U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#43-2017

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: December 15 – 21, 2017

Turbine Operation

General Comments: The soft 1% peak efficiency constraint continues.

Yes	No	Turbine Unit Status
☐	☒	All 14 turbine units available for service throughout the week (see Table 1 for outage details below).

Table 1. Unit Outages at McNary Project.

Units	Outage Dates	Outage Length	Reason
2	Dec 11 to 16	4.7 days	33 switch repaired and extended-length submersible bar screens (ESBSs) raised for winter maintenance.
3 & 4	Dec 15 to 16	16.5 hours each	ESBSs raised for winter maintenance. Units remained out of service until Dec 16 at 0001 hours.
1, 5 & 6	Dec 16	14.3 hours total	ESBSs raised for winter maintenance.
7 to 9	Dec 17	14.9 hours total	ESBSs raised for winter maintenance.
10 to 12	Dec 18	15.6 hours total	ESBSs raised for winter maintenance.
13 & 14	Dec 19	12.4 hours total	ESBSs raised for winter maintenance.

Adult Fish Passage Facilities

General Comments: McNary fisheries biologists performed measured inspections of the adult fishways on December 15, 17 and 19. Video review of adult passage will continue to February 28, 2018. In preparation for the winter outage, scheduled maintenance was performed on the Washington ladder dewatering pumps on December 20.

Fish Ladder Exits:

Criteria met?

Yes	No	Location, Criteria and Measurements
☒	☐	Oregon Exit (Criteria – Head over weir 1.0’ to 1.3’)
☒	☐	Oregon Count Station Differential (Criteria – Differential 0.0’ to 0.5’)
☒	☐	Washington Exit (Criteria – Head over weir 1.0’ to 1.3’)
☒	☐	Washington Count Station Differential (Criteria – Differential 0.0’ to 0.5’)

Comments: The trash racks and picketed leads were cleaned as needed, including Saturdays, at both exits.

Debris loads at the Washington exit and along the shoreline were minimal. However, floating aquatic vegetation and tumbleweeds were noted in the area. On December 17, one regulating weir alarm came in and was reset.

At the Oregon exit and along the shoreline, debris loads were very light. Tilting weir 339 remains in manual mode. On December 17, the tilting weirs set point was adjusted.

Fishway Entrances and Collection Channel:

Yes	No	Location, Criteria and Measurements
☒	☐	North Oregon Entrance Head Differential (Criteria – 1.0' to 2.0')
☒	☐	NFEW2 Weir Depth (Criteria – ≥ 8.0')
☒	☐	NFEW3 Weir Depth (Criteria – ≥ 8.0')
☒	☐	South Oregon Entrance Head Differential (Criteria – 1.0' to 2.0')
☒	☐	SFEW1 Weir Depth (Criteria – ≥ 8.0')
☒	☐	SFEW2 Weir Depth (Criteria – ≥ 8.0')
☒	☐	Oregon Collection Channel Velocities (Criteria –1.5 to 4.0 fps): Averaged 1.9 fps.
☒	☐	Washington Entrance Head Differential (Criteria – 1.0' to 2.0')
☒	☐	WFE2 Weir Depth (Criteria – ≥ 8.0')
☒	☐	WFE3 Weir Depth (Criteria – ≥ 8.0')

Comments: There are no problems to report.

Auxiliary Water Supply System:

Yes	No	In Service?
☒	☐	Washington shore Wasco County PUD Turbine Unit.
☐	☒	Washington shore Wasco PUD Bypass. Service was not required.
☒	☐	Oregon Ladder Fish Pump 1: Blade angle was approximately 23 degrees.
☒	☐	Oregon Ladder Fish Pump 2: Blade angle was approximately 22 degrees.
☒	☐	Oregon Ladder Fish Pump 3: Blade angle was approximately 21degrees.
☐	☒	Oregon North Powerhouse Pool supply from juvenile fishway.

