# Fish Passage Plan (FPP) Change Form

**Change Form # & Title**: 22AppA001 – Doble Test Schedule for 2022

**Date Submitted**: 17-December-2021

**Project**: Lower Snake Projects and DWR

**Requester Name, Agency**: Chris Peery and Lisa Wright, Corps

**Final Action: APPROVED 27-January-2022**

**FPP Section**:

Appendix A, section 1.5

**Justification for Change**:

Add the 2022 Doble test schedule for the lower Snake projects and Dworshak Dam.

**Proposed Change**:

See following pages with edits for 2022 in track changes.

REVISED 7-February to update LMN schedule. T1 Doble cancelled. T2 Doble pushed out to occur during T-2 outage for rehabilitation August 22-October 14.

**Comments**:

**Record of Final Action**: Approved at the FPOM FPP meeting 1/27/22.

1.5. Doble Testing[[1]](#footnote-1)

The current year’s transformer outage schedule for Doble testing at lower Snake projects and Dworshak Dam is in **Table A-1**.

**1.5.1.** Lower Snake River Projects: Doble testing of transformers at the lower Snake projects is required every three years to ensure they are functioning correctly and to identify issues that need repair. Testing must be conducted during warm, dry conditions (July–August) and requires an outage of the transformer and associated units. Testing is performed during already scheduled outages to the extent possible and timed to avoid or minimize impacts to fish. In years that Doble testing isn’t required, the project may still require an outage during the same timeframe to perform necessary transformer maintenance and repairs that were identified in previous Doble tests and inspections. For more information, see project-specific **sections 6-9** below.

**1.5.2.** Dworshak Dam: At Dworshak Dam, required transformer maintenance and Doble testing occurs every two out of three years starting September 21. For more information on Dworshak maintenance and testing, see **Appendix I**.

Table A-1. Doble Testing Schedule in 2022.a

|  |  |  |  |
| --- | --- | --- | --- |
| **Project** | **Dates** | **Outage**  **(Transformer & Units)** | **Notes b** |
| **IHR** | July  18–22 | TW1 & TW2 (Units 1, 2) all hours | Remaining available units (3, 4, 5, 6) operated per FPP priority order. |
| **LMN** | Aug 22 – Oct 14 | T1 (Units 1–4) up to 2 hours on first/last day  T2 (Units 5, 6) all hours | T-2 Doble tested while OOS for rehab. Units 5, 6 OOS all hours. T-1 and T-2 (all units) OOS for up to 2 hours on first/last day to open T-2 mod. See section 7.1.4 for more info. |
| **LGS** | N/A | N/A | No Doble tests in 2022 |
| **LWG** | Aug 8–12 | T1 (Units 1-4) all hours  T2 (Units 5-6) daily 0600-1900 | All units OOS Aug 8–12 daily from 0600–1900 with Unit 5 at speed no load (5 kcfs) for station service. During all other hours, Units 5–6 available. |
| **DWR** | Sep 21-29 | T1 (Unit 2 & 3) | Unit 3 and T1 500kv line outage for Doble. Unit 2 also out of service because of T1 outage. |

**a**. The lower Columbia projects (BON, TDA, JDA, MCN) perform Doble testing concurrent with outages for maintenance and do not have specific outages for Doble tests.

**b.** OOS = Out of Service (unavailable to operate); RTS = Return to Service (available to operate).

1. ICE HARBOR DAM

**6.1.3. Doble Testing (see section 1.5 above for more information)**

1. Dates: Summer (annually). In 2022, the outage is scheduled for July 18–22.
2. Description: The outage in 2022 is required to perform Doble testing of TW1 and TW2, which will take Units 1 and 2 out of service continuously during testing. Remaining available units (3,4, 5, 6) will be operated per FPP priority order.
3. Impacts to FPP Criteria: None. Doble testing is conducted in conjunction with scheduled outages for Unit 1 runner replacement and Unit 2 annual maintenance. If the start of the Unit 1 outage for runner replacement is projected to slip to later in the year, Doble testing and associated Unit 1 outage will be coordinated with FPOM via a separate MOC. Since Ice Harbor has multiple transformer banks and transmission lines and redundant switching capability, remaining available units will be available and operated pursuant to FPP priority order. River flows are typically lower this time of year, so it is unlikely that additional spill will be needed above the voluntary spill for juvenile fish that will already be occurring.
4. Lower monumental DAM

**7.1.3. Doble Testing (see section 1.5 above for more information)**

1. Dates: Summer (annually). There is no outage specifically for Doble testing in 2022. Line T-2 will be Doble tested while it is out of service for rehabilitation (see **section 7.1.4** below).
2. Description: N/A
3. Impacts to FPP Criteria: N/A

**7.1.4. T-2 Rehabilitation**

1. Dates: August 22 - October 14, 2022.
2. Description: On the first and last day of the outage, T-1 (Units 1-4) and T-2 (Units 5-6) will be out of service for up to two hours (0700-0900 on August 22 and 1500-1700 on October 21) to support opening of T-2 modification. Units 5-6 will be out of service for the duration of the outage for refurbishment, Doble testing, XJ5 breaker annual for Unit 5, and Unit 6 annual.
3. Impacts to FPP Criteria: Units 5-6 will be out of service all hours. The largest impact will be at the north fish ladder during the 2-hour outage of all units August 22 and October 14.
4. lower granite DAM

**9.1.4. Doble Testing (see section 1.5 above for more information)**

1. Dates: Summer (annually). In 2022, the outage is scheduled for August 8–12.
2. Description: The outage in 2022 is required to perform maintenance on T1, including upgrading all transformer instrumentation and rehabbing the iso-phase bus. The upgraded instrumentation will monitor transformer conditions and provide indication to the control room to prevent transformer failures and unplanned outages of all main generating units connected to the transformer. The iso-phase bus rehab will install bushing inspection covers and replace inspection hatch gaskets through the bus housing. This work will reduce the risk of water intrusion that has caused transformer/unit outages lasting up to a week. Some of the work needs to be done from the top of the transformer on both T1 and T2, which will require the powerhouse line (all units) out of service from August 8 at 0600 through August 12 at 1900, with Unit 5 operating for station service power (5 kcfs). After this work is complete, T2 will return to service and Units 5-6 operated per FPP priority order. On the last day of work, August 12, another outage of the powerhouse line (all units) is required from 1600-1900 in order to remove clearances on T1.
3. Impacts to FPP Criteria: All units will be out of service for up to 13 hours/day (0600-1900) daily from August 8 through August 12. During these hours, all project outflow will be spilled except approximately 5 kcfs through Unit 5 for station service.

1. “Doble test” is a common term referring to a power factor test of transformers to measure performance of electrical insulation. Doble is the name of a manufacturer of the test equipment. [↑](#footnote-ref-1)