CENWP-OD 31 January 2017

MEMORANDUM FOR THE RECORD

Subject: Draft notes for the 10 January 2017 Willamette Fish Facility Design Group meeting.

The meeting was held at NMFS Office, Portland, Oregon. In attendance:

In attendance: (by phone marked with \*)

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| Rich Piaskowski | Corps |
| Karen Kuhn | Corps |
| Amy Lynn | Corps |
| Melissa Jundt\* | NMFS |
| Erin Kovalchuk\* | Corps |
| Tim Kuhn | Corps |
| K. Doug Komoroski | Corps |
| Jeff Hicks | Corps |
| Fenton Khan | Corps |
| Natalie Richards | Corps |
| Mike Hudson\* | USFWS |
| Lawrence Schwabe\* | CTGR |
| Chad Helms\* | Corps |
| Doug Garletts\* | Corps |
| Cameron Sharpe\* | ODFW |
| Jim Myers\* | NOAA |
| Fred Monzyk\* | ODFW |
| Stephanie Burchfield | NMFS |
| Jim Burton | Corps |
| Mary Karen Scullion | Corps |
| Diana Dishman | NMFS |
| Bernadette Graham-Hudson | ODFW |
| Elizabeth Hall | Corps |

All documents may be found at http://www.nwd-wc.usace.army.mil/tmt/documents/FPOM/2010/Willamette\_Coordination.

**Meeting Purpose:**

Review status of projects, discuss downstream fish passage design for Foster Dam.

1. Review the December 6th meeting notes – In addition to the regular updates, there was a brainstorm session on Cougar. A table with risks was included but more items can be added. Rich is allowing two more weeks (until Jan 24th) for additional items or clarifications.
2. Review current project status
   1. General project schedule table [Handout emailed with the agenda]
      1. Detroit up-coming – The team is still preparing and is not ready for a January meeting. There will be a brainstorming session on Feb 14 and any significant suggestions will be included in EDR. The schedule will shift as necessary to make sure all comments have been addressed. The WATER review of the EDR will happen after Feb 14th.
      2. Cougar – No update but if any information comes up, it will be sent via email.
      3. Foster – The 90% DDR with 60% Plans and Specs should be available on Jan 23rd. The schedule is slightly behind due to incorporating comments and some project operational challenges. The team needs to run a couple more models. The review period will be extended as needed. The original EDR had a flow range of 300-860 flow but the DDR flow range was reduced to 500 – 860 cfs. It turns out that the full range of flow is needed for Foster project operations in addition to providing for fish passage. The DDR will explain the reason for the full range of flow and details of the limitations. All comments from the 60% DDR and this January 10 meeting will be addressed in the 90%. The construction contract will be awarded by the end of the fiscal year.
      4. Fall Creek Adult Fish Facility construction schedule (see Richard’s email below) - The construction project is currently at #5 – Helix Pad & presort & headbox. A camera takes pictures every fifteen minutes; camera weblink and login:

