

MEMORANDUM FOR THE RECORD

Subject: Final minutes for the 1 October 2015 FFDRWG meeting.

The meeting was held at the Columbia Room CRITFC, Portland OR. In attendance:

Last	First	Agency	Email
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Meyer, Piaskowski, Richards called in.

<http://www.nwd-wc.usace.army.mil/tmt/documents/FPOM/2010/FFDRWG/FFDRWG.html>

1. Final actions or decisions from this meeting.
 - 1.1. June FFDRWG meeting minutes were not approved.
 - 1.2. BON DSM2 Orifices PDT will report at the December FFDRWG.
 - 1.3. BON Washington Shore serpentine section lamprey orifices. Consensus from the group to move forward with the plan to cut all orifices at WA Shore and block all but two during the post-construction evaluation phase. The PDT will devise a solution for blocking orifices.
2. Action Items.

- 2.1. [Oct 15] JDA PIT tag detection. **ACTION:** Tackley will schedule a meeting with FFDRWG once the PDT starts scoping.
- 2.2. [Oct 15] Lamprey minor mods. **ACTION:** Tackley will follow-up with a memo describing all proposed actions in the vicinity of serpentine weirs at BI and WA Shore, including drawings/photos for reference.
- 2.3. [Oct 15] BON FGE. **ACTION:** Rerecich will schedule a Special FFDRWG conference call on 12 January at 1330.
- 2.4. BON LFS. **ACTION:** Tackley and BON Fisheries will coordinate with FPOM on any activities near the fishway. **STATUS:** *After further coordination with BON staff regarding potential temporary solutions, it is unlikely that this will be addressed until the October 2016 construction of other LFS modifications. The Corps will continue to work on a temporary fix and will schedule an ROV to ensure that this is the only damaged hatch lid.*
- 2.5. Bonneville Spillway - Stilling Basin Erosion and Bon Major Rehab. **ACTION:** Rerecich will work with Cutts on providing clarification on schedule and how/when FFDRWG will be engaged in this process. **STATUS:** *No facility design or design decisions to be made at this point. The PDT is identifying those items that fall under a Major Rehab, Major Maintenance and Regular O&M. The document that describes those decisions should be available before the end of the calendar year (2015). Key messages should be available sometime in November 2015.*
- 2.6. JDA North Fish Ladder AWS Pumps. NOAA requests update on schedule for this effort. **ACTION:** Tackley will request updated schedule from Richards and Boag and will send to FFDRWG. **STATUS:** *Corps has directed contractor to redesign certain aspects of the pumps to address reliability concerns. Tentative schedule is to have design complete by 12/31/15, first pump in service June 2016, last pump in service approx 12/31/16.*
- 2.7. BON B2 Fish Unit Trash Rake. CRITFC requests update on inspections to see how it is working. Milfoil and large woody debris will present different challenges. Also, need to verify that trash isn't being floated. **ACTION:** Corps will update group as information comes in. **STATUS:** *Trash rake is operational and has been working. Project operators had to float debris on the weekends on two occasions, as no maintenance personnel are available on weekends to operate the rake. Future updates can be provided through FPOM, as needed. BON Fisheries will update FPOM as needed. Lorz asked if there would be video provided. Rerecich said an ROV inspection was recommended to be done at the same time as the Washington Shore fishway collection channel ROV. More information will be provided by BON project when available.*
- 2.8. Turbine Survival Program. Model trip currently scheduled for the week of 21 September. **ACTION:** Rerecich will follow up with Medina on trip particulars. **STATUS:** *B2 bead analysis modeling trip to ERDC occurred week of 21 September.*
- 2.9. Bonneville B1 Ice and Trash Sluiceway (ITS) PIT detection. **ACTION:** Royer will verify elevation of the gate crest. **STATUS:** *The ITS manual gates were both lowered to 68 msl per NOAA's request over a month ago, which caused the ITS to flood at high forebay elevations and reduced water flow at the north end of the channel. BON currently has 1A on sill at 68 msl and 1B at 70 msl. The channel is still flooded somewhat at high forebay but FPOM will need to determine whether or not the lessened water flows at the north end of the channel are enough of a concern to raise both gates back to 70 msl.*
- 2.10. JDA overflow PIT tag detection. **ACTION:** Eppard will have a hydraulic and structural engineer look at the design. Feedback will be provided back to the Region. **STATUS:** *The President's Budget for FY16 includes funding for moving forward on evaluating the completion of an adult PIT detection system at John Day Dam. The Portland District is currently chartering a Product Design Team (PDT) to initiate this work in FY16. A schedule will be worked out once we have a PDT, but we expect to move forward with installation if feasible (design work completed, sufficient funds to support construction, etc).*

