

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#40-2020**

Project: McNary

Biologist: Bobby Johnson and Denise Griffith

Dates: November 27 – December 3, 2020

Turbine Operation

Yes	No	Turbine Unit Status	Hard	Soft
	X	All 14 turbine units available for service. (See table & comments below for details).		
	X	Available turbines operated within 1% peak efficiency? Constraint in effect.		X

Table 1. McNary Unit Outages (OOS) and Return to Service (RTS).

Unit(s)	OOS		RTS		Outage Description
	Date	Time	Date	Time	
4	11/16	0627	12/3	1141	Thrust bearing system maintenance/upgrades.
10	11/30	0641	12/3	0702	New top plate pump installation.
8	12/2	0632	12/3	1500	Hub tap/Sight glass repair.
6, 7 & 8	12/2	1000	12/2	1100	ESBS camera inspections.
7	12/2	0913	12/2	1536	ESBS replaced in 7B slot.
11	12/3	0705	12/9	N/A	New top plate pump installation.

Comments: The soft one percent peak efficiency constraint continues. At times, the units ran outside the constraint at BPA's request. Unit priority changed on December 1.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on November 28, 29 and December 1.

Fish Ladder Exits

Yes	No	Location	Criteria	Comments
X		Oregon Exit	Head over weir 1.0' to 1.3'	
X		Oregon Count Station Differential	0.0' to 0.5'	
X		Washington Exit	Head over weir 1.0' to 1.3'	
X		Washington Count Station Differential	0.0' to 0.5'	

Comments: Debris loads were minimal near the Oregon exit and minimal to very light Washington exit.

At the Washington exit, a low water alarm was reset on November 29.

Fishway Entrances and Collection Channel

Yes	No	Sill	Location	Criteria	Comments
X			North Oregon Entrance Head Differential	1.0' – 2.0'	
	X		NFEW2 Weir Depth	≥ 8.0'	7.8' all week.
	X		NFEW3 Weir Depth	≥ 8.0'	7.8 to 7.9' all week.
X			South Oregon Entrance Head Differential	1.0' – 2.0'	
X			SFEW1 Weir Depth	≥ 8.0'	
	X		SFEW2 Weir Depth	≥ 8.0'	7.9' on Nov 28 & Dec 1.
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.7 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
X			WFE3 Weir Depth	≥ 8.0'	

Comments: The out of criteria points listed above for the Oregon ladder entrance weirs NFEW2, NFEW3 and SFEW2 were due to the juvenile system no longer supplying flow to the Oregon north powerhouse pool and possibly due to hydraulic gradients along with calibration drifts.

Auxiliary Water Supply System

Operating Satisfactory	Standby	Out of Service (OOS)	Auxiliary Water Supply System (AWS)
Yes			WA shore Wasco County PUD Turbine Unit
	Yes		WA shore Wasco PUD Bypass
		Yes	Oregon shore Fish Pump 1, OOS to Feb 1, 2021.
Yes			Oregon Ladder Fish Pump 2, Blade angle: 26°.
Yes			Oregon Ladder Fish Pump 3, Blade angle: 30°.
		Yes	OR North Powerhouse Pool supply from juvenile fishway

Comments: Repairs to fish pump 1 continue. The juvenile system remains in emergency bypass.

Juvenile Fish Passage Facility

The juvenile system remains in emergency bypass mode with the winter maintenance season continuing.

Forebay Debris/Gatewell Debris/Oil

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to light.
X			Were trash rack differentials measured?	Daily.
X			Trash rack differentials acceptable?	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: Debris loads were minimal to light near the powerhouse and minimal beside the spillway. New debris loads were very light. The debris consisted mostly of aquatic vegetation and woody material.

No trash rack cleaning or forebay debris removal occurred.

Extended-length submersible bar screen (ESBSs)/Vertical barrier screen (VBSs)

Yes	No	NA	Item
X			ESBSs deployed in all slots and in service?
X			ESBSs inspected this week?
	X		ESBSs inspection results acceptable?
X			VBSs differentials checked this week?
X			VBSs differentials acceptable?

Comments: ESBS's remained deployed in all units. ESBS camera inspections in units 6, 7, and 8, revealed one problem on December 2, which is discussed below.

