

MEMORANDUM FOR THE RECORD

Subject: Final minutes for the 04 September 2018 Willamette Fish Facility Design Work Group meeting.

The meeting was held in the Lobby Conference Room at Block 300 US Army Corps of Engineers in Portland, OR (NWP). In attendance:

Last name	First Name	Agency	Email
Ament	Jeff	NWP-PM-F	Jeffrey.M.Ament@usace.army.mil
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Ziller	Jeff	ODFW	Jeffrey.S.Ziller@state.or.us

On the phone: Budai, Hudson, Murauskas, Pierce, Reis, Weiland and Ziller.

Meeting Purpose:

Finalize previous meeting notes. Provide an update on status of active design projects and a presentation and discussion on the Detroit Temp Control (SWS) and DSP design and fish collection numbers.

All documents from this meeting can be found at:

http://pweb.crohms.org/tmt/documents/FPOM/2010/Willamette_Coordination/Willamette%20FPT/.

1. Final decisions or recommendations made at this meeting.
 - 1.1. August minutes were approved.
2. Updates on active design/construction projects

- 2.1. Fall Creek AFF- Richards said that the contractor will be back in September to make some corrections. There will be a meeting with Garletts and Schlenker to hash concerns of the dewatering porosity unit so that the contractor can fix that section. Pipe lining will start in September.
- 2.2. Foster DSP and AFF ladder – The fish weir is closed for the summer and will reopen in the fall for RM&E testing. The AFF ladder PDT hasn't started yet.
- 2.3. Cougar DSP – The team has just finished the in-section review of the 90% DDR. The next two reviews (the COE District Quality Control review and the agency technical review) are on schedule for 01 October. The WFFDWG review starts on 05 November and the team will give a presentation on the review at the 06 November meeting. A special operations request (SOR) to bring the forebay from 1532 down to 1516 for geotechnical explorations near the temperature control tower will take place in December/January. Fielding scheduled the site visit of the release site on 26 September at 10:30am. Anyone wishing to go to this site visit needs to let Fielding know for security reasons and he will send out the address for people to navigate.
- 2.4. High Head Bypass – The team is developing a design parameter document; the 60% draft is due in October. The team will present the document at the October meeting. Ziller asked if regional advice could be added before the 60% document but Ament said no because this report is not a typical EDR or DDR. The team is trying to incorporate the NMFS criteria for fish passage and the research that has been done on the high head dams. These findings will be incorporated into the designs (EDR/DDR) for Cougar and Detroit. The team is still in the beginning phase. During development of the designs, agencies will be able to add advice but the team is not that far along. The trap and haul option with an ability to adapt to by-pass is still going forward. This HHB design will be added later. Ziller requested that the COE keep the other agencies involved in order to understand the steps getting to the end product. Griff said that Cougar design is keeping in mind that the piped bypass could occur.
- 2.5. Detroit Temp Control and DSP
 - 2.5.1. Presentation of an update to the Temperature Control (SWS) design – Ament showed the design alternative that had been chosen originally. This alternative would be much easier to construct in the dry; however, drawing the pool down to elev 1300' creates many agricultural and municipal water supply economic impacts without full scale back up systems. The recreation impact was known already. Overall, the drawdown impacts are much bigger than expected. A one year variable drawdown and construct in the wet (under normal rule curve) are options that could alleviate some of those impacts. If the drawdown to 1300' started after Labor Day, it would be risky to assume the spring rains could re-fill the reservoir. The team thought of another approach of drawing down to 1400' instead of 1300' which would allow 750cfs discharge for agriculture and water supply. The 750cfs is not the current Bi Op flow but it is enough for downstream water users. The team also

looked at better alternatives for constructing in the wet. Attaching the tower to the dam stood out as a good alternative. Some benefits include eliminating two underwater conduits, a smaller design and easier to construct. They would be able to use large precast concrete blocks. To eliminate the third underwater conduit (that connected to an RO) a wye is anticipated being added to the two penstock conduits in case the powerhouse is down, water can still be passed to hit temperature targets. This design change doesn't have any new biological impact. The fish collector would be next to the dam instead of requiring nets or a wall to keep fish behind the collector. After this is built, this design would have more flexibility especially increasing the real estate with more room for the AV to park right next to the fish facility. This could reduce cycle time and ease operations. This alternative was not chosen originally due to dam safety concerns. Detroit dam has a dam safety action classification rating that said there were problems with the dam itself and if any modifications were made then the dam would need to be upgraded to be safe. At the time, it was determined to not pursue this. Due to the problems with impacts to the wet, this idea needed to be relooked at. The project will upgrade the monoliths that the tower will be attached to but not the whole dam. Ensuring those monoliths meet seismic concerns appears to be easier than expected. The District is supportive of the idea but the Risk Management Center still needs to give approval. Mullan asked about the lack of the RO attachments. The penstock wyes will take the place of the RO to avoid the underwater construction. They are not sure if they still need two penstocks or not but there will be a Y downstream. They need to communicate the updates of the design changes to the public without violating NEPA and the team is working on a communication plan. The public meetings were helpful and people were given the websites to view future documents. Ament clarified that they don't need to draw from the RO for temperature targets and with the Y penstocks, the water can go through the turbines or go out to the stilling basin. They still need to look at diving/construction cost estimates. Ament said that due to the major change, the team will revise the 60% SWS DDR and resend it to the region.