2.11. BON performance standards meeting. **ACTION:** PM-E will schedule a meeting to discuss BON performance standards, likely late March. **STATUS:** *Fielding hosted a BON performance standard meeting on 29 July; a follow-up meeting was held on 16 September.*

3. **B2 FGE . Rerecich provided a handout with preliminary test results.**

3.1. NWP hydraulically and biologically tested prototype gatewell modifications in the field to improve flow conditions and survival at the upper 1% peak efficiency unit operation. This provided a better understanding of gatewell dynamics and fish condition. Planning is underway to award a construction contract mid August 2016. Construction should be completed by the end of 2017. The goal is to improve the gatewell environment and open up operation range to upper 1% peak efficiency and optimize project passage conditions for juveniles and adults by pulling more flow to B2. The hydraulic results showed improvement. Biological testing showed improvement as well. Bettin asked about the amount of effort and time to modify a VBS and the gatewell. Modification requires each unit be dewatered and a map of the rebar completed. The PDT will meet with BON project staff next week to discuss how long it will take and if they can do the work. Medina said they could provide a soft schedule by the next FFDRWG meeting. Popescu said the challenges will be the time to fabricate the plates and to map the rebar, but the installation of the plates will not take as long. The fabrication of the plates will take about two weeks and the unit will need to be down during that time. If the schedule moves forward as planned, the work should be complete in one year. Units 16, 17, and 18 will be completed in 2017 during the scheduled T12 outage and 11, 12 and 13 during the winter maintenance period.

3.2. **Biological Results.** The comparison between 14A and 15A of the observed proportions of detections at the JMF showed the overall mean for 14A was 93.6% and 15A was 77.5%, however, it is noteworthy that within the first six days of testing the high detections are in the 80-90% range. The next seven days decreased detections at the JMF, but it was expected based on the work that was done in 2008, 2009 and 2013. All releases occurred in the morning, between 8-9am. Looking at the Observed Mortality Proportion metric, there is significant mortality occurring in 14A than 15A. Absolon said fish were tagged down to 55mm and all were held for 24 hours prior to release. There were only four fish mortalities after 24 hours. One fish was detected in the Corner Collector (CC) 10 days after it was released. NOAA expressed some concerns about the velocities at the release point, suggesting fish could swim out of the area. Rerecich said the rigging crew reported that VBS seals were good and mortalities were not seen on the VBS or in the gatewells. FFDRWG continued to discuss results and potential causes for mortality. Absolon reporting finding about 60 tags in the JMF sump, which is less than previous years. Conder asked if those tags might have been from fish released in 15A but Absolon hadn't looked that closely at the data yet. Absolon had looked at the 5 minute OPS data and the units were operating at test conditions. Fredricks would like 2008-2009 data included in the report for comparison.

3.2.1. Van Dyke asked are we considering trying to improve gatewell residence times. Ebner said no, we are trying to reduce turbulence and reduce mortality. FFDRWG discussed the fish losses in the test unit. Lorz said as the season went on fish loss increased in the higher flow unit. He noted that earlier in the season the fish were guided into the unit but later in the season the opposite was true. Fredricks thinks the fish are able to swim out or are going under the screens. Ebner said it could be the forebay hydraulics because of the low flow year, water was not always available for the adjacent unit to 14. Lorz expressed concern about fish potentially swimming out or possibly being swept under the screens.

3.3. **Moving Forward.** NWP will continue working on the DDR. FFDRWG did not vote for or against moving forward at this meeting. NOAA said it was NWP's decision. BPA expects NWP to continue moving forward with the DDR and subsequent documents. Absolon will be presenting at AFEP and the draft report will be out around then. Medina will ask for a show

of hands at the next FFDRWG meeting, 3 Dec. A decision must be made in January if the contract advertisement is to go out in February with an anticipated award date in June/July.

ACTION: Rerecich will schedule a special FFDRWG conference call on 12 January at 1330.

