OFFICIAL COORDINATION REQUEST FOR
NON-ROUTINE OPERATIONS AND MAINTENANCE

COORDINATION TITLE- 20 DWO 02 Unit 3 Digital Exciter Commissioning
COORDINATION DATE- 22 September 2020
PROJECT- Dworshak Dam
RESPONSE DATE- 6 October 2020

Description of the problem- Replacement of Dworshak Dam digital exciters was completed for Units 2 and 3 in December of 2019. The contractor had tentatively scheduled the partial recommissioning of unit 3 digital exciters for April/May 2020 but was delayed due to Covid-19. Unit 3 outage is scheduled for October 5-15 with commissioning scheduled for October 13-14. Commissioning will require operating the units at speed no load for up to 2 hours October 13 with a second day available if needed. While unit 3 is being tested, it will only be stopped when necessary to complete a test. For all other testing, once a specific test is completed, testing will move directly into the next testing sequence to minimize the number of stop/start sequences. Sometimes during testing a unit may trip off, a second operator will be on standby to reset operation while unit is spinning so that it does not come to a complete stop before restart.

River flows will be increased to ~2350 cfs around midnight prior to the first day of testing. River flow during the testing period will range between 2350-5900 cfs. Flows will recede back to 1600 cfs following completion of testing. Increases of flow will be gradual and not exceed 2000 cfs within any one hour period. Unit 2 will be operating and provide flow separation from unit 3. Below unit 1 will be a calmer area that fish may hold, and this is along the north bank where anglers have access. This operation has worked well in the past to avoid impact to adult fish that may be holding within the tailrace.

LWG Project biologist will be onsite for biological monitoring of the tailrace during commissioning and will contact Sherman Sprague from NPT to participate. The currently available testing schedule is:

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1.2 Field Testing
A complete recommissioning of Unit 3 is not required. ABB service
engineer will ensure proper breaker functionality (Aux contact, crowbar
activation with FCB and open/close) and the flexible links will be
torqued and verified visually. We will need to do a manual start test.
The following tests need to be redone:
- Load test, provide updated test report
- Step testing up to Full Load, provide updated "MOD-026, PRC-019
Coordination Study, PSS Tuning" report
- Provide updated commissioning report
1.4 Kestrel's Support
a. Revised settings Ufnom, Ifnom, OEL
b. Short test plan with tests below
c. Email/phone support for onsite tests:
- OC2pc (2% step - open circuit) (this is the SNL)
- OCn5pc (negative 5% step – open circuit)
- FL 2pc step
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d. Review and confirmation of results while ABB is on site e. Updated report with revised ratings and settings and plots of new tests

Type of outage required- N/A

Impact on facility operation (FPP deviations) – N/A

Impact on unit priority- N/A

Impact on forebay/tailwater operation- Tailwater conditions will change based on turbine operations during the commissioning process.

Impact on spill- N/A

Dates of impacts/repairs- Commissioning will be over a two day period from October 13-14 with unit operated as outlined in the attached schedule.

Length of time for repairs- Commissioning is expected to take up to two days to complete. Testing requiring the unit to be operated at speed no load is expected to last 1 to 2 hours October 13 and up to about 2 hours October 14 if needed. Units will remain rolling during starts and stops to minimize potential impacts to fish.

Analysis of potential impacts to fish

1. 10-year average passage by run during the period of impact for adults and juvenile listed species, as appropriate for the proposed action and time of year; The timing and duration of this study relative to other years means we anticipate no adult fish mortality to occur as a result of testing during this timeframe.

