

MEMORANDUM FOR THE RECORD

Subject: Final minutes for the 01 September 2020 Willamette Fish Facility Design Work Group meeting.

The meeting was held via conference call. In attendance:

Last name	First Name	Agency	Email
Budai	Chris	NWP	Christine.M.Budai@usace.army.mil
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Meeting Purpose:

Finalize previous meeting notes. Provide an update on status of active design projects and a presentation and discussion from the Foster AFF ladder Improvements on the 60% DDR.

Agenda:**1. Final decisions and recommendations made at this meeting.**

1.1. August meeting minutes were approved.

2. Review Dates

Document	Review Dates
Foster Ladder 60% DDR Report	Comments due 30 September
Cougar DSP 90% Plans and Specs	Comments due 23 September

3. Updates on active design/construction projects.

- 3.1. **Fall Creek AFF** – Fall Creek has had very high fish returns. 829 spring chinook, 64 STW and 2 PL were all placed above the dam. The RO went on yesterday. Flows have gone up. The temperature was 48° this morning. The pipe lining work will resume this fall after the fish season is over. Maintenance has done efficiency updates on the system. Mullan asked if it was mostly 4-year old adult fish returns. Helms believes that they are 4-year olds. 2018 was a good year for ocean conditions.
- 3.2. **Cougar DSP 2.0** – the contract was extended through next January to expand on the alternatives. Another COE office is doing modeling for dam safety. No update since last month.
- 3.3. **Detroit Temp Control and DSP** – the PDT is still working with ERDC on completing the physical model.
- 3.4. **High Head Bypass** – no updates since last month. The 100% EDR is complete. The PDT is waiting on the ATR (Agency Technical Review) report. Khan will send out the final 100% EDR and then the PDT will go on hiatus, while they wait on funding or management decisions to begin work on the DDR. Mullan asked if funding were to change, is there a line in the budget that could fund this. Khan doesn't know about the budget. Mullan will ask at steering team.
- 3.5. **Foster DSP - Fish Weir Design Improvements** – The PDT is wrapping up the 100% EDR. The options are very costly without much benefit for fish. The hydraulic modeling (CFD) that Litzenburg did with the Obermeyer weir plunge pool will be in the final report. The PDT is on hiatus awaiting funding and management decisions for the path forward. Khan will distribute the final 100% EDR when it is complete.
- 3.6. **Cougar DSP FSS** –the 90% P&S was presented last month. The package was sent to the group via file transfer. Comments are due 23 September. Mullan would like a copy of the presentation. **ACTION: Tarbox will send the presentation to Khan for distribution.** If anyone is having problems downloading the report from the File Transfer Site, please let someone on the PDT know so they can help. Budai said that they barely have enough money to finish the P&S and not funded for FY21. They will address the comments from the 90% review and then the report will go on the shelf. The RO bypass gate and the load rejection design will be concept level only in the P&S. The RO bypass gate is for throttling flow over 1000cfs. There are design issues that need to be addressed in order to make the gate work. The power rejection would allow water to back flow into the FSS, so they need blow out panels that have not been designed yet.
- 3.7. **Foster AFF Ladder Improvements [Presentation – Dunlop]**– updates, presentation and discussion of the 60% DDR. The report was sent out yesterday by email, but the appendices were too large. The appendices will be sent out via file transfer. Dunlop recommended downloading the appendices. The goal of the ladder improvements is to reduce the delay of upstream migrating salmon by warming up the ladder water. They will construct a new intake and pipe network to supply the warm water. Warm water will be mixed with available colder water to hit the temperature targets. Primary components are the juvenile fish exclusion screen including debris management, upstream isolation gate and the pipe network. Ancillary

components include fish ladder lower pool diffusers and the truck fill warm water supply. The big change since the 30% DDR was the design of the pipe network. All sections now have some content, except for the real estate section. The PDT created a 3D CAD model to help lay out the pipe network within the constraints of existing structures and utilities, determined the preferred approach for intake isolation, logic for operations and developed preliminary electrical diagrams. For debris management, they will use a mechanical brush plus a backspray system (either air burst or water jet). The juvenile fish exclusion screen is a bar screen with 1.75 mm opening on the front face, with a solid plate on sides and bottom. The screen size and layout are constrained by the space between the spillway and powerplant intakes. Despite the plan to provide robust debris cleaning, the PDT set an initial goal to meet the passive screen criterion for approach flow velocity of <0.2 ft/sec due to periods when there will be low or no sweeping velocity. To achieve the <0.2 ft/sec criterion the screen would have to be very large and project a substantial distance upstream of the dam, which presents structural, constructability and operational challenges. The PDT is now trying to strike a balance between keeping the approach flow velocity low and a screen that can be constructed with cleaning ability. The PDT is proposing to be above the passive screen velocity criterion (0.2 ft/s) but still below the active screen criterion (0.4 ft/s) to reduce the screen size. For the upstream isolation, the PDT shifted from a bulkhead to a gate. Dunlop showed a side diagram of the proposed pipe network highlighting which pipes are part of the project. The construction period is two years. The PDT anticipates that the dam penetration, isolation gate and screen construction will occur in one summer (July through October) during which the reservoir will be held below maximum conservation pool to allow these features to be constructed without use of a cofferdam. As a result, the construction will have recreational impacts. Royer and Buccola put together a summary of the Green Peter spill operation including plots with temperatures. The summary is included as Appendix L in the report. Royer described the graphs and parameters. The GP spill test warmed up the Foster reservoir which eventually warmed up the water that supplies the ladder. Mullan asked if the weir can pass the warm water from the unregulated arm of the South Santiam above Foster. Currently, the only flow into the ladder is from two deep intakes located within the Penstock No. 2 intake. The fish weir passes the top 5' of water downstream. USGS modeling shows that the unregulated arm provides some warming of the upper reservoir, but the effect does not extend deep enough to warm up the water at the adult fish facility intakes, thus the water from the unregulated arm does not affect the temperature within the ladder. The fish weir is located in Spill Bay 4 and passes warm surface water to the stilling basin and river downstream. The plume of warmer water in the stilling basin below Spill Bay 4 could influence attraction to the side entrance of the ladder. Since the fish weir has a benefit of warming up the downstream flow, it will be used in the spill operation next year. There has been a lull in fish returns after the July peak, but Khan explained that there is typically a lull in collections during this time. Schlenker added the Foster forebay is 4° warmer than the upper South Santiam in early May and then warms up to a 6° difference. Khan believes that the fish weir operation had a big effect on collecting fish for the big peak in July because it passed warm water downstream attracting the fish. The effects of the spill operation are not instantaneous. The fish weir did not go on earlier because they needed to evaluate the responses from the specific operations. The fish weir will be run all summer next year. The graph showed the elevation from which they pulled water. Mullan asked if the proposed approach velocity would be met under certain flows and higher under other flows. The highest flow rate is 144

ft³/sec. Dunlop said that they had been trying to get the 0.2 ft/s under all flows but it doesn't work at the highest flows. The max flow is in May/June. The comments are due on this report on 30 September. The 90% will be ready for agency review in January. Mullan asked if this PDT is funded. Yes, this PDT is funded.

Next WFFDWG meeting currently scheduled for October 6.