

**MEMORANDUM FOR THE RECORD**

**SUBJECT: 17JDA07 MFR – Juvenile salmonid mortalities during MU12 dewatering**

On 1 May at 0400 hrs, MU12 was shut down for the turbine hubs’ oil change which requires a complete dewatering of scroll case and draft tube. Next, three STS were removed from the three MU 12 gatewells starting after 0700 hrs with all corresponding fish exit orifices closed to prevent wooden debris from clogging them up. Then, MU 12 was spun at full load at 1028 hrs thru 1046 hrs and its tail logs were installed immediately afterwards (1046 hrs.) The two bulkheads at slots B & C and one roller gate at slot A were installed at 1108 hrs. The roller gate was put into the VBS slot; the bulkheads were put into the STS slots.

On 1 May early PM, JD Fisheries was notified of smolts stranded on top of two bulkheads at MU 12. An immediate visual inspection determined that there were approximately a couple of thousands of smolts per gatewell and from the forebay deck, they all appeared dead. A quick salvage operation was organized and a fish biologist assisted by a maintenance worker was lowered into the slots, in a man basket, for a closer evaluation.

A subsequent fish rescue resulted in up to estimated 1,000 live smolts being netted and released into adjacent gatewell 12 A which had its orifice open. There were only 9 mortalities noted there afterwards. Gatewell 12 A had a roller gate installed instead of bulkhead and therefore it was a suitable place to release live smolts into. Next, all fish mortalities from MU 12 gatewells B & C were recovered and transported to the JD SMF laboratory for counting and further identification.

It might helpful to know that there is a very high number of smolts currently in the river, with the daily JD SMF passage estimated at 166,000 smolts in 24 hrs (per PSMFC sample expanded by sample rate from 5/02/17.) The following is the species composition from the JD SMF sample on 5/2/17, which started on 5/1 at 0700 hrs and ended on 5/2/17 at 0700 hrs:

Chn1	Chn0	StlHd	Coho	Sock	Lamprey	Total fish
604	1	512	20	30	5	1172
<b>51.5 %</b>	<b>0%</b>	<b>43.7%</b>	<b>1.7%</b>	<b>2.6%</b>	<b>0%</b>	<b>100%</b>

- A. Species – Juvenile salmonids, 86% clipped steelhead and 7% unclipped steelhead (see the tally below.)
- B. Origin – Majority unknown, but see 65 PIT tags info below for details.
- C. Length – Varied; smolt-sized.
- D. Marks and tags – 65 PIT tags were interrogated (see the attached PIT tag’s information.)
- E. Marks and Injuries found on carcass – N/A
- F. Cause and Time of Death – Stranded on top of bulkheads of MU 12 after they were installed in its two intake gatewells B and C, on 1 May 2017.
- G. Future and Preventative Measures – According to the current FPP language JD is not required to dip gatewells prior to their draining if the STSs have been removed (6.5.1.) The STSs were removed just before the MU12 was spun, prior to the tail logs installation as required by FPP 6.5.2. However, we are now proposing to change the FPP 6.5.1 to require the mandatory gatewell dipping every time a turbine is dewatered during the period when STSs are deployed, 1 April thru 15 December; effective immediately (per FPP Form Change below. )

**Fish Passage Plan (FPP) Change Request Form**

**Change Form # & Title:** 17JDA005 – Turbine Dewatering Gatewell Dipping

**Date Submitted:** May 3, 2017; **Revised May 18, 2017**

**Project:** JDA

**Requester Name, Agency:** Miro Zyndol, JDA Fisheries

**PROPOSED CHANGE:**

**6.5. Dewatering – Turbine Units.**

**6.5.1. Gatewell Dipping:** Remove juvenile fish from gatewell(s) that will be drained by use of a special dipping basket. Gatewell dipping is mandatory during fish passage season, April 1–December 15, whether or not fish screens are installed. Dipping is not required during winter maintenance, December 16–March 31, when fish screens have been removed. To minimize the number of fish contained in the gatewell:

- a.** Shut down the turbine the previous evening/night and leave idle with all orifices open overnight if power demand allows;
- b.** Keep orifices open during the removal of screens/STSs, during turbine spinning, and while gatewell dipping is performed;
- c.** Close orifices only after gatewell dipping/fish removal has been completed and immediately before installing the bulkhead;
- d.** It is strongly preferred that, if possible, two roller gates and one bulkhead are deployed to isolate a turbine for dewatering.

**COMMENTS:**

FPOM Thursday, May 11, 2017: This operation needs preventive measures other than just gatewell dipping, especially during peak passage when dipping could be harmful to fish. Can just one bulkhead suffice? Leave orifices open overnight or for a day, then dip immediately prior to installing the bulkhead.

