, U8, U9 & U10 F.O.	U2, U3, U4, U5, U6, U7, U8, U9, & U10 F.O., Oil Leak Investigation	W.O., Next Available Unit(s) Ran in Place (until 26 Feb)
02/25 – 03/02	BON	Unit Priority – U12 F.O.	U12 F.O., Stator Ground	W.O., Next Available Unit Ran in Place
PH1:				
02/27 – 03/02	PH1CC	FG 2-19 Stuck in the Mostly Closed Position, Should be Open	Mechanically Bound	W.O.
02/27 – 03/02	PH1CC	FG 2-21 Closed, Should Be Open	Mechanically Bound	W.O.
Bradford Island:				
02/27, 28, 03/01	A-Branch	A-Branch Staff Gauge High >1.1'	Unknown	N/A
02/28 – 03/02	B-Branch	FG 3-31 Stuck in the Open Position	Unknown	Mech/Electrician Troubleshooting
Cascades Island:				
03/01 – 02	CI Fishway	FG 6-11 Closed, Should be Open	Mechanically Bound	W.O.
02/25 – 03/02	CI Fishway	FG 6-12 Closed, Should be Open	Mechanically Bound	W.O.
02/28 – 29	CI Fishway	FG 6-13 Stuck Half Closed, Should be Open	Electrical Issues in Gear Box	Electrician Troubleshoot
02/20 – 22	CI Fishway	FG 6-18 Open, Should be Closed	Mechanically Bound	W.O.
02/26 – 28	CI Fishway	FG 6-19 Stuck Half Open, Should be Closed	Mechanically Bound	W.O.
02/26 – 03/02	CI Fishway	Excessive Drawdown on FV 5-3/5-4 Trash Racks	Lack of Cranes at PH2	Cleaning Attempts W/O Crane + Spill to Draw Debris from Trash Racks
Washington Shore:				
02/26 – 03/02	WA Shore Fishway	Weir 37 High, >1.1'	Weir 37 Blowdown Valve OOS	W.O.
02/26 – 29, 03/02	WA Shore Fishway	Weir 38 High, >1.1'	Weir 37 Blowdown Valve OOS	W.O.
02/27 – 29, 03/02	WA Shore Fishway	SUE Ent/TW Diff <1.0'	Single F.U. Ops/Unknown	Adjustment to Entrance Gates

02/27 – 03/02	WA Shore Fishway	SDE Ent/TW Diff <1.0'	Single F.U. Ops/Unknown	Adjustment to Entrance Gates
02/27, 03/02	WA Shore Fishway	NDE Ent/TW Diff <1.0'	Single F.U. Ops/Unknown	Adjustment to Entrance Gates
02/27, 03/02	WA Shore Fishway	NUE Ent/TW Diff <1.0'	Single F.U. Ops/Unknown	Adjustment to Entrance Gates

- 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 6-12 is mechanically bound in the closed position for unknown reasons. 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:

- Daily average river flows ranged from 116.4 to 139.8 kcfs. Daily average powerhouse forebay elevation ranged from 73.8' to 75.0' msl. Daily average Project tailwater ranged from 11.7' to 14.1' msl. Secchi disk measurements remained at 7.0+'. Daily average water temperature ranged from 41 to 42°F.
- Daily average spill ranged from 0.6 to 8.7 kcfs.
 - Spill was increased to 10 kcfs from 1650 on 26 February to 0500 on 27 February per BPA request.
 - Spill was increased to 10 kcfs from 1820 on 27 February to 0600 on 28 February per BPA request.
- 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	---
1	0400 on 26 Feb	1020 on 29 Feb	P.O., Annual Overhaul	3 days, 6 hours, 20 mins
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
F1	0016 on 08 Feb	1219 on 28 Feb	P.O., Annual Overhaul	20 days, 12 hours, 3 mins
F2	2105 on 26 Feb	2123 on 26 Feb	R.S., Float Trash	18 mins

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

Date	F1	F2
02/25	---	0.2'
02/26	---	2.3'
02/27	---	0.3'
02/28	0.2'	0.2'
02/29	0.3'	0.5'
03/01	0.3'	0.3'
03/02	0.3'	0.3'

2. MAINTENANCE ACTIVITIES:

- a. Auxiliary Water System Closures:
 - FV 6-9 was closed for cleaning from 0958 to 1004 on 26 February.
 - FV 6-9 was closed for cleaning from 0720 to 0900 on 29 February.
- b. STS/VBS Inspections: STS's returned to service this reporting week.
- 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 the morning of 02 March.