The biologists found the ESBS in the 7B slot with a brush that was "short cycling", not completing a full cycle, on November 28 and 30. The brush motor amp readings, in preparation for the camera inspection, revealed an overamping motor on December 1. The camera inspection of the brush revealed woody debris that appeared to be wedged between the brush and the screen. The brush appeared to cycle after the inspection and the operators monitored the ESBS overnight. The decision was made to raise the ESBS for examination on December 2. Facing the screen once it was pulled, we found the brush was no longer attached on the left side. Also, on the right side, the brush was bent and jammed. The screen appeared clean and no fish were observed. The ESBS was replaced with the spare screen, and the unit was returned to service.

A new toggle switch for the camera cable drum controls was ordered this week.

The brush cycle for the screen in 11C slot appeared to be "short cycling" just before the unit went out of service on December 3.

The ESBS's in units 5 and 12 will be raised next week. The units will be out of service beyond December 14, when ESBS seasonal removal begins.

Daily VBS differential monitoring continued. No high differentials were measured. A total of three screens were cleaned on December 3. No fish were observed.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe

Yes	No	NA	Item	Number of orifices in service
X			Did orifices operate satisfactory?	42
		X	Were the dewaterer and cleaning systems operated satisfactory?	

Comments: The system remains in emergency bypass mode. There were 42 orifices in use.

Modifying the electrical conduit to the three screen cleaning brushes' limit switches and the control system program continued. Channel hoist maintenance was completed this week.

Bypass Facility

Yes	No	NA	Item
		X	Sample gates on?
		X	PIT-tag sampling system on?

Comments: All bypass facility systems remain out of service.

Separator and the sample system rehabilitation continued along with gasket replacement on the full flow flume primary/secondary bypass gate.

Top Spillway Weir (TSW) Operations: The TSW's in bays 19 and 20 remained out of service.

River Conditions

Table 2. River Conditions at McNary 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
135.3	127.5	0.0	0.0	49.0	47.0	6.0	6.0

Comments: The above data comes from the control room. The data day is 0000 to 0000 hours. Repairs to crane 6 continue. The crane is scheduled to return to service in mid-January 2021. Crane 7 is also scheduled to receive a new gearbox.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on December 8.

Avian Activity: Casual avian observations continued.

Currently, there are no hazing efforts occurring. No terns or pelicans were observed on project.

Gull and cormorant feeding activity remained light with very few birds in the powerhouse zone.

In the spillway zone, gulls and cormorants were observed in fairly low numbers, with the birds roosting around the spill basin or on the water.

At the juvenile bypass outfall, gulls and cormorants were noted. Cormorant numbers remained high. Roosting on the bypass pipe was still the primary use of the area with feeding occurring occasionally.

In the forebay zone, a gull flock was occasionally noted roosting on the water. Gulls were also observed flying by. In addition, a loon or a grebe was observed around the forebay. Gull flocks and a few cormorants were also noted roosting outside the zone.

Invasive Species: The next mussel station examinations will occur in late December.

Fish Rescue/Salvage: There is nothing to report.

Research: There is nothing to report.

Project: Ice Harbor

Biologist: Ken Fone

Dates: November 27, 2020 – December 3, 2020

Turbine Operation

Yes	No	Turbine Unit Status	Hard	Soft
	X	All 6 turbine units available for service (see table below for details).		
X		Available turbines operated within 1% peak efficiency? Constraint in effect.		X

Ice Harbor Unit Outages (OOS) and Return to Service (RTS).

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
3	5/3/19	0641	---	---	Turbine runner replacement and stator rewind
5	9/21/20	0900	---	---	Annual maintenance and overhaul
2	11/30/20	0702	---	---	Annual maintenance

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on November 30, December 1 and 2.

Fish Ladders:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head \leq 0.3'	
X		North Ladder Picketed Lead Differential	Head \leq 0.3'	
X		North Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
X		South Ladder Exit Differential	Head \leq 0.3'	
X		South Ladder Picketed Lead Differential	Head \leq 0.3'	
X		South Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
		X	South Shore Entrance (SFE-1) Weir Depth	\geq 8.0' or on sill	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
X			South Shore Channel Velocity	1.5 – 4.0 fps	
		X	North Powerhouse Entrance (NFE-2) Weir Depth	\geq 8.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0' – 2.0'	
		X	North Shore Entrance (NEW-1) Weir Depth	\geq 8.0' or on sill	
X			North Shore Channel/Tailwater Differential	1.0' – 2.0'	

Comments: None.