4. B2 Orifices (Medina/Kuhn/Rerecich)

4.1. The project originally tied in with B2 FGE and using light as an attraction mechanism. Currently looking at using different light sources. Fredricks said closing out with a report is not enough, something needs to be done to make the orifices easier to monitor and would like to discuss some closeout ideas. Fredricks has some inexpensive ideas that greatly facilitate the lighting of the orifices. The idea is to enclose the lights to keep spiders out and lessen the build up on lens. **This will be briefed at the next FFDRWG.**

5. Turbine Survival Program (Medina/Ebner/Rerecich)

5.1. Davidson will produce a report late fall. TSP is moving forward with support from BPA for JDA turbine replacement program. Fredricks suggested MCN should be before JDA. Conder asked if there is currently a line item in the CRFM budget for TSP. Medina said there is, however, however, CRFM is currently slated to end in 2018. While few believe it will truly end, it is likely be reduced.

5.1.1. Conder asked if it is true that the results of the study indicate a substantial difference in hydraulics between the lower and upper end of 1% for IHR. He noted that BON survival data suggests there is not a difference in survival while TSP data shows there is a difference. Conder asked how NWP will incorporate these differences in results. Ebner clarified that BON is unique from the other projects and the survival characteristics are different.

5.1.2. Fredricks stated that the team is looking at the flow in each unit to judge whether it is a good or bad condition. If you look at the BON model, the flow looks bad, but looking at the data it doesn't appear to be bad for fish. Weiland's steelhead data shows lower survival at the lower end of 1%. Fredricks said there are other issues at B2 such as pressure, a deep runner relative to tailwater, and the tailrace is manufactured instead of natural. Fredricks suggested this be a discussion topic at a later date.

6. Lamprey Minor Fishway Modifications (Turaski/Knowles/Tackley)

6.1. Turaski discussed the general scope of the project. The PDT's focus is now shifting to BON WA Shore design, for 2016-17 IWW period construction. This includes minor improvements at the BON adult fish facility (AFF) and count station, in addition to serpentine weir mods and diffuser plating. Smaller tasks will be done by BON project staff.

6.2. **Lamprey orifices.** NWP currently plans to cut two (approx. 1.5" x 16") orifices in serpentine weirs at BON WA Shore Ladder during the 2016-17 IWW window. The serpentine section modifications are new to the Lower Columbia; video will be used to evaluate salmon responses before cutting a full array of orifices at Bradford Island (2017-18 IWW period) and remaining orifices at WA Shore (schedule TBD).

6.2.1. The PDT recently discussed, in light of missing the opportunity to install at BI this winter and resulting impacts on the schedule. Cutting all orifices at WA Shore this winter but temporarily blocking all but two for evaluation. This would also be less expensive than re-mobilizing a contractor, even if we decided to fill in the orifices later. The group discussed possible solutions. **Consensus from the group to move forward with the plan to cut all orifices at WA Shore and block all but two during the post-construction evaluation phase. The PDT will devise a solution for blocking orifices.**

6.3. **Refuge boxes.** Proposed BON WA Shore serpentine modifications include pilot installation of refuge boxes. About six to eight boxes would be mounted to the floor of the fishway and

provide a place for lamprey to rest. Video monitoring would be used to evaluate from a fish perspective as well as an O&M perspective.

6.4. Wetted wall. Tackley noted that just like the Bradford Island serpentine weir mods, testing of a prototype wetted wall (design/construction by NOAA researchers/Kinsey Frick) upstream of the count station was pulled from 2016 actions. The plan is to test the wetted wall at BON WA Shore in 2017 (2016-17 IWW period install). Fredricks expressed concern about changing the wetted wall from BI to WA Shore because of the volume of fish and all the other new lamprey projects (LPS, serpentine weirs, etc) at that location. Fredricks is okay with installing it at BI. Tackley said this structure will be monitored by video and if we see any issues we could shut the water off. Lorz suggested mapping out all of the proposed lamprey structures and mods. Tackley and Lorz are concerned the wetted wall will be pushed out another year and lamprey funding runs out in 2018, precluding testing at WA Shore (post-2018) after initial testing at BI (2017-18 IWW period install). Lorz would like to see a work plan for all the projects; Tackley agreed. Fredricks is not saying no, but feels like it's a shot-gun approach. **ACTION:** Tackley will follow-up with a memo describing all proposed actions in the vicinity of serpentine weirs at BI and WA Shore, including drawings/photos for reference. Tackley noted the prototype wetted wall design and testing is not part of the scope of the Minor Fishway Modifications Project. Development and testing of this structure is currently included in the lamprey studies. NOAA Fisheries (Kinsey Frick) prepared a research proposal for Bradford Island wetted wall construction and testing in 2016. This study was removed from the FY16 lamprey program due to budget constraints and prioritization decisions.

