Breach Plan and Cost--Summary and Conclusions

When the Army Corps of Engineers Walla Walla District (NWW) drafted the FR/EIS to explore four alternatives for improving juvenile salmon migration through the lower Snake dams, it used the opportunity to paint a picture of dam breaching, even when correctly selecting channel bypass over full removal, as an elaborate, prohibitively expensive, time consuming, and overall unattractive option. Their bloated plan/cost only served to further reinforce their assertion that the dams must continue to operate.

Through a careful reevaluation of the NWW FR/EIS, a revised channel bypass plan for breaching has been designed that costs significantly less (a 70% reduction) than the NWW near-billion dollar proposal and it can be accomplished in half the time.

The keys to accomplishing a cost and time efficient breaching of each dam are as follows:

- *Very little modification to the power house is needed.* The NWW proposal involved significant alterations to the six turbines that even their own data showed was unnecessary to safely draw down the reservoir.
- *Allow the river to do the majority of the embankment removal.* The NWW proposal was to mechanically excavate the entire earthen embankment and only allow the river to breach the cofferdams, although it appears that more hydraulic removal of material is required than assumed. Hydraulic breaching has been used numerous times in the Pacific Northwest in the years since the FR/EIS was written and new technology exists to model hydraulic breaching in a safe and predictable manner as was done in this updated plan.
- *River channelization can be accomplished using materials already in place at the dam.* During dam construction, the natural river channel was successfully routed around the concrete structure without the levees proposed in the FR/EIS.
- *Fish handling is unnecessary.* Dam breaching will take place at a time when few anadromous fish are present in the river and only one dam will be breached per year. Hydraulic conditions through the breached embankments will be favorable to fish passage, just as they were during dam construction.
- *Minimal reservoir embankment actions are necessary for road/railroad protection and repairs.* The NWW proved this during the 1992 drawdown test. In the FR/EIS, NWW planned to spend one hundred times more money on repairing damages to roads and railroads than drawdown actually caused. Drawing the reservoir down at a slower initial rate, as this reevaluation recommends, will further reduce the minimal damage that occurred in the 1992 test.
- *Lyons Ferry Hatchery should not be modified as the NWW's plan proposes.*
- *Since Channel Bypass was selected and this plan simply improves on it at lower cost, this plan is consistent with the existing Environmental Impact Statement for the overall project.*

While the NWW's breaching proposal certainly appears to have been created with a pre-determined conclusion that breaching is an unjustifiably expensive and lengthy process, this revised breaching plan was designed with efficiency and safety in mind, using innovative means. Implementation of the breaching plan as outlined in this document could be started in fall 2016 with the hydraulic breaching of Lower Granite Dam commencing on January 2, 2017. With the breaching of each successive dam, year by year, money will be saved and salmon will take another step towards recovery. FY15 Cost for beaching are $340 million as to opposed to over $1 billion originally estimated by NWW.Full ReEvaluation of Appendix D, Drawdown Engineering, 2002 EIS can be found at: Breach Plan-Estimate, JW 2.21.2015

Prepared by James Waddell, Civil Engineer, PE, USACE Ret , Jan 2016