<http://www.ibeamsystems.com/private/fallfish/>

Login: FallCreek

Password: fish

1. Foster DSP Fish Weir Design
   1. PDT response to comments from previous workshop
      1. Modeling using Green Peter (GP) to refill – Modeling through June 15th using GP to refill looked good with a slight impact to GP; modeling through June 1st and 7th were also run. It looks feasible but some other new issues came up. Feb 1st - March 15th is the most critical time and the project has a minimum of 800cfs flow for rearing plus it is the start of refill. In a low water year, using the new weir, there would be 500cfs from the weir + 70cfs through ladder and 200cfs from Station Service which adds up to 770cfs or 30cfs short. Additional water cannot be added through the weir because it is set at certain elevation which releases a set amount of water. The station service minimum is 200 cfs with the wicket gates closed. When the wicket gates are open to the next smallest setting, the minimum generation jumps up to 540cfs. Running between 200 and 540 would cause cavitation to the unit. In order to meet that 800cfs, the project actually needs to release 1100cfs which now starts to affect Green Peter. There are two options – build a new stoplog to accommodate the 30cfs with the new weir or change the requirements of the 800cfs. The PDT will look into the feasibility ofadding another stoplog that would allow the weir to pass the additional 30cfs (530 cfs instead of the original 500 cfs). This would result in three discharges adding up to the 800 cfs minimum flow from Feb 1- Mar 15: 530 (weir) + 200 (station service) + 70 (ladder) = 800 cfs. Every year is different for water needs so flexibility needs to be built into the system. The February through March timeframe are the only months affected by this minimum flow. The project does have to build a stoplog for the new weir and could build an additional one without changing the design of the weir. Stoplogs are not very expensive compared to the weir. The weir can be closed with the spillway gate, if needed. Usually there is rain in February and Mid-March, but in certain (dry) years passing 500 cfs or more at the weir could be an issue while maintaining minimum downstream flow.
   2. PDT response to written feedback received – The vertical sides and shaping have already been integrated into the design. The calculations are still ongoing for the size of the opening. A smaller opening would increase the velocities. These velocities are being modeled.
   3. Remaining key design issues – The most time consuming portion of the modeling is done. Currently, the team is making the rating curve by running a range of head differentials to dial in the flows and elevation. ERDC super computer are being used to help speed up the process. The current weir is also being modeled for a comparison. Biologists will help finalize design. For post construction, the velocities in the forebay and the depth of water going over the ogee are the main interests. The modeling results will be ready for the 90%DDR by Jan 23rd. Flows of 300, 500 and 860 are being run and compared to the current weir.
   4. Reason for the need of the including 300cfs flow at the weir – IF the weir is designed for a minimum flow of 500 cfs, then the project would end up releasing a minimum of 1100cfs even though the Biop minimum flows from Feb through Mar 15 are 800cfs downstream. The reason for this is because the minimum turbine flow to prevent cavitation (and serious damage to the turbine equipment) is 540 cfs, plus 70 cfs is needed for ladder flow. Adding these three discharges is 500 + 540 + 70 = 1110 cfs. (This is the scenario where the turbine operates at lowest operational level, other than the short term “station service” rate of 200 cfs). Out of the period of record (73 years), currently, downstream flows are not met 12% of the time in the fall. In the model, when 1100cfs is released during the February timeframe, minimum flows are not met 43% of the time in the fall - using 500cfs through the weir and using GP to keep Foster full. This strongly impacts the fall flow requirements. If we miss the opportunity to refill GP in the spring, we won’t be able to meet spawning flow requirements in the fall. For the hydraulic model, the weir is set at one flow; in this case 500cfs. If the weir is set for 800cfs flow, then station service can’t be run. The project uses station service for power but can get power from grid, if needed but is not preferable. Also if the weir is set at 800cfs then the reservoir has to be raised and the flexibility of operations is limited. It may be possible to change the flow so that the numbers add up better. Examples of adequate, sufficient and insufficient years were modeled to see what happens in the fall all releasing 1100 in the spring. Using 1100 instead of the 800 creates a lot of problems for the fall. The main issue is still where to get 30cfs more. In a dry year, the 30cfs is very important. The tradeoffs are very important to think for the next meeting. NMFS was asked to consider how important the 800 cfs minimum flow is for rearing from Feb 1 – Mar 15, and if NMFS would be ok missing that flow by 30 cfs (allowing minimum at 770 cfs) during some days in some water years. NMFS replied that they would look at rearing needs and other information and get back to the group at the next meeting. For modeling there are three flow targets for the fish weir; 300 minimum, 500 desired and 800 maximum. The model prioritizes the available water (storage in the Foster and Green Peter reservoirs), balancing to maintain the minimum downstream flows, and providing adequate flow at the weir for downstream fish passage. The configuration of stop logs can change. The technical team will provide more documents for managers to decide on which method to go with.
   5. Timeline – January 23rd is the target date for the 90% DDR. February 14th for the brainstorming session for Detriot.
2. Next Steps
   1. Detroit Downstream Fish Passage and Temperature Control EDR review meeting – to be scheduled in late January or early February
   2. Upcoming reviews:
      1. Foster downstream fish passage 90% DDR/60% P&S
      2. 90% Detroit Downstream Fish Passage EDR
      3. 30% DDR review Cougar downstream fish passage
   3. Willamette Fisheries Science Review: FEB 7-9 at the LaSells Stewart Center, OSU

Information from Natalie on the Fall Creek Adult Fish Facility construction schedule:

\*\*\*\*\*‎NOTE- Subject to change at any time- This may not reflect Contract Modification for the time extension due to the award/protest situation- If that changes the following, an update will be provided. I still anticipate an April 2019 fully commissioned ladder when all is said and done.

I've consolidated the current 96 page‎ schedule into the following tasks:

1)Pre-construction submittals 13-Sept-2016 to 28-Oct‎-2016

2) Construction Submittals- 13-Sept-2016 to 11-Dec-2016

3)Procurement of long lead/Construction items‎-27-Oct-2016 to 15-March-2017

4)Erosion control, excavation, power, Septic, sidewalks‎-14-Nov-2016 to 06-March-2018

5)‎Helix pad & pre-sort & headbox- 29-Nov-16 to 30-oct-17

6)Retu‎rn fish piping-12-April-2017 to 31-July-17

7)I-W-W- 03-July to 16-Aug 2017 Return pipe to river

8)‎Post sort Structure-07-March-17 to 21-Nov-17

9) Sort Facility-07-April-17 to 15-Dec-17

10) Fish Ladder Structure-02-Jun-17 to 18-Feb-18

11)Fish Facility shutdown-02-Oct-17 to 06-Feb-18

12)Modification to Existing Facility including new weirs-03-Oct-17 to 05-Feb-18

13)‎valve structure for water supply- 03-Oct-17 to 12-Feb-18

14) Commissioning- Feb-April 1st 2018

14) Closeout- April- May 2018

15) Final drawings and O&M manuals by Sept 1, 2018

FYSA- a camera is being installed that we can look at the construction as it is occurring. I don't have any details yet or know the context of what we will be able to see. Stay Tuned

Best Regards,

Natalie