

**USACE Portland District (NWP) FFDRWG Update Form  
5 February 2015**

**PROJECT INFORMATION**

Project Title	Bonneville Second Powerhouse Fish Guidance Efficiency
SCT Reference Number	
Project Manager (PM)	George Medina (NWP, 503-808-4753)
Technical Lead (TL)	Seth Stevens (NWP, 503-808-4849)
Biologist/Coordination	Jon Rerecich (NWP, 503-808-4779)

**PROJECT DESCRIPTION**

This project consists of improving juvenile salmon survival in the gatewells at the Bonneville Dam second powerhouse. Biological testing in 2008 and 2009 showed elevated mortality for juvenile salmon in the gatewells when the units are operating at the upper end of the peak efficiency range (>15 kcfs). It was suggested that undesirable flow conditions develop within the gatewells at the high unit flows and are causing the increase in mortality.

**CURRENT SCHEDULE**

- Constructing prototype of proposed gatewell improvements in unit 15, including flow control plates in A and B slots, and modified VBS panels in all three slots: FEB-MAR 2015
- Developing second set of modified trash racks for biological testing: MAR 2015
- NOAA to conduct biological testing to evaluate effectiveness of unit 15 modifications: APR-MAY 2015 (Draft Report NOV 2015, Final Report MAR 2016)
- Conduct hydraulic testing to evaluate performance of unit 15 modifications: JUN 2015
- Complete DDR after field evaluations
- Prepare Plans & Specs if testing shows successful results
- Full Implementation (tentatively 2016-18)

**PROGRESS AND KEY ISSUES (List)**

1. Final Supplement to the EDR issued JAN 2015.
  - a. Based on field data and CFD modeling, recommends flow control plates attached to the gatewell beams downstream of the VBSs to reduce the flow into the gatewells.

- b. Also recommends that a design be developed for modifications to the porosity plates on the upper panels of the vertical barrier screens (VBSs) to reduce the areas of high through-screen velocity.
2. 30% DDR complete.
  - a. Design refined to include a flow control plate that blocks approximately 50% of the opening between the gatewell beam and the intake gate in bay A, a flow control plate that blocks approximately 25% of the opening in bay B, and no flow control plate in bay C.
  - b. The proposed design also includes reducing the open areas for the porosity plates on the upper two rows of panels on the VBSs by about 50%.
  - c. Unit 15 prototype based on these design recommendations.
3. Biological testing to evaluate survival in 15A and 15C at high unit flow (~18 kcfs) and compare to survival in unit 14A at mid-range flow (~15 kcfs). Comparison of hydraulic testing/modeling in unit 15A, B, C will be used to infer expected survival in 15B.

**FFDRWG REVIEW NEEDED AT MEETING? (If YES, list discussion topics below)**

- Looking for concurrence for moving forward