   Similar testing with minimal starts/stops and periods of SNL occurred in October 2018 and the details are shown in the excel table below:

Unit	Date	Starts/Stops	SNL		Depression	Mortalities
2018			Min	Secs		
U-2	2/7/2018	6	13	40	Partial	1
U-1	4/2/2018	9	36	39	Y	0
U-1	4/9/2018		101	11		0
U-2	4/3/2018	3	18	7	Partial	0
U-2	4/9/2018		68	31		0
U-3	6/27/2018				N	0
U-3	7/1/2018	3	33	11	N	0
U-3	7/2/2018	6	53	51	N	0
U-3	7/3/2018	6	74	15	N	0
U-3	7/6/2018		1	44	N	0
U-3	7/19/2018	7	18	49	N	0
U-2	10/3/2018	2	26	40	Partial	0

U-3	10/22/2018		5	44	N	0
U-1	12/17/2018	4	11	35	Y	0
2019						
U-2	12/2/2019	1	38		Y	0
U-3	12/2/2019	1	8		Y	0
U-2	12/3/2019	2	74		Y	0
U-3	12/3/2019	1	6		Y	0
U-2	12/4/2019	3	125		Y	0
U-3	12/4/2019	5	92	5	Y	0
U-2	12/5/2019	2	20	25	Y	0
U-3	12/5/2019	3	77	54	Y	0
U-2	12/6/2019	0			Y	0
U-3	12/6/2019	1	64		Y	0
U-3	12/9/2019	1	97		Y	0
2020						
U-1	1/23/2020	3	0	36	Y	0
U-1	1/24/2020	5	1	44	Y	0
U-1	1/28/2020	4	40	26	Y	0

2. Statement about the current year's run (e.g., higher or lower than 10-year average); The 2020 Fall Chinook and Steelhead returns at Lower Granite are below the 10-year average. As of 18 September, adult steelhead passage is 35.4% of the 10-year average and fall Chinook is 91% of the ten year average at Lower Granite Dam. Coho 2020 returns are about 87%. Reduced fish passage at Lower Granite suggests that less adult steelhead will have migrated into the North Fork of the Clearwater River to hold prior to spawning.
3. Estimated exposure to impact by species and age class (i.e., number or percentage of run exposed to an impact by the action); Information not accessible. Type of impact by species and age class (increased delay, exposure to predation, exposure to a route of higher injury/mortality rate, exposure to higher TDG, etc.); Information not accessible.

Summary statement - expected impacts on:

Downstream migrants: Minimal impacts are expected.

Upstream migrants (including Bull Trout): Minimal impacts are expected.

Lamprey: Minimal impacts are expected.

Comments from agencies:

From: Tom Lorz
To: Setter, Ann L CIV USARMY CENWW (USA)
Subject: [Non-DoD Source] Re: 20 DWR 02 Exciter testing
Date: Monday, September 21, 2020 2:23:03 PM

sounds good just might want to mention that these other operations will be occurring to help reduce impacts. I would look to Jay and see what he suggests for timing.
thanks
Tom Lorz
From: Setter, Ann L CIV USARMY CENWW (USA) <Ann.L.Setter@usace.army.mil>
Sent: Monday, September 21, 2020 1:42 PM
To: Tom Lorz <lort@critfc.org>
Cc: Jay Hesse (jayh@nezperce.org) <jayh@nezperce.org>
Subject: RE: 20 DWR 02 Exciter testing
Tom:
The Depression Air system is being used, Unit 2 will be on line during this testing at approximately 65 to 100MW. The unit 2 outflow should provide attraction water to keep fish from swimming into the unit being tested. We have been most successful during previous testing with this type of arrangement, some fish always seem to be in the tailrace.
Ann
From: Tom Lorz <lort@critfc.org>
Sent: Monday, September 21, 2020 11:10 AM
To: Setter, Ann L CIV USARMY CENWW (USA) <Ann.L.Setter@usace.army.mil>
Subject: [Non-DoD Source] Re: 20 DWR 02 Exciter testing
Looks fine, couple of points for clarification. Will the air pressure system, can't think of the name right now be used? Also you might reach out to Jay H and ask what time of day would be best to reduce steelhead presence? That time of year I am not certain if am, pm or mid day would be best. Also will another unit be run to try to help keep steelhead out of the tailrace? Any thoughts on operation prior to the test to help move steelhead out of the tailrace?
Thanks