Comments: There are no problems to report. On December 18, the juvenile facility was switch to emergency bypass in preparation for the winter outage. At that time, the juvenile system no longer supplied axillary water to the Oregon north powerhouse entrance.

Juvenile Fish Passage Facility

General Comments: Preparations for winter maintenance continue at the facility and in the collection channel. On December 18, from 0815 to 1115 hours, the system was switched from primary to emergency bypass. On December 20, from 0815 to 1420 hours, the collection channel orifices were closed and fish were evacuated from the emergency bypass channel to the river. When switching to emergency bypass, we noted 22 adult lamprey in the north end of the juvenile bypass channel. When

evacuating the fish, we estimated 75 steelhead adults (most appeared to be unclipped), 12 Chinook adults, three coho adults, two Chinook smolts, 1 sturgeon, 150 adult shad (three mortalities), two tripod rainbow trout (one mortality), eight channel catfish, 24 bass (appeared to be smallmouth) six carp, 2 walleye and one pike minnow.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	Item
☒	☐	Forebay debris load acceptable?
☒	☐	Trash rack differentials measured? If so, were differentials acceptable? ☒ Yes ☐ No ☐ N/A.
☒	☐	Any debris seen in gatewells?
☒	☐	Any oil seen in gatewells?

Comments: Forebay debris loads near the powerhouse were moderate. Debris loads at the spillway were minimal. New incoming debris loads were minimal and consisted of floating aquatic vegetation. No trash racks were cleaned. Trash rack differentials will be measured through the winter season. Woody debris was removed from the gatewell slots as needed this week. On December 19, a small quantity of fish screen oil was removed from 2C slot with an absorbent boom.

ESBSs/Vertical barrier screen (VBSs):

Yes	No	Item
☐	☒	ESBSs deployed in all slots. ESBSs were raised for winter maintenance.
☐	☒	ESBSs inspected this week? If so, were results acceptable? ☐ Yes ☐ No ☒ N/A
☒	☐	VBSs differentials checked this week? If so, were results acceptable? ☒ Yes ☐ No ☐ N/A

Comments: From December 15 to 19, ESBSs were raised in units 1 and 3 through 14. The ESBSs in unit 2 were raised on December 12. Units 2, 3 and 4 did not return to service until December 16 at 0001 hours.

The brush cycles for the screens in slots 1A, 7B, 8C, 9A, 12B, 13A, units 11 and 14 remained in timer mode until the screens were raised.

The station service contractor completed rewiring of the ESBS controls at units 1 to 4 this week.

ESBS camera inspections did not occur as the ESBSs were examined after the screens were raised. On December 17 and 19, the screens in units 1 to 7 and 8 to 14 were examined, respectively. All screens appeared clean, indicating the brushes were functioning properly. Eleven juvenile shad mortalities were noted. No other fish were observed.

VBS differential monitoring continued until all ESBSs were raised. No high differential measurements were recorded and no screens were cleaned this week.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe:

Yes	No	Item
☒	☐	Orifices operating satisfactory? 42 orifices were open until closure on 12/20/2017.
☒	☐	Dewatering and cleaning systems operating satisfactory? Systems removed from service 12/18/2017.

Comments: No issues with orifices occurred this week. Moisture in the orifices air supply line was bleed off daily until orifice closure.

We continued to operate the transition screen cleaning brush manually to insure it completes a full cleaning cycle until the switch to emergency bypass, at which time, all systems were removed from service.

The juvenile channel rehabilaiton contractor continued preparations for the winter outage season.

Bypass Facility:

Yes	No	Item
☐	☒	Sample gates on? Fall bypass season continues.
☐	☒	Passive integrated transponder (PIT) tag system on? Fall bypass season continues.

Comments: PIT tag detection continued in the full flow pipe until emergency bypass began on December 18. All systems remained out of service as light maintenance and preparations for the winter work list continued.