Auxiliary Water Supply System (AWS):

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
5 pumps	3 pumps		Status of the 8 South Shore AWS Pumps
2 pumps	1 pump		Status of the 3 North Shore AWS Pumps

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Average of 24 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	Stored STSs obstruct full view into gatewells
	X		Any oil seen in gatewells?	

Comments: None.

Submersible Traveling Screens/Vertical Barrier Screens (STSs/VBSs):

Yes	No	NA	Item
	X		STSs deployed in all slots and in service for available units?
		X	STSs in continuous-run mode? (Note: if not, then STSs are in cycle-run mode).
		X	STSs inspected this week?
		X	STSs inspection results acceptable?
		X	VBSs differentials checked this week?
		X	VBSs differentials acceptable?

Comments: STSs are removed for winter maintenance.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
		X	Orifices operating satisfactory?	0
		X	Dewaterer and cleaning systems operating satisfactory?	

Comments: The juvenile fish bypass is unwatered for winter maintenance.

Juvenile Fish Facility: The juvenile fish facility is unwatered for winter maintenance.

Fish Sampling: Fish sampling is done for the year at Ice Harbor Project.

Removable Spillway Weir (RSW): Voluntary spill for fish is done for the year.

River Conditions

River conditions at Ice Harbor 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
21.2	17.3	0	0	49	48	10.0	8.0

*Unit 1 scroll case temperature.

Comments: None.

Other

Inline Cooling Water Strainers: Unit 2 and 1 strainers were inspected and cleaned of American shad on December 1 and 3, respectively. A total of 84 juvenile shad mortalities were removed from the strainers.

Avian Activity: There were high numbers of piscivorous birds seen around the project, including gulls, mergansers, and pelicans. Many of the birds were observed foraging downstream of the powerhouse or resting along the south shore and on Eagle Island.

Invasive Species: No new exotic species have been observed.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by fisheries management personnel, frozen and properly disposed in a landfill. Sampling is done for the year.

Fish Rescue/Salvage: None.

Research: No on-site research is occurring at this time.

Project: Lower Monumental

Biologists: Chuck Barnes and Raymond Addis

Dates: November 27 – December 03, 2020

Turbine Operation

Yes	No	Turbine Unit Status	Hard	Soft
	X	All 6 turbine units available for service (see table & comments below for details).		
X		Available turbines operated within 1% peak efficiency? Constraint in effect.		X

Lower Monumental Unit Outages (OOS) and Return to Service (RTS)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
Unit 2	7/15/2019	0720	4/01/2021	ERTS	Annual, Draft Tube Liner

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps biologists on November 30, December 1 and 2.

Fish Ladder:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head \leq 0.5'	
X		North Ladder Picketed Lead Differential	Head \leq 0.4'	
X		North Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
X		South Ladder Exit Differential	Head \leq 0.5'	
X		South Ladder Picketed Lead Differential	Head \leq 0.3'	
X		South Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	

Comments: None.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Shore Entrance (NSE-1) Weir Depth	\geq 8.0' or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	\geq 8.0' or on sill	
X			North Shore Channel/Tailwater Differential	1.0'–2.0'	
		X	South Powerhouse Entrance (SPE-1) Weir Depth	\geq 8.0' or on sill	
		X	South Powerhouse Entrance (SPE-2) Weir Depth	\geq 8.0' or on sill	
X			South Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X		X	South Shore Entrance (SSE-1) Weir Depth	\geq 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	\geq 6.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	

Comments:

South Powerhouse Entrance (SPE-1) Weir was on sill during all inspections with readings of 6.5, 6.8 and 6.9 feet respectively.

South Powerhouse Entrance (SPE-2) Weir was on sill during all inspections with readings of 6.5, 6.8 and 6.9 feet respectively.

South Shore Entrance (SSE-1) Weir was on sill during all inspections with readings of 8.0, 8.5 and 7.7 feet respectively.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
Yes			AWS Fish Pump 1
Yes			AWS Fish Pump 2
Yes			AWS Fish Pump 3

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	40 yds ²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 50%
	X		Any oil seen in gatewells?	

