# Fish Passage Plan (FPP) Change Form

**Change Form # & Title**: 21LWGS005 – Update Turbine Operating Range Criteria

**Date Submitted**: March 4, 2020

**Project**: Lower Granite Dam

**Requester Name, Agency**: Scott Bettin, BPA; Lisa Wright, Corps

**Final Action: APPROVED March 11, 2021**

**FPP Section**: LWG Section 4.2. “Turbine Operating Range”

**Justification for Change**:

Aligns FPP project-specific chapters with current BPA Load Shaping Guidelines in Appendix C. This operation was included in the Action Agencies proposed action that was evaluated in the 2020 CRS Biological Opinions from NOAA Fisheries and USFWS.

**Proposed Change**: See following pages for edits to existing FPP in “track changes”.

**Comments**:

11-Mar-2021 FPOM: Van Dyke noted his concerns with the smaller date window for in-season turbine operations and the broader impacts that will have.

**Record of Final Action**: Approved at FPOM March 11, 2021

Proposed Change:

4.2. Turbine Unit Operating Range

**4.2.1.** Turbine unit flow and power output at the lower and upper limits of the ±1% peak efficiency range, and at the operating limit, are defined in **Table LWG-6**. Turbine units will be operated within these ranges according to *BPA’s Load Shaping Guidelines* (**Appendix C**), as summarized below.

**4.2.2. In-Season (Spring/Summer Spill for Juvenile Fish Passage, April 10 – August 31).** Turbine units will be operated within ±1% of peak turbine efficiency (1% range), except under limited conditions and durations when turbines may be operated above the 1% range for the use of reserves or for TDG management during high flows (refer to **Appendix C** for more information). All required fish passage spill operations will be met prior to operating turbines above the 1% range.

If in-season operation outside the 1% range is necessary, Project personnel shall record the information and provide to BPA on a weekly basis according to the *Guidelines*. In-season operation outside the 1% range may be necessary to:

Meet BPA load requests made pursuant to BPA's policy, statutory requirements, and *Load Shaping Guidelines* (**Appendix C**).

If the draft tube is to be dewatered (**section 4.3.8**), the unit will be operated at full load > 1% (or at speed-no-load < 1% if not possible to load) for a minimum of 15 minutes prior to installing tail logs in order to flush fish from the unit.

Operate a turbine unit solely to provide station service.

Comply with other coordinated fish measures.

**4.2.4 Off-Season (September 1 – April 9).** While not required to do so in the off-season, turbines will normally run within the 1% range since it is the optimum point for maximizing energy output of a given unit of water over time. Operation outside the 1% range is allowed if needed for power generation or other needs.