From: Jay Hesse
To: Setter, Ann L CIV USARMY CENWW (USA)
Cc: Tom Lorz (lort@critfc.org); Ebel,Jonathan; Bill Young; Sherman Sprague
Subject: [Non-DoD Source] RE: 20 DWR 02 Exciter testing
Date: Monday, September 21, 2020 1:27:33 PM
Ann – Thank you for the early notification. We are checking on staff availability to assist with the mortality monitoring. I am trying to understand how run status information was calculated. The fall Chinook info was accurate, coho info is questionable. Steelhead returns need to be separated and analyzed by A- and B-run components. My calculations as of Sept 18, the fall Chinook return was 94%, steelhead were 33% and coho were 143% of the 10-yr ave, respectively. The steelhead return includes A and B-run fish. The 1-ocean A-run return is mostly complete and was extremely low. The B-run fish are just starting at LGR and, data from down river suggests, are not nearly as low. BON PIT tags to date suggest a B-run return to the Clearwater of 15-20k, putting it near average. B-run fish will be most affected by the operations at the dam, so it is important that the run size of fish to this area is well understood.
Jay

From: Setter, Ann L CIV USARMY CENWW (USA)
To: "Jay Hesse"
Cc: Tom Lorz (lort@critfc.org); Ebel,Jonathan
Subject: RE: 20 DWR 02 Exciter testing

Date: Tuesday, September 22, 2020 9:55:00 AM
Jay:
Thanks for the reply, our monitoring to date has not shown any indication that time of day has influenced the likelihood for a mortality incident, you are correct that even when a time is identified, it generally has been subject to considerable delay. Unit 2 will be operating and provide flow separation from unit 3. Below unit 1 will be a calmer area that fish may hold, and this is along the north bank where anglers have access. Project staff do not believe that received further clarification from staff.
Ann
From: Jay Hesse
To: Setter, Ann L CIV USARMY CENWW (USA)
Cc: Tom Lorz (lort@critfc.org); Ebel,Jonathan
Subject: [Non-DoD Source] RE: 20 DWR 02 Exciter testing
Date: Tuesday, September 22, 2020 8:49:49 AM
Ann – I am not aware of data that would guide what time of day is best to implement. Past experience would indicate we have little to no influence on such a decision, as the testing times are very uncertain – lots of standing around waiting…… Tom's point about implementing additional turbine and/or spill flows that seem to have help move fish away from the unit being tested is important and should be implemented. Spill was used in recent testing. In either case, Jonathan's point about minimizing jumps in discharge for angler safety is important and should be considered.
Jay
From: Setter, Ann L CIV USARMY CENWW (USA) [mailto:Ann.L.Setter@usace.army.mil]
Sent: Monday, September 21, 2020 3:27 PM
To: Jay Hesse <jayh@nezperce.org>
Subject: FW: 20 DWR 02 Exciter testing
Jay:
Tom seems to believe you have information that supports a certain time of day for the testing?
Ann

From: Ebel,Jonathan <jonathan.ebel@idfg.idaho.gov>
Sent: Tuesday, September 22, 2020 7:46 AM
To: Setter, Ann L CIV USARMY CENWW (USA) <Ann.L.Setter@usace.army.mil>; Jay Hesse <jayh@nezperce.org>
Cc: Tom Lorz (lort@critfc.org) <lort@critfc.org>; Bill Young <billy@nezperce.org>; Sherman Sprague <shermans@nezperce.org>
Subject: [Non-DoD Source] RE: 20 DWR 02 Exciter testing

Ann,

(1) Jay and I are working off the same numbers estimated through the Snake Basin harvest coordination folks. We could continually update the fish numbers until the day of the testing. If necessary, we can get the latest numbers for you at the end of next week so they are somewhat more representative of the time of the testing.
(2) The MOC states "Commissioning will be over a two day period from October 13-14 with unit operated as outlined in the attached schedule". Is there an attached schedule I'm missing?