Comments: Gatewells 3A, 3B and 3C were dripped to remove woody debris on December 2.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed in all slots and in service?
	X		STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)?
	X		STSs inspected this week?
		X	STSs inspection results acceptable?
		X	VBSs differentials checked this week?
		X	VBSs differentials acceptable?

Comments: STS's were operating in cycle mode due to average sub-yearling Chinook and sockeye lengths being greater than 120 mm.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18
	X		Dewaterer and cleaning systems operating satisfactory?	

Comments: None.

Collection Facility: The collection facility is dewatered for winter maintenance.

Transport Summary: The 2020 transport season has ended.

Spillway Weir: Summer spill ended on August 31 at 23:59:59. Off season spill ended November 15.

River Conditions

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
22.1	16.3	0	0	44.5	44.0	7.1	6.4

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on December 1. No live fish were recovered. Several juvenile American shad mortalities were present in strainers but could not be counted due to decomposition.

Avian Activity: Bird hazing efforts by USDA personnel ended June 2, 2020. Tailrace bird observations conducted during fish ladder inspections ended for the season September 30, 2020.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on December 1.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by PSMFC and Anchor, frozen and properly disposed of in a landfill. Sampling has ended for the year.

Fish Rescue/Salvage: No Fish Rescue/Salvage took place during this reporting period.

Research: No research is occurring currently.

Project: Little Goose

Biologists: Scott St. John

Dates: November 27 – December 3, 2020

Turbine Operation

Yes	No	Turbine Unit Status	Hard	Soft
	X	All 6 turbine units available for service (see table & comments below for details).		
X		Available turbines operated within 1% peak efficiency? Constraint in effect.		X

Little Goose Unit Outages (OOS) and Return to Service (RTS)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
5	04/14/17	14:11	03/31/21	17:00	Spider and upper guide bearing repair.
2	10/26/20	03:08	12/10/20	17:00	Unit Annual
1	11/30/20	08:00	12/18/20	17:00	Unit Annual

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on December 1, 2 and 3.

Fish Ladder:

Yes	No	NA	Location	Criteria	Measurements
X			Fish Ladder Exit Differential	Head \leq 0.5'	
X			Fish Ladder Picketed Lead Differential	Head \leq 0.3'	
X			Fish Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
	X		Fish Ladder Cooling Water Pump in Service		
		X	Fish Ladder Exit Cooling Water Pumps Operating Satisfactorily		

Comments: Adult ladder cooling pump was shut down for the season on September 16.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	\geq 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	\geq 7.0' or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	\geq 7.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X			North Shore Entrance (NSE-1) Weir Depth	\geq 6.0' or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	\geq 6.0' or on sill	
X			North Shore Channel/Tailwater Differential	1.0'–2.0'	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The adult fishway continues to operate in manual mode.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
X			AWS Fish Pump 1
X			AWS Fish Pump 2
X			AWS Fish Pump 3

Comments: None

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: There is approximately 1,084 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed on December 3 on Units 3, 4 and 6 and were in criteria.

ESBS/VBS:

Yes	No	NA	Item
X			ESBSs deployed in all slots and in service?
X			ESBSs inspected this week?
X			ESBSs inspection results acceptable?
X			VBSs differentials checked this week?
X			VBSs differentials acceptable?
X			VBSs inspected this week?

Comments: All ESBS screens are in slots and deployed for all available and in-service Units. VBS differentials were last performed on December 3 on Units 3, 4 and 6 and were in criteria. ESBS/VBS camera inspections were performed on Unit 1 on December 3 and screens were in satisfactory condition.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18
	X		Dewaterer and cleaning systems operating satisfactory?	

Comments: The airline for the backflush system on orifice 1C1 was found broken and will need repaired once the juvenile channel is dewatered for winter maintenance (MFR 20 LGS 12). During prior ESBS/VBS inspections, an issue with the orifice liner in 6C2 was observed (MFR 20 LGS 14) and will need repaired during winter maintenance. The limitorque motor that operates the weirs for water elevation at the primary dewatering structure is out of service. Weirs are currently being adjust manually until repairs are made.

Collection Facility: The collection facility was placed in primary bypass on November 1. The facility was dewatered for winter maintenance on November 4.

Transport Summary: Daily collection and transport ended on November 1 at 07:00.