On December 18, raceway 8 backflush valve would not open to allow for winterization. The powerhouse mechanics resolved the issue on December 20. This is an example of a system that needs to be mothballed since juvenile salmonid transportation no longer occurs from McNary.

River Conditions

General Comments: River conditions were provided by the control room and outlined in Table 2 below. The data period runs from 0000 to 2400 hours each day. Flows and spill are recorded in one-thousand cubic feet per second (kcfs). Temperatures are recorded in degrees F.

Table 2. River Conditions at McNary Dam.

Daily Average River Flow		Daily Average Spill		Water Temperature		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
140.5	108.9	0.0	0.0	44.0	44.0	6.0	6.0

Comments: There are no problems to report.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on January 9.

Invasive Species: During winter maintenance, all dewatered structures will be examined for mussels.

Avian Activity: Casual avian observations continue while doing other inspections. Overall, gull and cormorant numbers appear to be declining. Both species were scattered throughout the tailwater area. One pelican flock of 12 birds was observed.

In the forebay zone, an occasional gull, blue heron, cormorant, pelican or grebe was observed. A few gulls and cormorants were observed on the rocks by the Washington shore boat dock.

Fish Salvage/Rescue: Fish were evacuated from the juvenile bypass emergency channel as described above.

Research

Item: No onsite research is occurring at this time.

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: December 15 – 21, 2017

Turbine Operation

Yes	No	Turbine Unit Status
☐	☒	All 6 turbine units available for service throughout the week (see comments below for outage details).
☒	☐	Available turbine units operated within 1% peak efficiency constraint. Constraint in effect: ☐ Hard ☒Soft. Soft constraint began at 0000 hours on November 1.

Comments: Unit 1 was removed from service on December 10, 2014 for Unit Rehabilitation with an estimated return to service date of May 31, 2018. Unit 5 was removed from service on January 17, 2017 due to a turbine oil leak with an estimated return to service of January 31, 2018. Unit 3 was removed from service at 0845 on October 20 for a digital governor installation and returned to service at 1315 on December 9, 2017. Unit 4 was removed from service at 1601 on December 6 to investigate blade seal leakage with an estimated return to service date of January 11, 2018. Unit 2 was removed from service at 0700 on December 11 for a digital governor installation with an estimated return to service of January 26, 2018.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists on December 18, 19, and 20.

Fish Ladders:

Yes	No	Location, Criteria and Measurements
☒	☐	North Fish Ladder Exit Differential (Criteria – Head ≤ 0.5’)
☒	☐	North Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 0.4’)
☒	☐	North Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0’ to 1.3’)
☒	☐	South Fish Ladder Exit Differential (Criteria – Head ≤ 0.5’)
☒	☐	South Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 0.3’)
☒	☐	South Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0’ to 1.3’)

Comments: None.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location, Criteria and Measurements
☐	☒	☐	North Shore Entrance (NSE-1) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☐	☒	☐	North Shore Entrance (NSE-2) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐		North Shore Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
☒	☐	☒	South Powerhouse Entrance (SPE-1) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐	☒	South Powerhouse Entrance (SPE-2) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐		South Powerhouse Entrance Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
☒	☐	☒	South Shore Entrance (SSE-1) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐	☐	South Shore Entrance (SSE-2) Weir Depth (Criteria: ≥ 6.0’ or on sill)

☒ ☐ South Shore Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)

Comments: South Powerhouse Entrance weirs (SPE-1 and SPE-2) were on sill during all inspections. While on sill readings for both were 6.2, 6.8 and 7.1 feet. South Shore Entrance (SSE-1) was on sill during the December 18 and December 20 inspections with readings of 7.0 and 7.8 feet, respectively. NSE-1 and NSE-2 were found out of criteria on December 18 inspection with readings of 7.4 feet. The operator found weirs had defaulted back to manual operation and restored them to automatic, correcting the issue.

Auxiliary Water Supply System:

Yes	No	In Service and Operating Satisfactory?
☐	☒	AWS Fish Pump 1.
☒	☐	AWS Fish Pump 2.
☒	☐	AWS Fish Pump 3.

