# Fish Passage Plan (FPP) Change Request Form

**Change Form # & Title**: 19BON001 – Add PH2 Mid-Range Operation

**Date Submitted**: January 7, 2019

**Project**: BON

**Requester Name, Agency**: Corps NWP

**Final Action:**

**FPP Section**: BON 5.2. Turbine Unit Operating Range.

**Justification for Change**: The PH2 mid-range operation was originally coordinated in 2014 as a temporary solution to improve fish passage conditions until gatewells were modified with FGE improvements (see most recent Change Form [16BON002](http://pweb.crohms.org/tmt/documents/fpp/2016/changes/16BON002_PH2-Mid-Range.pdf)). By March 2017, all PH2 gatewells were modified with flow control plates and reduced-porosity VBS panels. They functioned well from a hydraulic standpoint (limiting flow through the gatewell slots and reducing guided fish mortality), but were unfortunately structurally inadequate and removed in the summer of 2018. The Corps Portland District has designed a concrete corbel that will be hydraulically equivalent to the steel plates but rigid enough to not vibrate, which is what is believed to have been the failure mechanism of the steel plates. Unit 15 is scheduled for construction and testing in spring/summer 2019, then the remaining units will be scheduled depending on test results. In the meantime, PH2 units will be restricted to the 1% mid-range as previously coordinated with FPOM.

This is the same operation included in the 2016 FPP.

**Proposed Change**: Add new section for PH2 mid-range operation (same as 2016). See next page for edits in track changes.

**Comments**:

2/7/19 FPP Meeting: Scott Bettin, BPA, proposed two changes to the criteria for spring when the juvenile trigger is in effect and the mid-range is a hard constraint: 1) add language to allow carrying reserves above the mid-range (reserves would only be deployed infrequently, if at all); and 2) add language for max spill of 150 kcfs to protect the spillway. This would increase PH2 capacity by about 24 kcfs (~3 kcfs/unit) that would otherwise go through the spillway and cause increased erosion. Conder and Van Dyke needed more time to review this proposal so this change form will be added to next week’s FPOM agenda.

2/8/19 Charles Morrill, WDFW, via email: “Ok with change however tests with live fish following installation still important to confirm change does not adversely impact juveniles.”

**Record of Final Action**:

**5.2. Turbine Unit Operating Range.**

**5.2.1.** From April 1 through October 31, turbine units will be operated within ±1% of peak efficiency (1% range), as specified in *BPA Load Shaping Guidelines* (**Appendix C**), and turbine units at PH1 may be operated up to the Best Operating Point (BOP). Lower and upper limits of the operating ranges at PH1 and PH2 are defined in **Tables BON-14 and BON-15**, respectively.

**5.2.1.1.** April 10–June 15 (Spring Spill): as a soft constraint, PH2 units should not be operated below the 1% mid-range (< 13 kcfs) to minimize turbulence that may impact fish that pass through the turbines.

**5.2.1.2** April 1–July 31: PH2 units will be operated per the modified guidelines defined below in order to minimize gatewell turbulence until structural modifications are completed. RCC will issue a teletype with any updates as construction and testing is completed. During this time period, turbine units will be operated in the order of priority in **Table BON-13** and in the following order of operating ranges to pass increasing flow:

* + - * 1. PH2 units within the 1% mid-range (13-15 kcfs) and PH1 units up to BOP;
        2. Then, additional flow will be passed in one of the following ways, or as otherwise determined by Project Fisheries based on observed conditions:

April 1–9 and June 16–July 31: PH2 units up to the 1% upper limit.

April 10–June 15 (Spring Spill):

Adult Trigger: when adult spring Chinook total passage counts[[1]](#footnote-1) (excluding jacks) are greater than juvenile spring Chinook collection counts[[2]](#footnote-2) for two consecutive days, Project Fisheries will notify the control room to increase PH2 up to the 1% upper limit in priority order from north to south: 18, 17, 16, 15, 14, 13, 12, 11.

Juvenile Trigger: when juvenile spring Chinook collection counts2 are greater than adult spring Chinook total passage counts1 (excluding jacks) for three consecutive days, Project Fisheries will notify the control room to maintain PH2 units within the 1% mid-range as a hard constraint and pass additional flow as spill.

**5.2.1.3.** August 1–October 31: PH2 units may be operated within the full 1% range*.* During this period, PH2 units will typically be operated within the 1% mid-range; however, the full 1% range may be used as necessary to avoid dead-band issues during lower flows. Operations above the mid-range will be infrequent, consistent with previous years.

1. **Adult spring Chinook** reported as “*Adult Chinook daily*” in the Corps’ Adult Fish Count Running Sum Report for Bonneville, available online at: <http://www.fpc.org/environment/home.asp> [↑](#footnote-ref-1)
2. **Juvenile spring Chinook** reported as “*CollCount*” in SMP Smolt Data (query current year, BO2, Combined Chinook Yearling), online at: <http://www.fpc.org/smolt/smolt_queries/Q_smolt_dailypassageindex_query.php> [↑](#footnote-ref-2)