# Fish Passage Plan (FPP) Change Form

**Change Form # & Title**: 23AppI001 - DWR Turbine Startup Procedure

**Date Submitted**: 5-JAN-2023; REVISED 6-FEB-2023

**Project**: Dworshak Dam

**Requester Name, Agency**: Elizabeth Holdren, USACE NWW

**Final Action: APPROVED 9-FEB-2023**

**FPP Section**: Appendix I – Dworshak Dam, Section- 4. Turbine Startup Procedure

**Justification for Change**: The Dworshak Unit Startup Procedure was included in the Fish Passage Plan (FPP) to address concerns about fish mortalities related to operating units at speed no load (SNL) during operational testing. The procedures for returning a unit to service, operating at SNL, and FPOM coordination is covered in Dworshak Section 2, Turbine Unit Operation and Maintenance. Section 2 also references Section 4 as the return to service test sequence. There are security concerns about having detailed technical procedures for unit operations and testing available on public domaim. Modification to the published testing sequence will provide a clear understanding of the testing process relevant to fish passage without the technical details of electrical components and switchgear. Unit start up procedures in Section 2 and the testing sequence in Section 4 will continue to be followed when a unit is tested or returned to service.

**Proposed Change**:

**2. Turbine Unit Operations & Maintenance (O&M)**

**2.3. Turbine Unit Maintenance & Testing.**

**g.** After maintenance, testing is required to validate the unit is functioning properly. The required testing sequence is defined below in **Section 4** (*Unit Startup Procedure and Return to Service Testing Sequence*).

**4. Dworshak Dam Unit Startup Procedure and Unit Return to Service Testing Sequence**

1. The following tests are performed without the unit operating:

* **Mechanical Over‐speed Device Test:** With the unit shutdown.
* **Anti‐creep Test:** With the unit shutdown.

1. **Incomplete Sequence Test:** Start the unit depressed. Unit 1 and 2 should trip after 3 minutes and unit 3 should trip after 5 minutes.
2. **Auto Sync Test:** Start the unit depressed and bring unit to SNL. Put the unit online with auto synchronizer (~ 60 sec.).

* **Trip Unit** with lockout relay.

1. **Depression Test:** Start the unit depressed and put the unit online.

* **Synchronous Condense Unit**
* **Power System Stabilizer (PSS) Test within Exciter limits**
* **AVR/Capability Curve Testing (defines boundary within which the unit can operate safely).**
* **Maximum MVA Test:** Set the unit to the WECC/NERC requirement loading and run for 1 hour

**Comments**:

3-FEB-2023 FPOM FPP Meeting:

Conder - concerned with deleting the language. How can he trust that the project will correctly implement the fish protection operations? Also, what’s being deleted? Why the highlights? Unclear what’s being requested here.

Hesse – has concerns due to mortality events in the past. Wants reassurance that the project will implement fish protection measures during all start ups, not just after testing.

Van Dyke – concerned with lack of clarity on what’s being deleted and the request to scrub language from older versions.

Ebel – looking at older versions, the language they’re proposing to delete is highly technical and it doesn’t seem necessary or helpful to include this level of detail in the FPP. There is still clear language about the fish protection measures. Supportive of this change.

PENDING

6-FEB-2023 email from Chris Peery to FPOM:

“FPOM, Attached is the DWR startup change form.  The section title was modified to read Startup Procedure and Test Sequence, for clarification. The second document shows the original section with lines deleted in track changes.  Please let me know if you need additional information or clarification on this change form.”

**Record of Final Action**: Approved at FPOM Feb 9, 2023