# Fish Passage Plan (FPP) Change Request Form

**Change Form # & Title**: 20LMN001 – Position of Operating Gates

**Date Submitted**: Dec 17, 2019

**Project**: Lower Monumental Dam

**Requester Name, Agency**: Karl Anderson, USACE - NWW

**Final Action**: **APPROVED 1/23/2020**

**FPP Section**: Subsection ix of section 2.3.2.2. (Juvenile Facilities / Fish Passage Season / STS, VBS, and Head Gates) and section 4.3.3 (Turbine Maintenance / Head Gates).

**Justification for change**: At Lower Monumental Dam, operating gates have been raised from their originally designed stored position to allow greater flow through the gatewell to increase the guidance of juvenile salmon into the juvenile bypass system. This action does not allow for the 10 minute standard gate closure time in the case of an emergency. With the present configuration, the additional time it takes to close the operating gates from the raised position is a safety risk for the project.

Since the gates were raised, additional improvements in fish guidance efficiency (FGE) at Lower Monumental Dam have been implemented. Standard-length submersible traveling screens (STS) are now used, as well as many other improvements[[1]](#footnote-1), to enhance FGE. No FGE studies relative to gate position have been conducted with the current configuration of STSs installed until recently. In 2019, a study (Ham et al. 2019)[[2]](#footnote-2) was conducted to determine if there were still significant differences in fish guidance between gates in the raised position and those in the original stored position. Study results suggest that operating the gate in the raised position does not improve fish guidance into the Juvenile Bypass System.

In addition, studies to determine differences in fish guidance between raised and stored gates was also conducted at Little Goose Dam in 2016 (Ham et al. 2016)3 and McNary Dam in 2013 (Ham et al. 2013)4. Findings from those studies also suggests that fish guidance efficiency was not significantly different between the two gate positions.

Consequently, we recommend lowering gates at Lower Monumental Dam to their designed stored position to reduce risk to the project.

**Proposed Change**:

Changes are proposed for two sections:

1. Subsection ix of section 2.3.2.2 shall be deleted.

**2.3.2. Juvenile Facilities – Fish Passage Season (April 1 – December 15)**

**2.3.2.2. STS, VBS, and Head Gates.**

1. Edit section 4.3.3 as follows:

**4.3. Turbine Maintenance.**

**4.3.3. Head Gates.**

**4.3.3.1.** Turbine units may be operated with head gates either in the *raised or stored* position. Once all new cylinders have been acquired, turbine units will operate with all head gates in the original design stored position to ensure the safety of project personnel and facilities.

**Comments**:

 1/23/2020 FPOM FPP Meeting:

Lower Monumental FGE study was completed and results presented at AFEP in December. Results showed no statistical difference in FGE between stored and raised gate positions.

Conder wants to have more discussion at the next NWW FFDRWG on what’s planned for the other projects that still have this issue. Karl will add it to the FFDRWG agenda for January 30.

 1/30/2020 NWW FFDRWG Meeting:

Karl Anderson provided a status review for other projects. Similar changes were approved and implemented for MCN in 2014, LGS in 2017 and LWG in 2018. IHR chose to purchase telescoping cylinders that allow emergency closure from the raised position in 10 minutes. LMN currently has 6 functional cylinders so that two units can be lowered to the stored position; more cylinders will be purchased as funds becomes available.

Chuck Chamberlain will compile information on the current status for each project and distribute to FFDRWG. The assumption is that MCN and IHR are complete.

Karl Anderson will look into what two units at LMN have the functional cylinders that can be lowered and whether there is still time for regional input regarding which two units the cylinders should be installed in.

**Record of Final Action**: APPROVED at the FPOM FPP meeting 1/23/2020.

1. Ham KD, CII Arimescu, MA Simmons, JP Duncan, MA Chamness, and AA Solcz. 2009. Synthesis of Biological Research on Juvenile Fish Passage and Survival 1990-2006: Lower Monumental Dam. PNWD-4061 Final, Battelle-Pacific Northwest Division, Richland, WA. [↑](#footnote-ref-1)
2. Ham KD, PS Titzler. 2019. Effect of Intake Gate Position on Juvenile Salmon Fish Guidance Efficiency at Lower Monumental Dam. PNNL-29106, prepared for the U.S. Army Corps of Engineers, Walla Walla District, Walla Walla, Washington, by Pacific Northwest National Laboratory, Richland, Washington.

3 Ham K.D., P.S. Titzler and R.P. Mueller. 2016. Evaluation of Juvenile Salmon Fish Guidance Efficiency at Little Goose Dam – The Effect of Operating Gate Position. PNNL-25829, prepared for the U.S. Army Corps of Engineers, Walla Walla District, Walla Walla, Washington, by Pacific Northwest National Laboratory, Richland, Washington.

4 Ham KD, PS Titzler and DM Trott. 2013. Evaluation of the Effect of McNary Dam Operating Gate Position on Fish Guidance Efficiency. PNNL-22857, prepared for the U.S. Army Corps of Engineers, Walla Walla District, Walla Walla, Washington, by Pacific Northwest National Laboratory, Richland, Washington. [↑](#footnote-ref-2)