(3) How will outflow (kcfs) change during this operation? How much of a deviation from minimum flow, for how long, and what will the ramping rate be? This is important information for our anglers from a safety perspective.

-JDE

From: Setter, Ann L CIV USARMY CENWW (USA) <Ann.L.Setter@usace.army.mil>
Sent: Wednesday, September 23, 2020 7:36 AM
To: Ebel,Jonathan <jonathan.ebel@idfg.idaho.gov>; Jay Hesse <jayh@nezperce.org>
Cc: Tom Lorz (lort@critfc.org) <lort@critfc.org>; Bill Young <billy@nezperce.org>; Sherman Sprague <shermans@nezperce.org>
Subject: RE: 20 DWR 02 Exciter testing

Jon:

In response to your comments-

The testing is scheduled to being at 0800 through 1700 on 10/13/20 and 10/14/20. Speed no load testing is expected to last one to two hours on the 13th, (1.4 c OC2pc below) this is worst case, last time they stepped through quickly and we will ask them to do the same again once complete they will do step test and load test. We plan on completing these tests on the 13th barring any issues, but have the second day if needed. Below is a schedule for the testing:

1.2 Field Testing
A complete recommissioning of Unit 3 is not required. ABB service engineer will ensure proper breaker functionality (Aux contact, crowbar activation with FCB and open/close) and the flexible links will be torqued and verified visually. We will need to do a manual start test. The following tests need to be redone:
- Load test, provide updated test report
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- Provide updated commissioning report
1.4 Kestrel's Support
a. Revised settings Ufnom, Ifnom, OEL
b. Short test plan with tests below
c. Email/phone support for onsite tests:
- OC2pc (2% step - open circuit) (this is the SNL)
- OCn5pc (negative 5% step – open circuit)
- FL 2pc step
d. Review and confirmation of results while ABB is on site e. Updated report with revised ratings and settings and plots of new tests

During the week of testing we plan to run U-2 at 100MW (approx. 2350cfs) this will keep TDG low and we can start U-3 and test it up to 25% while only adding 2000cfs (Below our 2200 cfs/1ft /hr. max threshold) this will take us to 4350 cfs of flow, as we ramp unit 3 up we will bring U-2 down replacing its flow (2350) with U3 and at full load our flow will be approximately 5800 cfs, again minimizing river fluctuation and rate of rise. Ramp rate is expected to be around 2% to 5% except through the ruff zones where we will progress rapidly. We

expect testing to last one to two days if everything goes perfectly we will schedule water for the whole week just in case.

Hope this addresses your questions.

Ann Setter
509-525-7125

From: Jay Hesse <jayh@nezperce.org>
Sent: Wednesday, September 23, 2020 8:29 AM
To: Ebel,Jonathan <jonathan.ebel@idfg.idaho.gov>; Setter, Ann L CIV USARMY CENWW (USA) <Ann.L.Setter@usace.army.mil>; Dupont,Joe <joe.dupont@idfg.idaho.gov>
Cc: Tom Lorz (lort@critfc.org) <lort@critfc.org>; Bill Young <billy@nezperce.org>; Sherman Sprague <shermans@nezperce.org>; Roberts, Jonathan M CIV USARMY CENWW (USA) <Jonathan.M.Roberts@usace.army.mil>
Subject: [Non-DoD Source] RE: 20 DWR 02 Exciter testing

Jonathan and Ann – It is my understanding that prior to the 13th Dworshak discharge will likely be 1.6kcfs, not the 2.4 as Jonathan interpreted. When would flows be increased to 2,350 to start the test? What is the total duration that flows will be elevated above the based 1.6kcfs, and what is the impact to reservoir elevation of this testing? I have added Jon Roberts to the email string.

