**USACE Portland District (NWP) FFDRWG Update Form**
**25 July, 2018**

**PROJECT INFORMATION**

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| Project Title | Bonneville Second Powerhouse Fish Guidance Efficiency |
| SCT Reference Number |  |
| Project Manager (PM) | George Medina (NWP, 503-808-4753) |
| Technical Lead (TL) | Mehdi Roshani (NWP, 503-808-4988) |
| 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, 2009 and 2013 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). Evidence suggests that undesirable flow conditions develop within the gatewells at the high unit flows causing the increase in mortality.

The chosen alternative for improving mortality rates of fish passing through the gatewells was a VBS porosity modification and installation of stainless steel plates behind the VBS on the el. +31 beam to improve flow conditions in the gatewells. Steel plates were installed in all A and B gatewells of each PH2 unit. Flow modification in the gatewells, as a concept for reducing fish mortality, has been demonstrated through post construction bio testing. Since full PH implementation, data from the BON JMF has indicated acceptable mortality similar to the mid and low end 1% peak efficiency range, when operating turbines in the full 1% range.

During routine inspections, it became apparent that the anchoring system for the steel plates was inadequate. In effect, the nuts and anchoring bolts holding down the plates have come lose, posing risk that the plates could potentially take out a unit. All the plates are scheduled to be removed by mid Sept. 2018. The PDT's task is to provide P&S for a concrete design option that meets the goals and objective.

**CURRENT SCHEDULE**

1. 90% P&S Start Date: 7-23-2018
2. 90% DQC/ATR Review: 8-29-2018
3. Contract February 2019
4. Construct prototype unit March/April 2019
5. Flow testing April 2019
6. Full powerhouse implementation – Dates TBD
7. Year two post construction B2FGE estimates spring/summer 2020

**PROGRESS AND KEY ISSUES (List)**

1. Criteria or Constraints:
2. The concrete design needs to meet the same hydraulic flow volume as the previous steel plate design. It requires a prototype construction and testing.
3. Funding for this effort was not planned or anticipated.

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

Yes. We will present the design concept and propose a range of acceptable flow tolerances to evaluate during prototype testing as a final check before full powerhouse implementation.