6.4.1. Additional discussion of lamprey actions at BON WA Shore. Tackley said we have a four-pronged approach to address poor lamprey passage in the serpentine weirs: (1) new LPS downstream of the count station; (2) installation of the line of orifices for better directionality; (3) refuge boxes to retain them in that section (provision of cover), and; (4) the wetted wall to guide additional lamprey out of the serpentine weir area and toward an LPS. Fredricks is concerned with all of the project proposals for one ladder, WA shore, and in one year. If something goes wrong, the uncertainty of the cause is too much of a risk. Fredricks hadn't seen any information regarding any of these concepts working prior to its implementation. Fredricks is not saying no to the LPS ramps, orifices or other entrance work, but the wetted wall is a little over the top for now. Lorz said the only concept that has not been tested is the wetted wall. Conder suggested the LPS walkway and the orifice construction to be installed in WA shore, and install the wetted wall in BI. Fredricks agreed. Turaski said we plan to award the LPS/Minor Modifications contract in July; there will be opportunities to review over the next few months.

7. Lamprey Passage Structure (LPS) Development and Improvements (Turaski/Kuhn/Tackley). Current focus (Phase 1) is on BON WA Shore, including a new LPS upstream of the UMT junction, upgrades to existing LPS, and fixes to the Lamprey Flume System (LFS) in the tailrace area.

7.1. LFS improvements. LFS fixes include installing an air manifold to address the entrained air issue, installing plates within the flume to address the velocity barrier in the climbing section, and an access ladder/platform (over tailrace). This work will be done over the tailrace during the in water work window in October 2016 during low tailwater to facilitate access to the climbing section of the flume.

7.1.1. LFS Modifications Construction. Bettin asked if there was any impact to passage when working in October. Turaski said the PDT is working through construction approaches; this will be coordinated with the FPOM group as a design comes together. The LFS is located on the monolith, just downstream of the North Upstream Entrance (NUE). Some ideas for construction include a man basket over the wall, roped climbers, a safety boat, and possibly some operational changes to achieve tailrace elevation. Trying to minimize impacts on

normal operations. Bettin asked can you work at night when tailwater is lower and fish do not pass. Working at night for the roped climbers is unlikely. Fredricks said this (use of climbers, man basket, etc during day) is not a problem. October would be optimal time for low flows. A small jib crane mounted to the deck would be needed for the work.

7.1.2.LFS access hatch repair. One of the LFS access hatch lids has come off and will need to be replaced. We are currently working on temporary cover ideas. Bettin said 4 turbines will be off on the north side of B2 next year.

7.2. LPS upstream of UMT junction. Tackley sent preliminary drawings to FFDRWG previously. Includes two new ramps, rest boxes, access platform for lower rest box inspection, and a traversing flume to connect to existing make-up water supply channel LPS. Schlenker and Welton said we will use 10-12" aluminum irrigation piping for traversing the flume to save cost and simplify installation. Since parts are off the shelf, assembly is relatively simple. The climbing sections, above deck level, are still rectangular except the submerged section will have a flow control surface on the upstream side to allow it to be more hydro dynamic.

7.2.1.Water supply. Welton explained that a new addition to the upwelling box will be combining a head box to it, with a control weir and drain on one side and a notched weir on the other side. The notched weir will show how much flow is going into the LPS and will be easier to adjust the flow. Four pumps will be needed to run two existing ramps and two new ramps to maintain redundancy.

7.2.2.Fykes. If a lamprey falls back, there is a greater likelihood it will fall back through the fyke, which is positioned in the center of the boxes. The idea is to move the fyke to the side for less chance to accidentally fall back. The ends of the fykes will also be adjustable depending on the flow of water.