Jay

From: Setter, Ann L CIV USARMY CENWW (USA)
Sent: Wednesday, September 23, 2020 3:14 PM
To: Jay Hesse <jayh@nezperce.org>; Ebel,Jonathan <jonathan.ebel@idfg.idaho.gov>; Dupont,Joe <joe.dupont@idfg.idaho.gov>
Cc: Tom Lorz (lort@critfc.org) <lort@critfc.org>; Bill Young <billy@nezperce.org>; Sherman Sprague <shermans@nezperce.org>; Roberts, Jonathan M CIV USARMY CENWW (USA) <Jonathan.M.Roberts@usace.army.mil>
Subject: RE: 20 DWR 02 Exciter testing

Jay:

We expect the flow to ramp up around midnight the night before testing from 1.6-2.4 kcfs. Flows will stay within the 2350 -5900 band during testing. When testing is complete, flows will return back to 1.6 kcfs. Impact to reservoir elevation I will need to wait until Jon Roberts is available to answer this question.

Ann

From: Ebel,Jonathan [mailto:jonathan.ebel@idfg.idaho.gov]
Sent: Wednesday, September 23, 2020 8:16 AM

To: Setter, Ann L CIV USARMY CENWW (USA) <Ann.L.Setter@usace.army.mil>; Jay Hesse <jayh@nezperce.org>; Dupont,Joe <joe.dupont@idfg.idaho.gov>
Cc: Tom Lorz (lort@critfc.org) <lort@critfc.org>; Bill Young <billy@nezperce.org>; Sherman Sprague <shermans@nezperce.org>
Subject: RE: 20 DWR 02 Exciter testing

Ann,
Thank you. There is a lot of jargon in there, but my interpretation is:

(1) Prior to October 13, discharge from Dworshak will be 2350 cfs
(2) At 0800 through potentially 1700 on October 13, discharge will rise to 4350 cfs in one hour (2000cfs/hr), then to a maximum of 5800 cfs before returning to normal flows / minimum discharge
(3) If things don't go smoothly, this may be repeated on October 14.

A 2000 cfs/hr increase in discharge will raise the mainstem Clearwater at Spaulding by about 1 foot. At 5800 cfs from DWR, the mainstem could be 1.5 – 2.0 ft higher at 1000 h than when steelhead anglers hit the water at dawn. That presents a dangerous situation for wading anglers who could get stranded on rocks or islands.

We request the Corps put out a press release describing the changes in discharge and the best guess schedule. We (IDFG) can link to it through Joe Dupont's (cc'ed) fish updates. I think it would also be prudent for the Corps to print up some signs to staple to telephone poles and at fishing accesses to warn those anglers who don't look at Joe's blog.

Anyone else have thoughts on how to avoid endangering/angering a bunch of anglers?
-JDE

From: Setter, Ann L CIV USARMY CENWW (USA)
Sent: Wednesday, September 23, 2020 3:05 PM
To: 'Ebel,Jonathan' <jonathan.ebel@idfg.idaho.gov>; Jay Hesse <jayh@nezperce.org>; Dupont,Joe <joe.dupont@idfg.idaho.gov>
Cc: Tom Lorz (lort@critfc.org) <lort@critfc.org>; Bill Young <billy@nezperce.org>; Sherman Sprague <shermans@nezperce.org>
Subject: RE: 20 DWR 02 Exciter testing

Jonathon:

Yes, you are correct with your interpretations, and the Corps will put out a press release. I will also send out an updated MOC that includes these communications under comments from agencies. We are hoping to get a more readily understandable test plan from the contractor as well.

Ann

From: Trevor Conder - NOAA Federal <trevor.conder@noaa.gov>
Sent: Wednesday, September 23, 2020 8:42 AM
To: Setter, Ann L CIV USARMY CENWW (USA) <Ann.L.Setter@usace.army.mil>
Subject: [Non-DoD Source] Re: 20 DWR 02 Exciter testing

Ann,

I have some questions on the MOC and feel that it could probably be more informative if it was updated. NOAA requests that the MOC be updated with the following information.