Comments: Pump 1 will be out of service throughout this season unless an emergency occurs.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	Item
☒	☐	Forebay debris load acceptable? An average of 367 square yards of debris observed in forebay.
☐	☒	Trash rack differentials measured this week? If so, were differentials acceptable? ☐ Yes ☐ No ☒ N/A.
☐	☒	Any debris seen in gatewells?
☐	☒	Any oil seen in gatewells?

Comments: STS screens were removed December 18 and are currently dogged off in gatewells. Trash rack differentials are no longer being measured due to the end of the Juvenile Fish Passage Season.

STSs/VBSs:

Yes	No	Item
☐	☒	STSs deployed in all slots and in service?
☐	☐	STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)?
☐	☒	STSs inspected this week? If so, were results acceptable? ☐ Yes ☐ No ☒ N/A
☐	☒	VBSs differentials checked this week? If so, were results acceptable? ☐ Yes ☐ No ☒ N/A

Comments: All remaining STS’s were removed from their slots on December 18.

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Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	Item
☐	☐	Orifices operating satisfactory? How many are open and in service? 0
☐	☐	Dewaterer and cleaning systems operating satisfactory?

Comments:

Collection Facility: Collection for transport ended at 0700 on October 1, at which time the facility was placed into primary bypass. The collection facility was dewatered on October 11. All orifices were closed and the juvenile channel, primary dewaterer, and primary bypass were dewatered at 1200 hours on December 18.

Transport Summary: Transport season ended on October 1.

River Conditions

General Comments.

Table 1. River conditions at Lower Monumental Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (°F)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
37.0	24.2	0	0	44.4	43.0	6.0	5.5

Spill: The RSW spill was closed on August 18. Summer spill ended at 0000 on September 1.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on December 12. A total of 2 dead lamprey and 135 dead American shad were removed from the strainers.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on December 4.

Avian Activity: Gulls and cormorants were the predominant piscivorous bird species observed during fish ladder inspections this week.

Table 2. Tailrace counts of foraging piscivorous birds at Lower Monumental Dam.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans

Tailrace counts ended on July 13.

Outfall pipe bird water cannons were shut down and dewatered on October 12.

Research: No onsite research is in progress at this time.

Project: Little Goose
Biologists: Scott St. John & Richard Weis
Dates: December 15-21, 2017

Turbine Operation

Yes No Turbine Unit Status
☐ ☒ All 6 turbine units available for service throughout the week (see Table 1 for outage details).
☒ ☐ Available turbine units operated within 1% peak efficiency constraint.
Constraint in effect: ☐ Hard ☒Soft.

Table 1. Little Goose Unit Outages

Unit	OOS Date	OOS Time	RTS Date	RTS Time	Outage Description
1	27-Nov	07:15	29-Dec	17:00	Unit Annual
5	14-Apr	14:11	31-July	17:00	Turbine Guide Bearing and Spider Repair (ERTS July 31, 2018)

Comments: None.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists on December 18, 19 and 21.

Fish Ladder:

Yes	No	Location, Criteria and Measurements
☒	☐	Fish Ladder Exit Differential (Criteria – Head ≤ 0.5')
☒	☐	Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 0.3')
☒	☐	Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0' to 1.3')
☐	☒	Emergency Ladder Exit Cooling Water Pumps in Service
☐	☒	Emergency Ladder Exit Cooling Water Pumps Operating Satisfactorily.