7.2.3. LPS Rest box platform. In order to provide access and meet safety requirements, the platform needs to be approx. 13 ft x15 ft. Tackley said FFU is checking the LPS rest boxes every two days right now, but the expectation is for someone to check them once a day and during dewaterings. The platform will be made of steel grating. The location of platform is about to the elevation of the traversing flume/parapet wall. Fredricks will send his comments and would like to see more finished drawings. McIlraith asked if the walkway is necessary. Tackley explained that the walkway is necessary to access the rest boxes for inspections. Meyer said he is concerned there is too much access at the ladder and is not comfortable with this. Tackley asked Bissell if he thought this would be an issue or if signage would be enough. Bissell didn't think it would be issues if there are signs and a BON Fisheries padlock.

7.3. Schedule. Wrapping up the 90% DDR this week and should be ready for agency review shortly after. Moving ahead to get through 90% Plans and Specs (P&S) by mid December, final P&S toward the end of March, and awarding the contract in July to allow fabrication time. Construction to begin in October 2016 (LFS). Once the contract has been awarded, the team will begin working on the DDR for the improvements at BON and JDA north, as well as some O&M upgrades at the Cascades Island (CI) LPS.

8. The Dalles East Adult Fish Ladder AWS Backup System (Duyck/Roshani/Rerecich). NWP made an award to Kiewit Construction for 22.6 million. One of the unsuccessful offers has filed a Government Accountability Office (GAO) protest. Work has been suspended pending resolution of the protest. The schedule will be adjusted. There are many unknowns but we are likely to miss part of the first IWW window and may have to utilize the following two IWW windows. More updates will be provided as NWP works through this.

9. Bonneville Spillway - Stilling Basin Erosion and BON Major Rehab (Cutts/Lee/Ebner)

- 9.1.** The PDT has identified features that fall into the major rehab or major maintenance categories. The reports should be out within the next couple of weeks. Cascades Island (CI) fishway has been elevated due to the subsidence area. Digging will begin next week. The rest of the ladders have been classified under major maintenance.
- 9.2.** The spillway is classified as major rehab. Currently, the spillway can pass about one million cfs without splitting gates. It is authorized to pass 1.6 million cfs, because BON was built prior to the Probable Maximum Floods (PMF). The Columbia River PMF was last updated in 1969. The Dalles design flow is 2.1 million cfs, and we are unable to pass that at BON. It is currently unknown which river Q any improvements need to be designed to.
 - 9.2.1.** In addition, the Risk Management Center is doing an IES (Issues Evaluation Study). The Risk Management Center (Dam Safety) has initiated a study that will begin in FY16. They look at a PMF but are more interested in loss of life due to PMF. Risk Management Center will incorporate the economic impacts associated with a large flood event. There is uncertainty as to what the recommendation will be from the Risk Management Center. If we are going to have to build a new spillway, do we build a new spillway that meets our environmental obligation in a much more efficient way than it does now? The major rehab study will kick off a concept of what would be needed to pass one million cfs, 1.6 million cfs or 2.1 million cfs. The reports and summaries should be available in about a month. The path forward will be summarized around the first of December. Ebner clarified that the US/Canada treaty doesn't impact the PMF because most dam safety studies don't consider basin regulation in the design flood. To get a new PMF for BON, we have to examine entire Columbia River Basin. Typically when a new PMF comes out, we see an increase by about 10%, and we anticipate the PMF will be close to what it is currently.
 - 9.2.2.** Van Dyke asked what BON has passed before.
 - 1948 (Vanport)- BON passed 1.48 million cfs.
 - 1957- BON passed 827 kcfs.
 - 1958- BON passed 727 kcfs.
 - 1974- BON passed 780 kcfs.
 - 1996/1997- BON passed 680 kcfs, but it was mostly Willamette based flooding.

10. John Day North Ladder AWS pumps (Richards)

- 10.1.** NWP does not have 100% design complete, but should have it by December. The goal is to have pump 4 fixed by the freshet, JDA would have pumps 3 and 4 fixed and available. The work will be complete by July 2016.

11. John Day Fish Ladders PIT detection (Tackley)

- 11.1.** It is in the budget for 2016. There is no PDT yet. Tackley said he will keep the scope of the PDT limited to design review and providing electrical, etc. The PDT will meet in the first quarter. Eppard said the charter has been approved but he hasn't heard if the PM has been assigned. BPA needs to know when the project will be implemented for funding. Fredricks would like a meeting with the region when the PDT begins scoping. **ACTION: Tackley will schedule a meeting with FFDRWG once the PDT starts scoping.**

Next NWP FFDRWG Meeting: 3 December 2015