Spillway Weir: Spill for adult steelhead overshoots ended on November 15.

River Conditions

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
20.0	16.7	0.0	0.0	45.7	45.1	6.0	6.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainers were inspected and results submitted to district operations every other week for FPOM distribution through mid-June per Fish Passage Plan (FPP) requirements.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam began on April 1 and ended on October 31.

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

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized, frozen and properly disposed of in a landfill. Daily collection ended on November 1; therefore, no prawns were collected and euthanized.

Gas Bubble Trauma (GBT): GBT monitoring has finished for the season.

Fish Rescue/Salvage: A fish salvage was conducted in gatewell 1A on December 1. There were 119 live and 14 dead unclipped juvenile Chinook salmon and 1 juvenile coho salmon. A fish salvage also occurred on December 2 in Unit 1 scroll case. There were 3 live and 6 dead unclipped juvenile Chinook salmon. All live fish were released to the tailrace. Numerous shad were observed in both rescue locations. Fish rescues were conducted to support Unit annual maintenance.

Research: None.

Project: Lower Granite

Biologists: Elizabeth Holdren and David Miller

Dates: Nov 27-Dec 3, 2020

Turbine Operation

Yes	No	Turbine Unit Status	Hard	Soft
	X	All 6 turbine units available for service (see table & comments below for details).		
X		Available turbines operated within 1% peak efficiency? Constraint in effect.		X

Lower Granite Unit Outages (OOS) and Return to Service (RTS)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
1	Nov 30	0704			Annual maintenance
3	Oct 19	0659			Annual maintenance

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologist inspected the adult fishway November 30, December 2, and 3.

Fish Ladder:

Yes	No	NA	Location	Criteria	Comments
X			Fish Ladder Exit Differential	Head \leq 0.5'	
X			Fish Ladder Picketed Lead Differential	Head \leq 0.3'	
X			Fish Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
	X		Fish Ladder Cooling Water Pumps in Service		
		X	Fish Ladder Cooling Water Pumps Operating Satisfactorily		

Comments: None.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
X			South Shore Entrance (SSE-1) Weir Depth	\geq 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	\geq 8.0' or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	\geq 8.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X			North Shore Entrance (NSE-1) Weir Depth	\geq 7.0' or on sill	
			North Shore Entrance (NSE-2) Weir Depth	\geq 7.0' or on sill	Closed
X			North Shore Channel/Tailwater Differential	1.0'–2.0'	
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.3, 1.1

Comments: FOGs 1 and 10 are in operation. The control system sensor for NPE 1 & 2 continue to have issues recognizing and responding to tailwater elevation changes. The electrical crew continues to work on calibration issues for NPE and NSE tailwater elevation sensors.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
Yes			AWS Fish Pump 1
Yes			AWS Fish Pump 2
No			AWS Fish Pump 3

Comments: AWS pump 3 is operational in standby mode with lower guide bearing work delayed until the winter outage due to COVID.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Woody debris observed in the powerhouse forebay this season is likely due to the failure in the upriver two sections of the forebay debris boom. Repairs of the forebay debris boom are recommended to prevent further damage and limit debris in the powerhouse forebay and on unit trashracks.

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	
X			Trash rack differentials measured this week?	
X			Trash rack differentials acceptable	
X			Any debris seen in gatewells (% coverage)	Ranged from 1-3%
	X		Any oil seen in gatewells?	

Comments: Gatewell differentials were measured November 30. Debris is removed from gatewells with a hand dip basket.

ESBSs/VBSs:

Yes	No	NA	Item
X			ESBSs deployed in all slots and in service?
	X		ESBSs inspected this week?
		X	ESBSs inspection results acceptable?
X			VBSs differentials checked this week?
X			VBSs differentials acceptable?

Comments: None.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18-24
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: Juvenile collection channel water level and flow is being adjusted using 10" orifices depending on forebay elevations. The facility is in primary bypass.

Collection Facility: Dewatered for winter maintenance.

Transport Summary: No transport.

Spillway Weir: No spill.

River Conditions

River conditions at Lower Granite 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
20.0	17.3	0.0	0.0	42.0	41.0	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga mussels were detected on the trap substrate.

Avian Activity: N/A

Adult Fish Trap Operations: N/A

Fish Rescue/Salvage: N/A

Research: N/A