# Fish Passage Plan (FPP) Change Request Form

**Change Form # & Title**: 17LWG008 – Units 1 & 2 Priority

**Date Submitted**: 4/21/17; revised per comments 4/26/17, 5/2/17, 5/11/17

**Project**: LWG

**Requester Name, Agency**: Rich Hilt, COE LWG and Ann Setter, COE NWW

**STATUS**: PENDING further discussion and results of U2 index test

**FPP Section**: Table LWG-5. Unit Priority Order. Table LWG-6. Units 1-3 1% Range.

**Justification**: Refer to MOC 17 LWG 01 and MFR 17 LWG 03 for details of Unit 2 maintenance. Unit 2 returned to service with fixed-blades on April 13, 2017, and requires an index test to verify operating conditions (currently scheduled for the afternoon of June 20, 2017). Until index testing is completed, Unit 2 will be run like Unit 1 was when it operated as a fixed-blade unit with an operating range of 125–129 MW (17.8–18.4 KCFS based on 100 ft of head in Table LWG-6).

Unit 1 is currently OOS for turbine repair. When it returns to service (estimated August 2017), it will have full Kaplan capabilities.

With the return to service of Unit 2 with fixed blades and Unit 1 as fully adjustable Kaplan, the unit priority order needs to be modified.

**Proposed Change**:

Table LWG-5. Lower Granite Dam Turbine Unit Priority Order.

|  |  |  |
| --- | --- | --- |
| **Season** | **Duration** | **Unit Priority Order** |
| March 1 – December 15  Fish Passage Season | Start Units | If U1 is available = 1, 3, 4–6 any order, 2**a**  If U1 is unavailable = 2**a**, 3, 4–6 any order |
| Stop Units b | 4–6 any order, 3, 2**b**, 1 |
| December 16 – end of February  Winter Maintenance Period | Stop/Start Units | Any Order |

**a.** Unit 2 has fixed blades (non-adjustable) and is restricted to a smaller operating range within the 1%. If Unit 1 is unavailable, Unit 2 will be operated first in the priority order for adult attraction flow.

**b.** Units will be stopped in reverse start order except Unit 2 which has fixed blades and will be stopped second to last to minimize starts/stops and for adult attraction flow.

**Comments**: (listed oldest to newest)

4/25/17 email from Bill Hevlin, NOAA:

Hi Ann, In the modified table for Lower Granite turbine operation priority during the fish passage season, in the line for stop units, turbine 2 is the last off, but I was thinking that unit one should be the last off, due it priority for adult passage and ability to vary flow due to restored kaplan status. What do you think?

-----Reply-----

From: Setter, Ann L CIV USARMY CENWW (US)

Tue, Apr 25, 2017 at 10:52 AM:

Bill: I agree, looks like someone got an edit mixed up there. Does this look more like what you would find acceptable?

**Table LWG-5. Lower Granite Dam Turbine Unit Priority Order.**

|  |  |  |
| --- | --- | --- |
| **Season** | **Duration** | **Unit Priority** |
| March 1 – December 15  Fish Passage Season | Start Units | 1, 3, then 4-6 any order, then 2 **a** |
| Stop Units b | 4-6 any order, then 3, 2**b**, 1 |
| December 16 – end of February  Winter Maintenance Period | Stop/Start Units | Any Order |

**a.** Unit 2 has fixed Kaplan blades (non-adjustable) and operates in the upper 1% range. The priority order minimizes Unit 2 starts/stops and allows for the longest runtime once Unit 2 is started.

**b.** Stop units in reverse Start order, except run Unit 2 as long as BPA load request and required spill can be met.

-----Reply-----

From: Bill Hevlin - NOAA Federal

Tuesday, April 25, 2017 4:57 PM:

Yes, Ann, that is the correction that made sense to me. Unit one would usually be the last one off because flow through it can be varied and still stay in the 1%, and that it provides the strongest downstream current along the south shore wall.

5/1/17 email from Erick Van Dyke, OR:

This change has fixed an increase in powerhouse passage, and as was voiced early in the discussion, was a move in the wrong direction. Can the blade be fixed at the lower 1%. ON this basis not supportive of using unit 2 fixed in the current angle and not supportive of unit 2 being set for the longest run time once started. Supporting modeling has not supported this priority is best for fish survival—including adult passage and SAR over the life cycle. Seems like an undiscussed option could be to recommend not using the fixed blade unit.

5/11/17 FPOM: Unit 2 is in service with fixed blades. Index testing is scheduled for the afternoon of 6/20 to determine the actual operating range. Until then, it will be operated in the upper 1%. Unit 1 is being rehabbed to fully adjustable Kaplan and scheduled to return to service in August. Fredricks, Conder, and Lorz agreed that if Unit 1 is unavailable, Unit 2 should be operated as first priority for adult attraction. Wright will make that revision to the priority table.

6/8/17 FPOM: Setter reported that Unit 2 is currently estimated to be rehabbed to Kaplan in roughly two years. In the meantime, it will be operated with blades hydro-locked at the same angle that Unit 1 was. Changing the blade angle with the hydro-lock would take about a week or so.

7/13/17 FPOM: Setter said HDC is working on the Unit 2 operating range based on results from index testing on 6/20. Should be available for August FPOM.

**Record of Final Action**: