

OFFICIAL COORDINATION REQUEST FOR NON-ROUTINE OPERATIONS AND MAINTENANCE

COORDINATION TITLE- 18JDA02 Trash rack replacement

COORDINATION DATE- 6/21/2018

RESPONSE DATE- 7/5/2018

Description of the problem

The JDA turbine intake trash racks are currently past their designed life. ROV surveys have shown them to be corroded and some trash rack members (bars) are bent or missing. The Corps intends to replace the trash racks; contract award is currently anticipated for August 2019 with fabrication starting at that time. Due to the number of trash racks to be fabricated (288 total), there is no location capable of storing all the trash racks at once. Thus installation will occur at discrete periods over two to three years.

Due to the degraded condition of the current trash racks and the fact that they have never been removed, divers may be needed to assist in the operation. For dive safety reasons, this will require that three main units (MU) be down for each main unit installation: the main unit having trash racks replaced plus one unit to either side. Six MUs would be replaced in 2020, six in 2021, and four in the winter of 2020/21. An outage in 2023 will be planned and used as a back-up. It's estimated to take ~one week to replace one set of MU trash racks.

Type of outage required

MU outages will occur Sept – Nov in 2020, 2021, and if needed 2022. Work would be targeted to occur starting 1 Sept into mid-October, though the work period may spill over into November if trash racks are difficult to pull. MUs 1-4 are high priority for fish and will therefore be completed during the winter maintenance season (Dec 1-Feb 28) of 2021/22. Trash rack replacement for MU5 will require that MU4 be out for one week during fish passage season; this would be the last unit to have its trash racks replaced during the Sept-Nov timeframe due to fish passage concerns. The Sept-Nov timeframe is after spill passage season, meaning the TSWs will not be operating and therefore there is no unit priority for MUs 5-16. Historically, roughly half the powerhouse doesn't operate during late summer due to lack of flow (Miro Zyndol, pers. comm.). However, it will still be fish passage season. Flows will likely begin to ramp up in October.

Impact on facility operation (FPP deviations) – This will require 3 MU outages at a time per unit replacement during the fish passage season. This means that for six MU replacements (one week each), three units at a time would be out during a 6-week time period.

Impact on unit priority- Outages will occur after spill season. The only outage affecting unit priority will be MU5 which requires MU4 to be out of service for 1 week.

Impact on forebay/tailwater operation- None anticipated. Outages will occur during low flow when units are already anticipated to be not operating, and during the winter maintenance periods.

Impact on spill- None.

Dates of impacts/repairs- Anticipated: Sept 2020 – Nov 2022

Length of time for repairs- 3 years, 6 weeks per year with an additional 4 weeks in the winter of 2021/22.

Analysis of potential impacts to fish

1. Junveniles will not be affected.

Adults: 10-year average (2008-2017) passage by run during the periods of impact. Numbers are daily averages, not cumulative. (For percent run see next table.) Work will occur in 2020-2023.

Date	Chin 10Yr	Stlhd 10Yr	Wild Stlhd 10Yr	Sock 10Yr	Coho 10Yr	Lmpyr 10Yr
Jan total	1	181	83	0	0	-1
1-15 Feb total		60	22	0	0	0
2/16		6	2			
2/17		33	6			
2/18		46	12			
2/19		34	5			
2/20		48	22			
2/21		73	20			
2/22		49	19			
2/23		59	15			
2/24		74	33			
2/25		51	20			
2/26		55	19			
2/27		56	18			
2/28		52	19			
9/1	3817	2546	700	4	170	49
9/2	4901	2695	774	5	404	62
9/3	5134	3259	916	3	297	57
9/4	5428	3393	944	6	472	48
9/5	6765	3556	988	2	444	46
9/6	6427	3322	926	6	532	38

9/7	6770	4217	1176	4	716	38
9/8	6862	4195	1151	10	708	34
9/9	8834	4259	1202	4	744	44
9/10	10049	4094	1139	8	1033	38
9/11	9846	3650	1005	3	1102	42
9/12	8396	3295	893	2	961	34
9/13	9918	3871	1061	4	1084	44
9/14	8252	4196	1088	2	1035	29
9/15	8298	4221	1142	2	1390	33
9/16	9102	4362	1229	1	1350	22
9/17	9222	4192	1133	2	1437	20
9/18	8100	3806	1015	1	1310	17
9/19	7638	3536	971	3	1316	21
9/20	7819	4169	1155	2	1214	19
9/21	7324	4755	1346	1	1349	18
9/22	6797	4286	1139	1	1272	13
9/23	5842	3574	1015	1	1051	10
9/24	5955	3486	910		803	14
9/25	6412	3860	1073	1	911	11
9/26	5869	4231	1182	1	915	11
9/27	5418	3917	1049		865	10
9/28	3992	3213	890	1	805	12
9/29	3410	2935	833	1	677	7
9/30	3940	3398	1146	1	700	7
10/1	3271	3281	1071		737	4
10/2	2750	2882	910		688	6
10/3	2342	2495	744		514	7
10/4	2443	2012	657	1	489	3
10/5	2156	2008	654	1	436	4
10/6	2213	1684	549		433	4
10/7	2236	2007	641		889	2
10/8	1828	1654	552		746	3
10/9	1572	1534	514	1	655	1
10/10	1387	1615	573		461	3
10/11	1681	1345	495		377	1
10/12	1592	1226	435		396	2
10/13	1401	1473	547		690	
10/14	1162	1357	536		656	2
10/15	1061	1121	408	1	449	2
10/16	865	1159	461		510	2
10/17	825	1267	473		709	1