Comments: Emergency cooling pump permanent power is scheduled to be installed during the winter maintenance outage.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location, Criteria and Measurements
☒	☐	☐	South Shore Entrance (SSE-1) Weir Depth (Criteria: ≥ 8.0')
☒	☐	☐	South Shore Entrance (SSE-2) Weir Depth (Criteria: ≥ 8.0')
☒	☐		South Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')
☐	☐	☒	North Powerhouse Entrance (NPE-1) Weir Depth (Criteria: ≥ 7.0' or on sill)
☐	☐	☒	North Powerhouse Entrance (NPE-2) Weir Depth (Criteria: ≥ 7.0' or on sill)
☒	☐		North Powerhouse Entrance Channel/Tailwater Differential (Criteria: 1.0' – 2.0')
☐	☒	☐	North Shore Entrance (NSE-1) Weir Depth (Criteria: ≥ 6.0' or on sill)
☐	☒	☐	North Shore Entrance (NSE-2) Weir Depth (Criteria: ≥ 6.0' or on sill)
☒	☐		North Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')

☒ ☐ Collection Channel Surface Velocity (Criteria: 1.5 – 4.0 fps)

Comments: North Powerhouse Entrance weir depth read 5.8 and 5.7 feet on December 19. Manual adjustments were made and the fishway is currently operating within criteria. Rickly velocity measurement was conducted on November 27 and averaged 3.1 fps.

Auxiliary Water Supply System:

Yes	No	In Service and Operating Satisfactory?
☒	☐	AWS Fish Pump 1 (operating).
☒	☐	AWS Fish Pump 2 (operating).
☒	☐	AWS Fish Pump 3 (operating).

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	Item
☒	☐	Forebay debris load acceptable.
☐	☒	Trash rack differentials measured this week? If so, were differentials acceptable? ☐ Yes ☐ No ☒ N/A.
☐	☒	Any debris seen in gatewells (i.e: over 10% coverage)?
☐	☒	Any oil seen in gatewells?

Comments: There is an estimated 1,000 square feet of floating woody debris in the immediate forebay.

Spillway Weir: Temporary spillway weir was closed for the season on July 19 at 09:00.

ESBS/VBS:

Yes	No	Item
☒	☐	ESBSs deployed in all slots and in service?
☐	☒	ESBSs inspected this week? If so, were results acceptable? ☐ Yes ☐ No ☒ N/A
☐	☒	VBSs differentials checked this week? If so, were results acceptable? ☐ Yes ☐ No ☒ N/A

Comments: ESBS's were removed for the season on December 18 and 19.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	Item
☒	☐	Orifices operating satisfactory? How many are open and in service? 19 open.
☒	☐	Dewaterer and cleaning systems operating satisfactory? N/A

Comment: Juvenile bypass system was dewatered on December 20.

Collection Facility: Juvenile Fish Facility is dewatered for winter maintenance.

Transport Summary: Collection for transport ended on November 2.

River Conditions

River conditions during the week are outlined in Table 2 below.

Table 2. River conditions at Little Goose Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
34.6	28.0	0	0	40.7	40.4	6.0	6.0

*Ladder temperature.

Comment: None.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on December 05.

Invasive Species: No invasive species have been observed on the mussel station.

Avian Activity: USDA bird hazing ended on June 25 and USACE bird counts ended on October 31.

Gas Bubble Trauma: Final GBT sampling for the season was conducted on August 21.

Research: No research is currently being conducted at this time.

Siberian Prawn: Collection ended for the season on November 1.

Project: Lower Granite
Biologists: Elizabeth Holdren and Stephen Hampton
Dates: December 15 - December 21, 2017

Turbine Operation

Yes	No	Turbine Unit Status
☐	☒	All 6 turbine units available for service throughout the week (see comments below for outage details).
☒	☐	Available turbine units operated within 1% peak efficiency constraint. Constraint in effect: ☐ Hard ☒Soft.

Comments: Unit 1 remains out of service for blade/runner repair. Unit 2 currently has hydraulically locked blades that limit operation to the upper end of 1% peak efficiency constraint. Unit 3 is operating as the priority unit.

Adult Fish Passage Facility

General comments: Adult fish facilities were inspected by Corps biologists December 18, 19, 20, and 21.

