# Fish Passage Plan (FPP) Change Form

**Change Form # & Title**: 22IHR003 – Orifice Operation

**Date Submitted**: 26-JAN-2022

**Project**: Ice Harbor Dam

**Requester Name, Agency**: Ken Fone, USACE NWW

**Final Action: APPROVED 10-FEB-2022**

**FPP Section**: Chapter 6 – Ice Harbor Dam, sections 2.3.2.3.(i) & 3.2.2.4.

**Justification for Change**: Update language in order to provide consistent language and eliminate confusion. Section 2.3.2.3. states that both orifices in a turbine Unit are closed, monitor fish condition and behavior hourly (unit is operating) or at least every two hours (unit is not operating). Additionally, this section references section 3.2.2.3. which should have been section 3.2.2.4. Section 3.2.2.4. states that if both orifices are closed that the turbine Unit will be taken out of service.

The statements between these sections contradict themselves and need to be updated. In the rare event that both orifices in an operating Unit need to be closed, the allotted timeframe allows personnel to troubleshoot issues.

**Proposed Change**:

* + - 1. **Collection Channel.**

Ensure orifices are clean and operating. Operate at least one orifice per gatewell slot (preferably the north orifice). If the project is operating within the Minimum Operating Pool (MOP) range, additional orifices may be operated to maintain a full collection channel. If orifices must be closed to repair any part of the facility, see section 3.2.2.4 to determine if the unit must be shut down and if fish must be dipped from the gatewell(s).

**3.2.2.4. Gatewell Orifices.** Each gatewell has two 12” orifices with air operated valves to allow fish to exit the gatewell. Under normal operation, one orifice per gatewell is operated. To minimize blockage from debris, orifices are cycled and back flushed at least once per day, and more frequently if required by heavy debris loads. If an air valve that operates the orifice fails or the orifice is blocked with debris, the orifice should be closed and the alternate orifice for that gatewell operated until repairs can be made. If both air-valves that operate the orifices in a gatewell fail and the orifice cannot be fully operated or must be kept closed the turbine unit will normally be taken out of service until repairs can be made. At the discretion of the Project Biologist, both orifices in a gatewell may be closed for up to 5 hours in an operating turbine unit with STSs in place, but orifice closure times may need to be less depending on fish numbers and condition. Reduce turbine unit loading to the lower end of the 1% efficiency range if deemed necessary by the Project Biologist. If both orifices remain closed after 5 hours, the turbine unit will be taken out of service. During any orifice closure, gatewells shall be monitored hourly (unit is operating) or at least every two hours (unit is not operating) by project personnel for signs of fish problems or mortality. If repairs are to take longer than 48 hours and both orifices in a gatewell need to remain closed, juvenile fish will be dipped from the gatewell with a gatewell dip basket in accordance with the project dewatering and fish-handling plan. During times of high fish passage or if there is evidence of any difficulty in holding fish in gatewells, fish are to be dipped from the gatewells prior to the 48 hours.

**Comments**:

1/27/22 FPOM FPP Meeting:

This was just submitted yesterday so FPOM needs more time to review.

PENDING further review and discussion at the Feb 10 FPOM meeting.

2/10/22 FPOM:

St. John noted that this change corrects the discrepancy between sections. The intent is to make the language clearer and consistent across the projects.

**Record of Final Action**:

Approved for MCN and the four Snake projects at FPOM on 2/10/22.