10/18	676	1226	477		696	2
10/19	537	838	346		277	2
10/20	545	840	308		415	1
10/21	520	691	266		234	1
10/22	482	666	250		170	2
10/23	415	477	202		113	1
10/24	451	555	217		163	1
10/25	389	483	218		275	1
10/26	371	422	188		186	
10/27	321	446	204	1	148	
10/28	273	401	170		126	
10/29	250	460	218		134	
10/30	221	356	168		88	
10/31	239	374	161		85	1
11/1	219	176	84		28	1
11/2	196	107	57		33	-1
11/3	187	266	116		70	-3
11/4	141	192	77		82	3
11/5	164	192	59		82	
11/6	116	135	50		37	
11/7	118	121	46		25	
11/8	115	182	55		14	
11/9	82	227	58		16	
11/10	91	161	64		25	
11/11	36	103	30		17	
11/12	56	55	18		16	
11/13	42	54	18		15	
11/14	53	45	23		13	
11/15	59	41	14		4	
11/16	56	55	28		4	-1
11/17	35	44	21		2	1
11/18	37	44	20		2	1
11/19	17	37	18		3	
11/20	15	57	32		3	
11/21	13	355	218		5	
11/22	28	266	106		2	
11/23	14	75	24		1	
11/24	7	46	17		1	
11/25	5	17	6		3	-1
11/26	5	24	11			
11/27	9	21	8		1	3

11/28	4	12	7		2	1
11/29	1	13	4		1	
11/30	2	10	3		3	
12/1	-1	2	-1		1	1
12/2	6	62	48		9	4
12/3	7	496	323		11	1
12/4		259	176		2	-3
12/5	3	318	188		3	
12/6	2	157	99		4	
12/7	6	71	39		1	
12/8	4	63	33		2	-2
12/9	2	44	22		4	
12/10		5	1		-1	-1
12/11		11	4			-2
12/12	1	6	4		2	
12/13		14	10			-1
12/14	-1	3	2			
12/15	3	9	8		1	
16-31 Dec total	9	134	76	0	6	-4

2. During the winter maintenance period, fish passage is minimal. The most impacts will be from Sept-Nov to fall Chinook, steelhead, and coho (table below). The majority of the Coho run occurs in the Sept – early Oct timeframe. Fall Chinook are also passing in Sept, comprising ~50% of the total Chinook run. ~50% of Steelhead (wild + hatchery) pass in September, which includes ~30% of the wild steelhead run.

Date	Chnk 10YrAvg	Chnk % run	Stlhd 10YrAvg	Stlhd % run	WStlhd 10YrAvg	WStlhd % run	Sock 10YrAvg	Sock % run	Coho 10YrAvg	Coho % run	Lmpry 10YrAvg	Lmpry % run
1-15 Sept	109697	25%	54769	23%	15105	15%	65	0%	11092	27%	636	11%
16-30 Sept	96840	22%	57720	25%	16086	17%	17	0%	15975	38%	212	0%
1-15 Oct	29095	4%	27694	14%	9286	15%	4	0%	8616	22%	44	0%
16-31 Oct	7380	0%	10661	2%	4327	3%	1	0%	4329	9%	15	0%
1-15 Nov	1675	0%	2057	0%	769	0%	0	0%	477	0%	0	0%
16-30 Nov	248	0%	1076	0%	523	0%	0	0%	33	0%	4	0%

Summary statement - expected impacts on:

Downstream migrants – None. Work will occur outside of spill season.

Upstream migrants (including Bull Trout) – Minimal. For this work three MUs will be out at a time for six track rack replacements; the outages will be during fish passage season but none of the outages will be for priority units. Assuming three units are down at a time, flows would have to require operation of more than 13 units to induce forced spill. If this occurs adult attraction may be diminished. No bull trout have passed JDA for at least 10 years during the time frames considered here.

Lamprey – None. Work will occur outside of lamprey passage season.

Comments from agencies – No comments were received.

Final coordination results – FPOM concurred with this action at the 180712 FPOM meeting. The action will go forward as planned.

After Action update (After action statement stating what the effect of the action was on listed species. This statement could simply state that the MOC analysis was correct and the action went as expected, or it could explain how the actual action changed the expected effect (e.g., you didn't need to close that AWS valve after all, so there was no impact of the action). List any actual mortality noted as a result of the action)

Please email or call with questions or concerns.

Thank you,

Erin

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