- 2.5.2. Discussion on fish collection numbers – Griffith explained the process for estimating the fish numbers in order to design for conveyance and holding. The spreadsheet was originally for Cougar and modified for Detroit. Steelhead numbers are less confident than Chinook numbers since they have been doing the CH out plant operations for years. They started by using the number of redds expected if the spawning habitat was maxed out. They plugged in that number and eventually got a high and low range of juvenile migrants. The migrants were spread out over a month with the average that would be seen in one day. The estimated range of fish brought over to the holding/conveyance chart uses the minimum of 10% of the monthly numbers passing in one day and the high of 30% passing in one day. Assumptions are made from screw trap data, Green Peter (GP) data and FBW data.

The North Fork had two peaks but it is more of a constant migration now. Steelhead data is lacking. They have information from South Santiam at GP and ODFW data to help with these estimates. Habitat above Detroit seems analogous to GP. There was ~8 years of data from the GP collector. They are using two year old fish for sizing ST and think the peak will be in May. Fry to smolt survival is lower in Steelhead than Chinook. The fish numbers (30% of daily average is high and 10% is low) along with an estimated weight are plugged into the calculator to come up with estimated holding capacity needed and conveyance estimates. The pod on the AV is 750 gallons and it would take about 1.5 hours for cycling the pods down to Minto. They need to have enough holding capacity for the diel passage. The limiting factor in the scenario is the conveyance of fish. The fish will be continuously moved on high days but still the holding capacity is key. This spreadsheet is only looking at CH and ST but they will be able to accommodate by-catch. Mullan said that there are fish that hold and migrate much later. The weight may have to be adjusted throughout the year and possibly for each month. Murauskas suggested using the PIT Tagis data for average fork length and weight. Khan said that in the S. Santiam, ST are staying back until they are 1.5 – 2 years old. The PNNL studies also weighed the fish and that data could be used. The team wants to refine the estimates and wants the agencies to see what the estimates are. **ACTION: The data spreadsheet will be sent out with the meeting minutes.**

- 2.5.3. Rerecich gave an overview of the ongoing discussions of fish conveyance. In the analysis of the AV versus a lift system for fish, infrastructure, cycle time and O&M will be looked at. Rerecich had a conference call with the Whoosh folks. Although the system could potentially be useful, it is usually for adults not for juveniles. The Whoosh Company has a machine that sorts by size with an optical scanning system that may be beneficial for loading fish. The current entrance weir design for the collector is different than any other entrance. They asked the AE contractor to look at fully open weir under all operational conditions. The FSS would have to be modified by separating the plenums with operational gates to achieve capture velocities. This technical memorandum will be in the DDR in the appendix. NMFS had a comment on the potential for fish holding in front of the entrance weir. The team is using CFD modeling to look at rounding the entrance base to stream line flows or changing the entrance base into a porous trash rack. More details will be coming. The team is also reviewing the hydraulics behind the FSS from the pump flow discharge and discharge from fish handling facility. These discharges cause a reverse flow going up the north bank and some re-circling in the forebay. About 40cfs will flow out the FSS from the fish handling facility, which can be a false attraction. The AE is looking at putting that flow back into the plenum. Buccola is modeling alternative operations for temperature control to test the sensitivity of

maximizing surface flow on temperatures downstream. ODFW provided a comment on turbines/pumps for performance criteria. These details will be in the 90% DDR.

3. Next Steps

3.1. Next WFFDWG meeting (October 2, 2018) – Location TBA but most likely at NMFS.

3.2. Upcoming reviews – The High Head By-pass document will come out in October. The Cougar DDR review will start 05 November and the 06 November meeting will be the PDT presentation. Khan said that Janes can have the EA review earlier if it would be helpful or it will be with the DDR in November.