4. FISHWAYS:

- a. Project Biologists inspected on 26 February.
- b. Adult Fishways:
 - (1) The AFF remains out of service for the winter maintenance season.
 - (2) Sensor calibration checks were occurred on 26 February to 02 March.
 - (3) SLEDs are installed at all locations.
 - (4) The Cascades Island and Washington Shore Fishways remain in service. The Bradford Island Fishway was watered up and returned to service on 26 February.
- c. Juvenile Fishways:
 - (1) The ITS remains in service.
 - The ITS was closed from 1004 to 1127 and 1310 to 1500 on 26 February to assist in monitoring the PH1 Tailrace for oil sheens during Unit 2, 5, and 8 startup/shutdown testing.
 - The ITS was closed from 1000 to 1130 on 29 February to assist in monitoring the PH1 Tailrace for oil sheens during U1 testing.
 - (2) The hydro-cannon returned to service this reporting week.
 - (3) The B2CC began operating 01 March according to the FPP criteria found in section BON 2.3.2.5.v. and listed below:
 - (a) March 01 – 08: Open the B2CC daily from 0600 – 1000 HRS. Open within 30 minutes of the start time and shift the closure time as necessary to maintain the 4-HR duration.
 - (b) March 09 – 25: Open the B2CC daily from 0600 – 1000 and 1600 – 2000. Open within 30 minutes of the start time and shift the closure time as necessary to maintain the 4-HR duration.
 - (c) March 25 – August 31: Beginning at 0600 on March 26, operate the B2CC continuously (24 HRS/day) through August 31. Close the B2CC within one hour of the end of summer spill on August 31.
 - The B2CC was opened to pass flow and maintain proper tailwater levels for chum spawning periodically from 26 Feb until 01 March.
 - The B2CC was upon BPA request at 1100 on 01 March to pass water until 1400 on 02 March.
 - (4) The DSM returned to service this reporting week.
 - (5) STSs returned to service this reporting week.

d. Lamprey Fishways:

- (1) BI, CI, and WA Shore LPS's remain out of service.
- (2) The Bradford Island Wetted Wall (BIWW) remains out of 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.
- (5) 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.
- b. Zebra Mussel Monitoring: No signs of colonization were observed this reporting week.

7. **CONSTRUCTION:**

- Installation of the B-Branch LPS in the B-Branch Entrance Bay was completed this week, with the exception of topside handrail installation.

8. **HAZMAT, SPILLS AND CLEANUP:**

- On Monday 26 February at 0900 U2 was brought to service to assist with switching operations. Due to a lack of power generation need, U2 was returned to RS status at 1000. Upon Unit shutdown, Project Operations observed small spots of oil in the tailrace just downstream of U2. The small sheen that formed dissipated quickly and no environmental cleaning action was required. No sheen was observed beyond the PH1 tailrace.
- On Monday 26 February at approximately 1400 a sheen was observed in the PH1 tailrace. Start/stop testing was being performed on Units 5 and 8 at this time with coordination from the Project Environmental and Compliance teams, Project Engineers, and Project Operations. Upon shutdown of Units 5 and 8, small droplets of oil were seen to be rising below each Unit. Small rainbow sheens were noticed upon contact with the surface water but dissipated within seconds of making contact. Droplets appeared to discontinue within 10 minutes after shutdown of each Unit shutdown. Crews stationed at the tailrace remained to observe for about 45 mins after shutdown and no further sheen was noticed. No sheen was observed beyond the tailrace.

9. **TELETYPES CURRENTLY IN EFFECT:**

- A teletype was distributed on 30 August detailing the fall/winter spill priority list and fall/winter spill caps. This teletype provides the order that projects spill for lack of load conditions and is to be used until further notice. Please see teletype BON R 083023 1555 for further details.
- A teletype was distributed on 20 December replacing the previous teletype BON R 122023 1131 Tailwater Operation for Chum Incubation 4. This 5th revision to the teletype states: Effective, Sunday 31 December 2023, at 0001 HRS, until further notice, Bonneville Dam minimum tailwater elevation is 11.3 ft during all hours. The intent of this operation is to ensure sufficient tailwater elevation to protect chum redds in the Ives/Pierce Island area during the egg incubation period. This 5th revision's updated minimum tailwater elevation was based on an updated WDFW chum salmon survey data that occurred on 20 December. Please see teletype BON R 122023 1340 for more details.
- A teletype was distributed on 12 February detailing a Bonneville Spillway outage. The entire Bonneville Spillway, with the exception of Spillbay 1, will be tagged out and not available for spill during the following dates:
19 February through 28 February, daily from 0630 to 1800 HRS.

The purpose of this operation is to support dive work on the Bradford Island CERCLA sampling and instrumentation work. Spillbay 1 will remain open at 0.5 feet during the operation for fish attraction flow (approximately 1.1 kcfs). Please see teletype BON R 021224 1435 for more details.

- Two revisions to this teletype were distributed on 28 February (BON R 022824 1400 and BON R 022824 1620). The final revision states the following:

The entire Bonneville Spillway, with the exception of Spillbay 1, will be tagged out and not available for spill during the following dates and times:

19 February through 29 February and 02 March, daily from 0630 to 1800 HRS

The purpose of this operation is to support dive work on the Bradford Island CERCLA sampling and instrumentation work. Spillbay 1 will remain open at 0.5 FT during the operation for fish attraction flow (approximately 1.1 kcfs). Please see teletype BON R 022824 1620 for more details.

- A teletype was distributed on 29 February detailing a Bonneville Forebay operation and spillway outages. Bonneville is to maintain the Forebay above a minimum of 75 FT, hard constraint, during the following dates and times:

04 March, from 0830 to 1500 HRS

05 March, from 0830 to 1500 HRS

06 March, from 0830 to 1500 HRS

On 06 March between 0800-1200 HRS, Spillway Gates 2-17 will be tagged out and not available for spill, and the Spillbay 1 and 18 will remain open 0.5 FT during the operating for fish attraction flow (approximately 2.2 kcfs). This operation supports a pre-spill bathymetric survey. Please see teletype BON R 022924 1630 for more details.

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