Fish Ladder:

Yes	No	Location, Criteria, and Measurements
☒	☐	Fish Ladder Exit Differential (Criteria – Head ≤ 0.5’)
☒	☐	Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 0.3’)
☒	☐	Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0’ to 1.3’)
☐	☒	Ladder Temperature Pumps in Service.
☒	☐	Ladder Temperature Pumps Operating Satisfactorily.

Comments:

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location, Criteria and Measurements
☒	☐	☐	South Shore Entrance (SSE-1) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐	☐	South Shore Entrance (SSE-2) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐		South Shore Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
☒	☐	☒	North Powerhouse Entrance (NPE-1) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐	☒	North Powerhouse Entrance (NPE-2) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐		North Powerhouse Entrance Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
☒	☐	☐	North Shore Entrance (NSE-1) Weir Depth (Criteria: ≥ 7.0’ or on sill)
☐	☒	☐	North Shore Entrance (NSE-2) Weir Depth (Criteria: ≥ 7.0’ or on sill)
☒	☐		North Shore Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
☒	☐		Collection Channel Velocity (Criteria: 1.5 – 4.0 fps)

Comments:

NSE-2 has been out of service since 2011 and remains set with a chain fall hoist in the closed position to improve channel/tailwater head differential. NPE-1 and NPE-2 were in sill criteria on all inspections. The fish ladder control system continues to be unable to consistently maintain both depth over the weir and channel/tailwater head differential at the north shore during spill at current tailwater elevation. NSE depth over the weir criteria is being sacrificed to achieve channel/tailwater head differentials.

Collection Channel Velocity: Collection channel velocities were in criteria on all inspections.

Auxiliary Water Supply System:

Yes	No	In Service and Operating Satisfactory?
☒	☐	AWS Fish Pump 1 (operating).
☐	☒	AWS Fish Pump 2 (operating).
☒	☐	AWS Fish Pump 3 (operating).

Comments: AWS pump 1 and 3 are in operation with pump 1 operating in fast mode. AWS pump 2 is in standby mode.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	Item
☒	☐	Forebay debris load acceptable? Debris was observed in the powerhouse forebay this week.
☒	☐	Trash rack differentials measured this week? If so, were differentials acceptable? ☐ Yes ☐ No ☐ N/A.
☐	☒	Debris in gatewells (i.e.: over 10% coverage)?
☐	☒	Oil in gatewells?

Comments: Forebay debris in front of the powerhouse averaged about 29.5 square yards of debris this week.

ESBSs/VBSs:

Yes	No	Item
☐	☒	ESBSs deployed in all slots and in service?
☐	☒	ESBSs inspected this week? If so, were results acceptable? ☐ Yes ☐ No ☒ N/A
☐	☒	VBSs differentials checked this week? If so, were results acceptable? ☐ Yes ☐ No ☒ N/A

Comments: ESBS are dogged off in gatewell slots.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes	No	Item

☐ ☒ Orifices operating satisfactory?
☐ ☒ Dewaterer and cleaning systems operating satisfactory?

Comments: Dewatered.

Collection Facility: Dewatered.

Transport Summary: No transport.

River Conditions

General Comments.

Table 1: River conditions at Lower Granite Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (F^o)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
32.1	29.4	3.4	0	39.9	39.3	5.0	4.6

*****Collection channel temperature readings were taken due to unit 1 and 2 temperatures being unavailable during maintenance.

Other

Adult Fish Trap Operations: Winter maintenance mode.

Inline Cooling Water Strainers: Unit cooling water strainers were inspected December 21. Mortalities included 63 juvenile lamprey.

Invasive Species: No signs of mussels were present during the December 11 inspection.

Avian Activity: N/A

Spill: Spill is being managed based on river flow. Spill bays 2 and 7 were operated at about 3.5 kcfs each from 0600-1800 hours to provide fish passage during juvenile bypass construction. This operation continued through 1800 hours December 15.

Gas Bubble Trauma (GBT) Monitoring: N/A.

Research: N/A.