May 18, 2017: Change form revised per FPOM feedback. **PENDING review at June FPOM.**

**Total MU 12 Mortalities per species and type**

Hatchery Steelhead	2941
Unclipped Steelhead	242
Hatchery Chinook	179
Unclipped Chinook	53
Clipped Sockeye	1
Clipped Coho	1
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	<b>3417</b>

pit tag total **65**



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**3417**

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Tag Code	Species Name	Run Name	Rear Type Name	Release Site Name
3DD.007776AA4D	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.00779A3D7C	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.00779AB3AC	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.003BF76C46	Steelhead	Summer	Hatchery Reared	WALLAR - Walla Walla River
3DD.0077707E6D	Steelhead	Summer	Hatchery Reared	SALTRP - Salmon Trap
3D9.1C2D72A821	Steelhead	Summer	Hatchery Reared	- Unknown
3D9.1C2D6D5908	Steelhead	Summer	Hatchery Reared	- Unknown
3D9.1C2D72810F	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.0077BC8C40	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.0077860721	Steelhead	Summer	Hatchery Reared	- Unknown
384.1B7974428B	Unknown	N/A	Unknown	ORPHAN - Unknown
3DD.00777FD16F	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.007799A128	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.0077997DE4	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.003BF5D279	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.00779AC8B3	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.00779A5C7D	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.003BFA882E	Unknown	N/A	Unknown	ORPHAN - Unknown
3DD.00779AAF01	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.00777E694B	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.0077AF38FF	Chinook	Spring	Hatchery Reared	- Unknown
3DD.0077965126	Chinook	Spring	Hatchery Reared	- Unknown
3DD.003BF5CED3	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.003BF5EA71	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.00777FCB15	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.003BF5D345	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.00779AAF37	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.00779A092C	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.00778C78D3	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.00779A6FD5	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.0077B67EBC	Steelhead	Summer	Hatchery Reared	LSHEEF - Little Sheep Facility
3DD.003BF6221F	Steelhead	Summer	Hatchery Reared	RINH - Ringold Hatchery
3D9.1C2D723D75	Steelhead	Summer	Hatchery Reared	- Unknown

3DD.00778BFDB9	Steelhead	Summer	Hatchery Reared	- Unknown
3D9.1C2D6A0913	Unknown	N/A	Unknown	ORPHAN - Unknown
3DD.0077965777	Chinook	Spring	Hatchery Reared	- Unknown
3DD.0077B97541	Unknown	N/A	Unknown	ORPHAN - Unknown
3DD.00779AAF30	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.00777FDC3F	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.003BF6356F	Steelhead	Summer	Hatchery Reared	RINH - Ringold Hatchery
3DD.00777FDDF7	Steelhead	Summer	Hatchery Reared	WALH - Wallowa Hatchery
3DD.0077AEE6AA	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.003BF5A959	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.003BF5F39E	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.00779740B5	Chinook	Spring	Hatchery Reared	- Unknown
3DD.007797765D	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.00779A72BE	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.00777E96F3	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.003BF635C3	Steelhead	Summer	Hatchery Reared	RINH - Ringold Hatchery
3DD.0077991C42	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.007775D7AC	Steelhead	Summer	Hatchery Reared	SALTRP - Salmon Trap
3DD.003BF621EA	Steelhead	Summer	Hatchery Reared	RINH - Ringold Hatchery
3DD.00776BDC17	Coho	Unknown	Hatchery Reared	Kooskia National Fish Hatchery
3DD.0077772A6A	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.003BF634CA	Steelhead	Summer	Hatchery Reared	RINH - Ringold Hatchery
3DD.007777F6AD	Steelhead	Summer	Hatchery Reared	GRNTRP - Grande Ronde River Trap
3DD.0077998901	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.007777254C	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.003BF62568	Steelhead	Summer	Hatchery Reared	RINH - Ringold Hatchery
3DD.00779AB36E	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.007788C092	Unknown	N/A	Unknown	ORPHAN - Unknown
3DD.00777C8E21	Chinook	Spring	Hatchery Reared	South Fork Walla Walla River
3DD.003BF5F2CE	Steelhead	Summer	Hatchery Reared	- Unknown
3DD.007777F3D8	Steelhead	Summer	Hatchery Reared	GRNTRP - Grande Ronde River Trap
3DD.0077B6FE10	Steelhead	Summer	Hatchery Reared	LSHEEF - Little Sheep Facility

Sincerely,  
JD Fisheries