Clarify how "Units will remain rolling during starts and stops to minimize potential impacts to fish."

What measures will be taken if any to attract fish to other routes, and what does the information suggest this will do to reduce or minimize impacts?

The potential impacts section states info is not available. We have conducted these types of operations in the past with varying results. How does the timing and duration of this operation compare to those past operations and can we expect similar impacts? This will let folks know if it is likely to expect excessive impacts with this operation and if additional measures should be taken.

Let me know if you have concerns with updating the MOC with this info. Thanks.

-Trevor

From: Roberts, Jonathan M CIV USARMY CENWW (USA) <Jonathan.M.Roberts@usace.army.mil>
Sent: Wednesday, September 23, 2020 4:28 PM
To: Setter, Ann L CIV USARMY CENWW (USA) <Ann.L.Setter@usace.army.mil>; Jay Hesse <jayh@nezperce.org>; Ebel,Jonathan <jonathan.ebel@idfg.idaho.gov>; Dupont,Joe <joe.dupont@idfg.idaho.gov>
Cc: Tom Lorz (lort@critfc.org) <lort@critfc.org>; Bill Young <billy@nezperce.org>; Sherman Sprague <shermans@nezperce.org>
Subject: RE: 20 DWR 02 Exciter testing

Good Afternoon Everyone,

Few notes on impacts in the river for everyone's awareness. Below is a summary of effects based on the scheduled provided further down in the email change and historical flows at that time of year.

Tues. Oct. 12th – DWR Releases 1600cfs + Natural Flow ~1400cfs = Mainstem Clearwater ~3000cfs

Tues. Oct. 12th (midnight) – DWR Releases increase to ~2400cfs + Natural Flow ~1400cfs = Mainstem Clearwater ~3800cfs / Change in river stage ~6inches
Wes. Oct 13th (1st jump for testing) – DWR Releases increase to ~4350cfs + Natural Flow ~1400cfs = Mainstem Clearwater ~5750cfs / Change in river stage ~11.5inches
Wes. Oct 13th (2nd jump for testing) - DWR Releases increase to ~5800cfs + Natural Flow ~1400cfs = Mainstem Clearwater ~7200cfs / Change in river stage ~7inches
Wes. Oct 13th (incremental drawdown) – Reserve of what is above

Impacts to DWR forebay elevation for 1 day of testing will be less than 3inches in elevation.

Note: Natural flows could be slightly higher by 200-1000cfs if there is a localized weather system moving through the basin and this would change the stage increases slightly, but would also lessen the impact on the reservoir elevation.

- Jon

Final coordination results: Approved 10-6-20

After Action update **From:** Miller, David L CIV (USA)
To: Setter, Ann L CIV USARMY CENWW (USA); Peery, Christopher A CIV USARMY CENWW (USA); Holdren, Elizabeth A CIV USARMY CENWW (USA); Chatfield, John L Jr CIV USARMY CENWW (USA)
Subject: Unit 3 Digital Exciter Testing at Dworshak
Date: Wednesday, October 14, 2020 3:41:50 PM
Attachments: 14Oct2020_DWO_Unit_3 Digital_Exciter.pdf

Good afternoon,
The testing was slightly delayed until today but everything went smoothly once it got started. Visibility was good for most of the day. They ran speed no load for just over 3 hours. We saw 16 live adult salmonids (mostly steelhead) before the testing began. No injuries or mortalities were observed during the speed no load. Thanks.
David Miller

Please email or call with questions or concerns.

Thank you,
Elizabeth Holdren
Supervisory Fisheries Biologist
Lower Granite Lock and Dam
Ph. 1(509)843-2263
Elizabeth.a.holdren@usace.army.m